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FOREWORD

One of the most important assets held by a common-property owner's association is its replacement reserve fund. The goal of the fund is to protect property values, for not only common areas, but also the individual properties within the community whose values depend upon the condition of the common assets. Reserve fund plans protect property by providing a methodology for replacement of deteriorating capital assets. The result of a successfully implemented reserve fund plan is an increased quality of life for community residents.

1.0 INTRODUCTION

1.1 Background: Fairfax Club Estates Homeowners Association is comprised of 272 single-family homes located off Ox Road in Fairfax, Virginia. The community was constructed in the mid-1980s.

The primary common assets of the community are an entrance feature and the recreational complex, with its parking lot, pool, bathhouse, tennis courts, multi-purpose court and tot lot.

Skip Sims conducted the field evaluation for this report on January 26, 2006. The weather was clear and the temperature was approximately 40 degrees F. Precipitation had not occurred for several days prior to the site visit. Pavements, walkways, and grounds were generally dry and clean of debris except for leaves.

1.2 Principal Findings: The common assets appear to be in overall fair to good condition. The community has now passed the 20-year benchmark in terms of replacement of major systems. In order to restore and maintain the physical attributes that preserve property values and provide a safe environment for occupants and guests, a series of significant near-term capital expenditures should be anticipated. Consequently, we have scheduled near-, mid-, and late-term restoration and replacement projects based on anticipated need from our experience with similar properties.

The pool is a major concern of the Homeowners Association. It is about 22 years old, and many of its components have reached the end of their useful service life. We understand from the pool management company that little has been invested in capital repairs since initial construction. Based on discussions with the Board representative, we have concentrated initial attention on those components that are most important to the community, and deferred those which can wait until funds are available. Important near-term needs include the pool and the multi-purpose court. While clearly near the end of its service life, the parking lot pavement restoration can be deferred by increasing maintenance attention. The tennis courts have been recently restored. Any work on components deferred beyond the end of their useful service life will require continuous and careful attention to maintenance.

Significant near-term expenditures may be required to maintain the functionality of the pool structure and its mechanical components. We have scheduled this work based on when it *should* be done, and on input from the pool management company. Many unknowns remain. For example, its structural condition cannot be known until the pool is drained for the next white coat application. We have made certain presumptions for projecting capital reserve requirements. The Board should review both the schedule and prices for recommended pool work carefully, taking the recommendations of the new pool management company's October 2005 report into account. Because projected requirements significantly exceed the available funds, some careful prioritization of work will be necessary.

The net effect of the projections to the reserve fund plan is that there is a required increase in reserve contributions to properly fund at levels consistent with the Component Method. **Anything less than a Component Method level is deficit funding** and will eventually result in a shortage of funds possibly requiring large increases, bank loans, or special assessments, all of which should be avoided. Please see the Financial Overview, Section 2 below, for specific information and Cash Flow alternative funding plans.

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 18 for specific information.

2.0 FINANCIAL OVERVIEW

2.1 Calculation Basics: The Association is on a fiscal year of April 1 to March 31. Management reported that the reserve fund balance, including cash and securities, as of March 31, 2006 is projected to be **$28,940**. We have used the **OMB projected, five-year average 4.00% annual interest income factor** and the **3.50% inflation factor** in our model. The total expenditures for the twenty-year study period for both the **Cash Flow Method and Component Method** are projected to be **$745,323**.

2.2 Current Funding Analysis, Cash Flow Method (Table 3 & Graph): The current annual contribution to reserves is **$13,894**. At this level, the total for all annual contributions for the twenty-year study period would be **$277,880**, and the total interest income is projected to be **$2,751**. **Continued funding at this level results in the depletion of the reserve fund by 2009.**

2.3 Alternative Funding Analysis, Cash Flow Method (Table 3.1 and Graph): This alternative provides the annual contributions necessary to maintain balances more consistent with the **Component Method funding** by **increasing the annual contribution to $41,300 in 2006 and providing an annual escalation factor of 3.50% (matching inflation). This alternative allows for a gradual increase over time after the initial increase**. The total for all annual contributions for the twenty-year study period would be **$1,053,418**, and the total interest income is projected to be **$147,180**. The reserve fund balance in the last year of the study (2025) is **$484,216**, or a **39%** balance to asset base ratio. **Balances remain positive with this alternative throughout the study period. However, in the years 2009-2011 the "cushion" is extremely thin, with balance-to-asset-base ratios of 4% or less.**

2.4 Funding Analysis, Component Method (Table 4 & Graph): This method of funding would require annual contributions ranging from a low of **$40,370** to a high of **$68,822** for an average annual contribution throughout the twenty-year study period of **$49,737**. The total for all annual contributions for the twenty-year study period would be **$994,733**, and the total interest income is projected to be **$206,030**. The **Fully Funded** ending balance in 2025 is **$484,380.** 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.**

2.5 Reserve Funding Philosophy: The condition assessment and reserve fund plan is intended to be a working tool for Management and the Board for planning over the long term in order to help them understand the complex issues before them and make informed decisions. The Board of Directors, in consultation with Management and accounting professionals, should decide which of the two reserve funding methods is appropriate for the community. **We believe that funding using the Cash Flow Method based on levels determined by the Component Method is the most appropriate and manageable approach.**

3.0 VISUAL EVALUATION METHODOLOGY

The condition assessment forming the basis for this report was visual and non-invasive. We did not perform any destructive testing to uncover or expose hidden conditions. No operational testing of mechanical, electrical, plumbing, fire protection, or other internal systems was performed. No spaces were entered that were inaccessible or potentially hazardous. Code compliance, capacities and equipment adequacy for current loads were not addressed. Mason & Mason makes no warranty that every defect is disclosed. Our scope of work does not 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 evaluation, this report should not be considered to be a full safety evaluation of components.

Repair and replacement costs are based upon commonly accepted references and our experience with similar components installed in similar circumstances. Our opinions of costs are based on published construction cost data, experience with similar projects, information provided by local contractors and management personnel. 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 presume a normal level of past, present and future maintenance. No warranties or guarantees of component service life expectancies are expressed or implied and none should be inferred by this report. Actual experience in replacing components may differ significantly from the projections in the Reserve Fund Plan, because of conditions beyond our control or that were not visually apparent at the time of the evaluation. This report is not a mandate, but is intended to be a guide for future planning.

4.0 ACCOUNTING METHODS

4.1 Cash Flow Method of Funding (Tables 3, 3.1 etc.): The balance of the reserve fund and corresponding annual contribution is determined by setting a level above a pre-determined minimum balance computed after the yearly expenditures. The minimum balance is typically expressed as a percentage, or ratio, of the total reserve fund balance to the asset base. The appropriate level is determined by a variety of factors including condition, age, and complexity of the community. This method is becoming widely accepted in part because of advanced computer modeling but also because it can be a more efficient use of capital. **The goal should be to set the first year contribution at a level requiring only small annual inflationary increases, to fully fund the reserves long-term. This addresses generational equity issues as the first year contribution will be equal to the last year in terms of the cost of money. We have determined through many years of experience that funding under the Cash Flow Method at levels determined by the Component Method will produce the best results. The combination of the two systems is the most manageable.** This method is depicted on Table 3, Current Funding Analysis Cash Flow Method and Alternatives, if appropriate.

4.2 Component Method of Funding (Table 4): Each component is fully funded at 100% of its replacement value on a ratio directly proportionate to its remaining life cycle years. Each component is also allotted a percentage of the fund’s total reserves (balance on hand) as part of this complex calculation prior to determining the actual annual contribution. **Fully funded** means the fund is on target, including time considerations. Funds set aside for replacement of individual components are not normally used for the replacement of other components. In rare cases where a reserve fund is actually overfunded, $0 will be displayed on the component tables, indicating that the component is fully funded for that cycle. The Component Method usually results in annual contribution fluctuations and fund balances, but is considered to be the most conservative method for accruing reserve funds. This method is depicted on **Table 4, Funding Analysis Component Method.**

4.3 Interest Income on Reserve Funds: In order to replicate approximate financial conditions, interest income on reserve funds should be recognized. The financial tables have been programmed to calculate interest income based on a pre-determined rate. This rate can be set at any level, including zero, for those desiring to not recognize interest. **Typically, the rate used reflects OMB's (Office of Management and Budget) projection for T-Note rates during the 2005 through 2015 time period**. The rate should reflect, as accurately as possible, the actual combined rate of return on all securities and other instruments of investment.

Interest calculations are segregated into three individual asset components, and the results are summed to generate the yearly interest accumulations. Interest accrued by the reserve fund assets are compartmentalized and calculated according to the following three categories; beginning reserve fund balance, interest accumulated upon the reserve fund contributions, and interest lost by the capital expenditures.

Interest earned on the yearly beginning reserve fund balance is calculated by compounding the beginning reserve fund balance on a monthly period by the interest rate. Interest earned for the reserve fund contributions are calculated by assuming that twelve equal installments are deposited, and interest is accrued and compounded monthly upon the accumulating balance. Likewise, the interest lost on the capital expenditures is calculated on the assumption that expenditures are deducted from the reserve balance on a monthly basis, and the interest that is lost is calculated upon the aggregate monthly balance. 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.

4.4 Future Replacement Costs (Inflation): In order to replicate actual financial conditions, 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. Typically, the rate used reflects **OMB's average annual Consumer Price Index (urban) for the period of 2005 through 2015**.

4.5 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. Example: Funding for a re-roofing project, while, at the same time, funding for a second re-roofing project. This method often results in higher annual contribution requirements and leads to generational equity issues. Mason & Mason employs this method only in special circumstances.

4.6 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. 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. This method is the standard by which Mason & Mason calculates funding.

5.0 REPLACEMENT METHODS

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

5.2 Cyclic Replacement: Components are replaced in stages over a period of time. Example: Sidewalks are typically replaced in sections rather than as complete units.

5.3 Minor Components: A minimum component value should be established for inclusion in the reserve fund. Components of insignificant value in relation to the scale of the community should not be included and should be deferred to the maintenance budget. A small community might exclude components with aggregate values less than $1,000, while a large community might exclude components with aggregate values of less than $5,000.

5.4 Long Life Components: Almost all communities have some components with useful service lives typically ranging between thirty and sixty years. Traditionally, this type of component has been ignored completely or included at full replacement value far beyond the twenty-year study period. Example: Storm water drainage systems have a useful service life of approximately forty to sixty years. However, they typically require expensive repairs sometime during their service life. Mason & Mason programming addresses these issues by calculating partial funding over a period of time to provide for anticipated localized repairs.

5.5 Projected Useful Service Life: Useful service lives of components are established using construction industry standards as a guideline. Useful service lives can vary greatly due to initial quality and installation, inappropriate materials, maintenance practices, environment 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 replacements and for accumulating reserve funds.

6.0 UPDATING THE RESERVE FUND PLAN

In order for a reserve fund plan to remain a viable planning tool, it should be periodically updated. Changing financial conditions and widely varying aging patterns of components dictate that revisions should be undertaken every three 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 typically involve a site visit to observe current conditions, adjusting fund balances and contributions, and recalculating the financial tables. This updating process insures the integrity of the reserve fund plan and contributes to the financial health of the community. Mason & Mason encourages certain types of communities to perform Administrative Updates on complex properties that are undergoing several costly projects simultaneously. These updates include adjustments to the replacement schedules, annual contributions, balances, replacement costs, and interest income. The Administrative Update does not require a site visit and can be a cost-effective way of keeping the Reserve Fund Plan current between Full Update cycles. Updates are particularly important for those communities employing the Cash Flow Method because it maintains the twenty-year window. The Cash Flow Method does not consider expenditures beyond the study period. Those expenditures are brought into the study as it is periodically updated.

7.0 MAINTENANCE PROTOCOLS

The following preventative maintenance practices are suggested to assist the community in the development of a routine maintenance program. The recommendations are not to be considered the only maintenance required, but should be included in an overall program. The development of a maintenance checklist and an annual condition survey will help extend the useful service lives of the community’s assets.

This section includes protocols for many, but not necessarily all, components in the study. Items for which no maintenance is necessary, appropriate, or beyond the purview of this report are not included in this section.

7.1 Asphalt Pavement: Pavement maintenance is the routine work performed to keep a pavement, subjected to normal traffic and the ordinary forces of nature, as close as possible to its as-constructed condition. Asphalt overlays may be used to correct both surface deficiencies and structural deficiencies. Surface deficiencies in asphalt pavement usually are corrected by thin resurfacing, but structural deficiencies require overlays designed on factors such as pavement properties and traffic loading. Any needed full-depth repairs and crack filling should be accomplished prior to overlaying. The edgemill and overlay process includes milling the edges of the pavement at the concrete gutter and feathering the depth of cut toward the center of the drive lane. Milling around meter heads and utility features is sometimes required. The typical useful life for an asphalt overlay is twenty years.

7.2 Asphalt Seal Coating: The purpose is to seal and add new life to a roadway surface. It protects the existing pavement but does not add significant structural strength. A surface treatment can range from a single, light application of emulsified asphalt as a “fog” seal, to a multiple-surface course made up of alternate applications of asphalt and fine aggregate. Seal coating of all asphalt pavements should be performed at approximately six-year intervals, or approximately twice during the service life of the asphalt pavement. Seal coating more often is generally not cost-effective. The material used should be impervious to petroleum products and should be applied after crack filling, oil-spot cleaning, and full-depth repairs have been accomplished. Seal coating is a cost-effective way of extending the life of asphaltic concrete pavement. Seal coating is generally not scheduled for up to five years after an asphalt restoration project.

7.3 Asphalt Full-Depth Repairs: In areas where significant alligator cracking, potholes, or deflection of the pavement surface develops, the existing asphalt surface should be removed to the stone base course and the pavement section replaced with new asphalt. Generally, this type of failure is directly associated with the strength of the base course. When the pavement is first constructed, the stone base consists of a specific grain size distribution that provides strength and rigidity to the pavement section. Over time, the stone base course can become contaminated with fine-grained soil particles from the supporting soils beneath the base course. The most positive repair to such an area is to remove the contaminated base course and replace it with new base stone to the design depth. It is appropriate to perform these types of repairs immediately prior to asphalt restoration projects. Generally, this type of repair should not be required for approximately five years after an asphalt restoration project.

7.4 Asphalt Crack Filling: Cracks that develop throughout the life of the asphalt should be thoroughly cleaned of plant growth and debris (lanced) and then filled with a rubberized asphalt crack sealant. If the crack surfaces are not properly prepared, the sealant will not adhere. Crack filling should be accomplished every three to six years to prevent infiltration of water through the asphalt into the sub-grade, causing damage to the road base. It is appropriate to perform these types of repairs immediately prior to edgemill and overlay. Generally, this type of repair should not be required for approximately five years after an edgemill and overlay project.

7.5 Concrete Sidewalks: When sidewalks are cracked or scaled or sections have settled, the resulting differential or “tripping hazard” can present a liability problem for the Association if personal injury should occur as a result. Tripping hazards should be repaired expeditiously to promote safety and prevent liability problems for the Club. Generally, where practical and appropriate, concrete element repairs and replacements are scheduled in the same years to promote cost efficiencies. Replacements are usually scheduled in cycles because the necessity of full replacement at one time is unlikely. Typically, damaged or differentially settled sections can be removed by saw cutting or jack hammer and re-cast. Concrete milling of the differential surfaces is sometimes an appropriate, cost-effective alternative to re-casting. Skim coating is not an effective repair for scaled or settled concrete surfaces and, over time, will usually worsen the problem.

7.6 Concrete Curbs and Gutters: Vehicle impacts, differential settlement, construction damage, and cracking and spalling of the concrete will eventually result in the need for replacement of some curb sections. A typical damaged or settled section, usually 10 feet in length, will be removed by saw cutting or jack hammer and re-cast. Replacements are scheduled in cycles because the necessity of full replacement at one time is unlikely.

7.7 Concrete Pool Deck: Cast-in-place concrete, slab-on-grade pool deck sections, which have large cracks, should be removed and replaced periodically to prevent water infiltration behind the pool structure. Minor cracks can be routed and sealed to extend the service life of the deck. In some instances, a breathable cementitious coating can be applied to improve the surface appearance and extend the surface life.

7.8 Entrance Signage: The wood components of entrance signs should be periodically cleaned of loose paint, lamination cracks should be re-sealed, and the sign repainted to maintain appearance. Out-of-plumb posts should be straightened and secured.

7.9 Light Poles: Outdoor lighting has a limited service life because of the accelerated aging process due to weather extremes. Remediation of the pole fixtures is a viable alternative to full replacement and would include painting the poles along with lamp housing replacement, including ballasts and capacitors. Any poles observed to be out of plumb should be straightened. Periodic cleaning of peeling paint and rust, priming, and re-painting of poles and fixtures will help extend the useful service life.

7.10 Wood Pedestrian Bridges: Bare wood pedestrian bridges, both non-treated and pressure-treated, generally will achieve a greater useful service life and improved appearance if preventative maintenance is performed. Periodic pressure washing and sealing with wood preservative is recommended on all wood components. Rough edges and splinters should be sanded prior to sealing. Damaged, warped, or deteriorated wood components should be replaced as necessary. It is particularly important to inspect bridges' structural components, foundations and any adjoining rip-rap after they are exposed to flood conditions. Generally, securing or repairing wood components with screws will provide a better fastening method than nails.

7.11 Timber Retaining Walls: Wood timber retaining walls should be inspected periodically for movement. Displaced or out-of-plumb wood retaining walls should be evaluated by a structural engineer. Major settlement or deflection may require the rebuilding of that section of the wall. All vegetation, such as vines, tree limbs, and tree roots should be kept clear of the wall to prevent damage. Weep holes, for relief of water pressure behind walls, should be kept clear, and should be periodically inspected to ensure they are kept free of animals. As wood retaining walls age, depending upon the initial quality of the timber and the long-term environment of the wall, wood components will deteriorate.

7.12 Tennis and Multi-Purpose Court Surface Overlay: Court surface overlays are usually required when settlement of the sub-base causes cracks to appear at the surface. Direct overlays usually allow any cracks to migrate (reflective cracking) to the new surface. A technique to eliminate this problem is to separate the old surface from the new surface with a layer of fine marble dust. This allows the two surfaces to move independently and results in a more stable top surface. Net post footing displacement caused by over-tensioning of the net cable also results in court surface damage. However, the footings can be replaced without overlaying the court. In this region, tennis courts usually give about fifteen years of service before this procedure is necessary. Some courts fail much sooner and some last much longer. It is prudent to plan for overlay now because of the large expense involved if required. Good maintenance practices, including frequent sweeping, periodic color coating of the surface and proper tensioning and un-tensioning of tennis court net cables can extend the service life of courts.

7.13 Tennis and Multi-Purpose Court Color Coat: Color coating extends the life of the surface if cracking and other surface problems are not present. An average five-year life for color coating is scheduled, except within a year or two of scheduled surface overlay. Any cracking around net post footings should be sealed to prevent moisture infiltration.

7.14 Chain Link Fencing: Very little maintenance is necessary for chain link fencing and gates. Periodic removal of encroaching vegetation should be performed to prevent damage to components. Damaged components should be repaired or replaced. Rusted fencing components may be painted to improve appearance.

7.15 Tot Lot Equipment and Outdoor Furniture: Little maintenance is necessary on the newer style, pre-finished or painted metal play modules other than periodic safety inspections and repair, re-finishing, or replacement of any worn or damaged components. Bare wood components, both non-treated and pressure-treated, generally will achieve a greater useful service life and improved appearance if preventative maintenance is performed. Periodic pressure washing and sealing with wood preservative is recommended on all wood components. Rough edges and splinters should be sanded prior to sealing. Damaged or deteriorated wood components should be replaced as necessary. Generally, securing or repairing wood components with screws will provide a better fastening method than nails. Tot lot equipment should be inspected frequently for loose components, rough edges, splinters and safety hazards. Tot lot borders should be leveled periodically, and protruding border anchors should be made flush with the timber surface.

7.16 Pool Structure: The swimming pools are in-ground, cast-in-place concrete structures. Most outdoor pools of this type, in this area, require a major renovation between twenty and forty years of age. It is prudent to plan for structural renovation now because of the large expense involved if required. Core samples should be taken periodically, as the pool ages, to determine the condition of the concrete. Water infiltration will weaken the concrete and early detection can prevent higher repair costs.

7.17 Pool White Coat: Pool white coating seals the pool surface and helps prevent water infiltration into the structure of the pool. White coat generally has a service life of 7 to 10 years. Prior to white coating, the old surface must be cleaned and sandblasted or acidized to prepare the surface to accept the new white coat. Surfaces adjacent to all fittings, lap lane tiles, waterline tiles, and lights must be prepared by chipping the surface so that the new plaster feathers in around the edges. Any damaged tiles or coping, or loose or hollow plaster in the pool shell should be removed and repaired prior to white coating. Sometimes a bond coat will be applied to increase adhesion. White coating should be done on a dry day when temperatures will remain above freezing. The pool should be refilled immediately, the filter system started, and the surface brushed frequently for several days to prevent residue buildup, which creates a rough surface. Eggshell cracking is part of the curing process of white coat and is not indicative of problems. Pool covers help extend the life of the white coat by preventing seasonal damage and discoloration, which may require acid treatments to maintain appearance.

7.18 Pool Coping: The coping around the pool perimeter is standard commercial bullnose cast stone, bedded and grouted to the pool structure. In order to extend the useful life of the pool structure and adjacent pool deck, it is important to keep the coping sections watertight. This will prevent water from infiltrating beneath the pool structure and causing damage during freeze/thaw cycles. Sealant should be applied between the pool coping and the pool deck. Deteriorated or separated sealant should be removed completely before new sealant is applied. Any loose, cracked, or “hollow” copings should be re-bedded or replaced annually as part of the long-term preventative maintenance required for pools. Deteriorated or cracked mortar between coping tiles or below the coping tiles at the pool structure should be diligently repaired.

7.19 Pool Sealant: The joint between coping tiles and pool deck should be sealed with a flexible sealant to prevent water infiltration behind the pool structure. Over time, this sealant deteriorates and water infiltration can cause damage to the pool structure during freeze/thaw cycles. Sealant should periodically be removed and replaced to prevent damage, and annual inspections and repairs should be performed between replacements. Sealant should be applied when coping stones are replaced or re-bedded. Other signs of problems include loose or missing mortar between the coping stones and between the coping stones and the pool structure below.

7.20 Pool Covers: Pool covers help extend the life of the white coat by preventing seasonal damage and discoloration, which may require acid treatments to maintain appearance.

7.21 Wood Pavilions: Bare wood pavilions, both non-treated and pressure-treated, generally will achieve a greater useful service life and improved appearance if preventative maintenance is performed. Periodic pressure washing and sealing with wood preservative is recommended on all wood components. Rough edges and splinters should be sanded prior to sealing. Damaged, warped, or deteriorated wood components should be replaced as necessary. Generally, securing or repairing wood components with screws will provide a better fastening method than nails. Roofing should be inspected and repaired or replaced as necessary.

7.22 Brick Component Tuckpointing & Repair: Brick components should be inspected periodically for step cracks in the mortar and shear cracks through the brick and mortar, indicating settlement problems. Signs of efflorescence on the brick face and mortar or spalling brick faces indicate water infiltration and should be investigated. Water infiltration problems are usually initiated at the top. Sealing of brick surfaces with breathable coatings will also extend the useful service life of the brick. All vegetation, such as vines or tree limbs should be kept clear of the brick to prevent damage. As brick components age, depending upon the initial quality of the mortar and the long-term environment of the wall, mortar joints may deteriorate. This condition can be corrected by tuckpointing. Applying soft sealants to the deteriorated joints or to cover up mortar joint cracks is not recommended. Deteriorated or cracked mortar joints should be repaired by cutting damaged material ¾-inch deep with a diamond blade masonry saw. The void should then be filled with new mortar and the joints struck to match the original work.

7.23 Painted Wood Trim Components: The service life of painted wood components depends greatly on the type of wood used, the initial installation method, level of exposure to the elements, and preventative maintenance practices during its service life. Kiln dried trim pieces should be primed on all surfaces prior to installation. Re-painting projects should be performed every four years or as needed. Loose and flaking paint should be thoroughly removed and deteriorated trim pieces replaced with primed trim pieces prior to repainting projects.

7.24 Composite Shingle Roofs: Roofs and attic spaces should be inspected annually for damage and leaks. During the attic inspection, check to make sure that mechanical ventilation systems, such as bathroom exhaust fans and dryer ducts, are routed through the roof and not discharging into the attic space. Loose or missing shingles should be replaced on a regular basis. Signs of deflected roof sheathing or discoloration of the sheathing are indicative of moisture problems and should be investigated. It is important to ensure that proper ventilation is occurring at the soffit vents and that insulation is not obstructing the airflow. If attic ventilation appears to be inadequate, the installation of ridge vents and/or through-the-roof mechanical vents is usually a cost-effective way of extending the useful service life of the sheathing. Roof penetrations, such as plumbing vents, are a major source of leaks. During the inspection, these areas should be checked carefully for signs of leakage or rotten sheathing.

7.25 Painted Metal Doors: Painted metal doors should be periodically cleaned of rust and peeling paint, primed, and re-painted. Damaged or deteriorated hardware should be replaced to prevent damage to the door.

7.26 Tree Trimming, Removal, and Replacement: As facilities age, trees, both native and planted, may become problematic if periodic care is not accomplished. Trees may become damaged by weather or disease, or they may outsize their location. Proper, diligent tree trimming may alleviate future problems with regard to damage to adjacent structures. Proper tree trimming also helps maintain a healthy tree and may reduce wind damage in inclement weather. Proper tree trimming should not be confused with the common practice of topping, which produces, not only an unattractive tree, but also an unhealthy one due to weakening of the root structure. Tree root damage of asphalt footpaths and sidewalks is also a common problem. The best solution is re-routing the adjacent structure, if possible, to prevent future damage. If re-routing is not possible, tree roots causing the damage may be pruned back when replacement of the damaged component is accomplished. The practice of moderate mulching is beneficial for trees. However, repeated mulching against the tree trunk, year after year, without removal of the old mulch can eventually kill trees by trapping moisture against the bark, allowing fungi and insects to easily infiltrate the tree. Mulch should be placed around trees to the drip line, but should not be touching the bark.