Roofs, Asphalt Shingles

Line Item: 1.280

Quantity: 260 *squares*[1]

History: Replaced between approximately 2002 and 2005

Condition: Fair overall with shingle lift and deterioration, and several locations of granular loss evident from our visual inspection from the ground. Management informs us of a history of leaks but none are active.

Laminate shingles

Laminate shingles

Minor shingle lift

Granular loss at shingles

[1] We quantify the roof area in squares where one square is equal to 100 square feet of surface area.

Granular loss

Granular loss

Deteriorated shingles

Useful Life: 15- to 20-years

Component Detail Notes: The existing roof assembly comprises the following:

- Laminate shingles
- Boston style ridge caps
- Lead boot flashing at waste pipes
- Soffit, square hood box and ridge vents
- Metal drip edge

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.

The Association should periodically ensure that the 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. St. Clair Terraces should fund this ongoing maintenance through the operating budget.

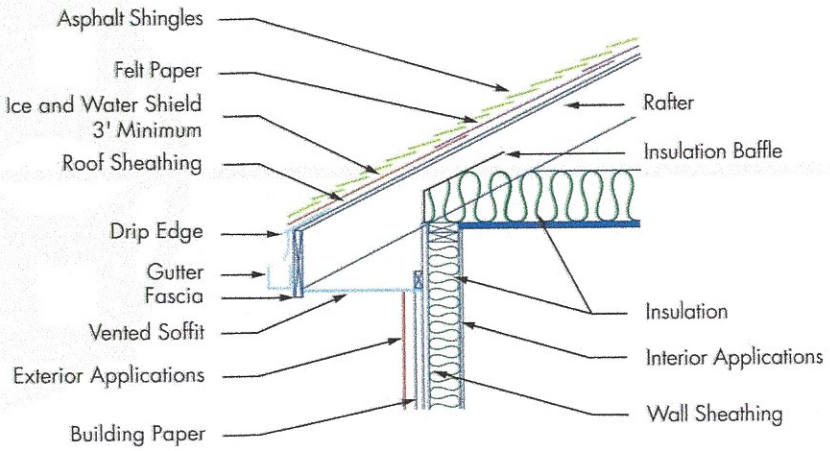
Certain characteristics of condition govern the times of replacement. Replacement of an asphalt shingle roof becomes necessary when there are multiple or recurring leaks and when the shingles begin to cup, curl and lift. These conditions are indications that the asphalt shingle roof is near the end of 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.

Warranties are an indication of product quality and are not a product guarantee. Asphalt shingle product warranties vary from 20- to 50-years and beyond. However, the scope is usually limited to only the material cost of the shingles as caused by manufacturing defects. Warranties may cover defects such as thermal splitting, granule loss, cupping, and curling. Labor cost is rarely included in the remedy so if roof materials fail, the labor to tear off and install new shingles is extra. Other limitations of warranties are exclusions for "incidental and consequential" damages resulting from age, hurricanes, hail storms, ice dams, severe winds, tornadoes, earthquakes, etc. There are some warranties which offer no dollar limit for replacement at an additional cost (effectively an insurance policy) but again these warranties also have limits and may not cover all damages other than a product defect. We recommend a review of the manufacturers' warranties as part of the evaluation of competing proposals to replace a roof system. This evaluation should identify the current costs of remedy if the roof were

to fail in the near future. A comparison of the costs of remedy to the total replacement cost will assist in judging the merits of the warranties.

The following cross-sectional schematic illustrates a typical asphalt shingle roof system although it may not reflect the actual configuration at St. Clair Terraces:

ROOF SCHEMATIC



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Contractors use one of two methods for replacement of sloped roofs, either an overlayment or a tear-off. Overlayment is the application of new shingles over an existing roof. However, there are many disadvantages to overlayment including hidden defects of the underlying roof system, absorption of more heat resulting in accelerated deterioration of the new and old shingles, and an uneven visual appearance. Therefore, we recommend only the tear-off method of replacement. The tear-off method of replacement includes removal of the existing shingles, flashings if required and underlayments.

The Association should plan to coordinate the replacement of gutters and downspouts with the adjacent roofs. This will result in the most economical unit price and minimize the possibility of damage to other roof components as compared to separate replacements.

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We base our cost on replacement with standard laminate Class A 240-260-pounds per square shingles.

Roofs, Thermoplastic

Line Item: 1.530

Quantity:

- Residential – 35 squares
- Garages and storage rooms – 75 squares

History: Exact ages were not available at the time of our inspection but possibly vary up to 10 years.

Condition: Reported fair overall. Management does not report a significant history of leaks.

Thermoplastic roof at garage

Useful Life: 15- to 20-years

Component Detail Notes: The following characteristics define most thermoplastic roofs:

- Attachment to the roof deck is either fully adhered, mechanical or ballasted
- Membranes are commonly white and reinforced with polyester
- Seams are sealed with heat or chemical welding
- Sheet widths range from 6- to 12-feet wide
- Sheets are typically 40- to 100-mils thick
- Single ply (one layer)

Over time, exposure to ultraviolet light, heat and weather degrade the membrane. This degradation results in membrane damage from thermal expansion and contraction, adverse weather and pedestrian traffic. The aging process makes the membrane less pliable and more difficult to maintain. Ponding water on the roof can increase the effects of ultraviolet light on the membrane and contaminants in ponded water can cause the membrane to deteriorate prematurely. Thermoplastic roofs (especially TPO) are relatively new and their long term performance is not well defined.

Contractors can install a new thermoplastic roof in one of two ways: *tear-off* or an *overlay*. An *overlay* is the application of a new roof membrane over an existing roof. This method, although initially more economical, often covers up problems with the deck, flashing and saturated insulation. The *tear-off* method of replacement includes removal of the existing roofing, flashings and insulation, and installation of a new roofing system.

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3.

Sealants, Windows and Doors

Line Item: 1.540

Quantity: 8,400 linear feet of exterior sealants or *caulk*[2]

History: Original

Condition: Fair overall with brittle sealants, cohesive failure and sealant cracks evident

Brittle sealant

Sealant crack

[2] The terms sealant and caulk are used interchangeably throughout this text and throughout the industry.

Sealant cracks

Useful Life: Up to 20 years

Component Detail Notes: The rate of deterioration of the sealants is not uniform due to the different exposures to sunlight and weather. The Association should anticipate gradual dispersed deterioration as the sealants age.

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We recommend St. Clair Terraces replace up to twenty-five percent (25%), or 2,100 linear feet of joint sealant by 2022 and again by 2023, and every eight years thereafter in conjunction with phased masonry repairs.

Walls, Fiber Cement Siding

Line Item: 1.760

Quantity: Approximately 3,100 square feet of the exterior walls at the dormers

History: The age of the siding and paint finish was not available at the time of our inspection.

Condition: Good overall with isolated deterioration evident

Fiber cement siding

Fiber cement siding in good condition

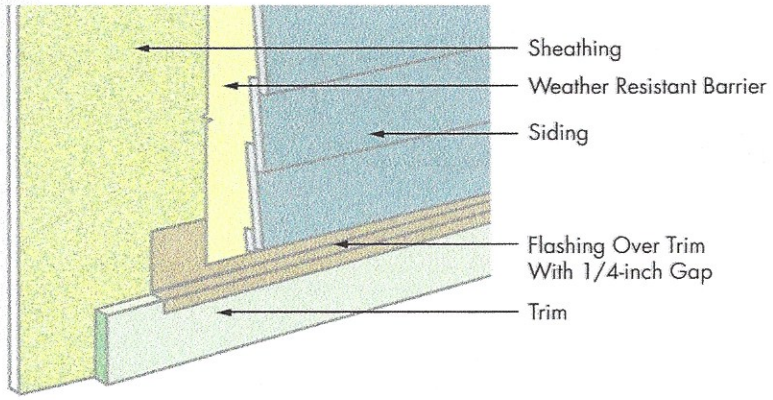
Useful Life: With the benefit of periodic maintenance, applications of this type of material can have a useful life of up to 50 years. This useful life is based on a high grade pre-finish applied in the factory. This useful life is also dependent upon paint applications and partial replacements every 8- to 10-years.

Component Detail Notes: Fiber cement siding is made from a combination of cement, sand and cellulose fiber. Manufacturing of the siding utilizes a steam curing process to increase strength and dimensional stability. The siding is also manufactured in layers forming a sheet of desired thickness. A wood grain imprint is typically applied to the exposed surface. Fiber cement siding offers many advantages over other types of siding. These advantages include:

- Capable of withstanding salt spray and ultraviolet rays
- Dimensional stability (will not buckle or warp as easily as other materials)
- Paint applications last longer compared to wood siding
- Resistant to insects, birds and fire

The following diagram details a typical fiber cement siding system at the interface with other building components although it may not reflect the actual configuration at St. Clair Terraces:

FIBER CEMENT SIDING DETAIL



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Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. We do not anticipate complete replacement within the next 30 years. However, we anticipate the following during each paint application cycle:

- Paint finish application
- Replacement of 90 square feet, or up to three percent (3%), of the siding (The exact amount of material in need of replacement will depend on the actual future conditions and desired appearance. We recommend replacement wherever cracks, delamination and deterioration impair the ability of the material to prevent water infiltration.)

Walls, Masonry

Line Items: 1.819 and 1.820

Quantity: Approximately 31,300 square feet of the exterior walls. We discuss repairs to the chimneys and stoops on separate line items.

History: No recent history of repairs reported

Condition: Fair overall with the following evident:

- Extensive previous repairs evident
- Efflorescence is visible
- Lintels exhibit rust and isolated deflection is evident
- Masonry exhibits step cracks
- Masonry exhibits spalls, especially at the wall base and at the garage end walls
- Mortar deterioration is evident throughout the building and garages
- Garage end walls and the storage rooms exhibit lean/bulge

Garage walls exhibit movement

Spalled and deteriorated masonry at garage

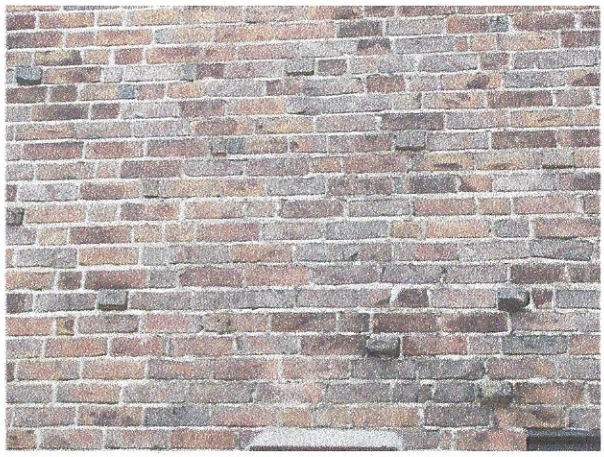
Bulge at storage room adjacent to garage

Previous repairs and recurring deterioration at storage room

Step crack and movement evident at front perimeter wall

Masonry cracks

Typical mortar deterioration



Typical mortar deterioration

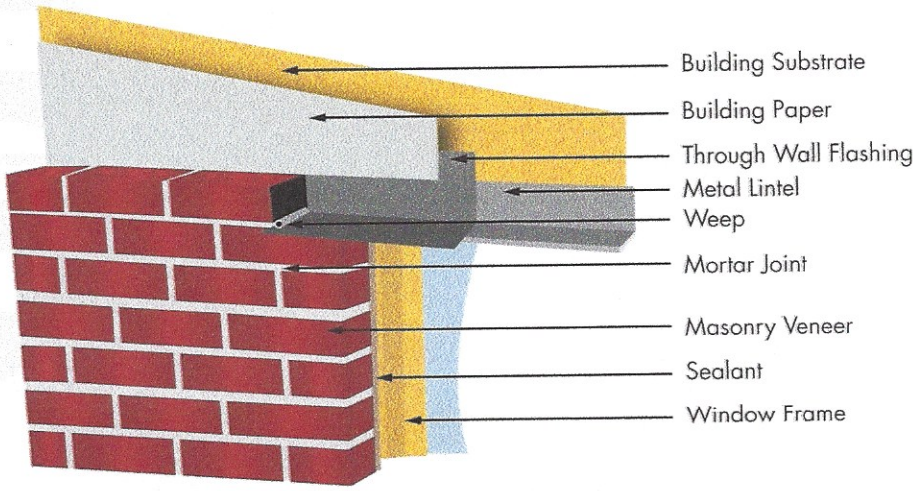
Lintel deflection

Efflorescence

Useful Life: We advise a complete inspection of the masonry and related masonry repairs up to every eight years to forestall deterioration.

Component Detail Notes: We recommend an 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. The following diagram details a typical metal lintel and weep system and may not reflect the actual configuration at St. Clair Terraces:

MASONRY WALL, METAL LINTEL AND WEEP SYSTEM DETAIL



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Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Management informs us the Association acquired a bid estimate to repair/rebuild the garage and storage room walls for approximately $23,000 to $25,000, and we include this expenditure in 2018. Our cost for subsequent repairs to all the masonry walls includes the following activities:

- Complete inspection of the masonry
- Repointing of up to eight percent (8%) of the masonry
- Replacement of a limited amount of the masonry

- Replacement/flashing installation at up to two percent (2%) of the metal lintels
- Paint applications to the metal lintels (approximately 1,650 linear feet)

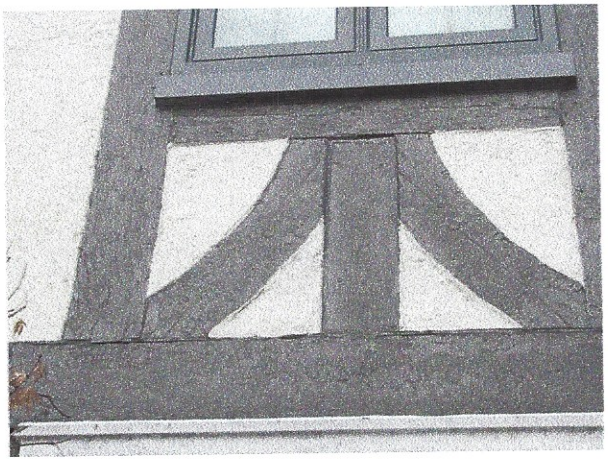
Walls, Stucco and Wood

Line Item: 1.860

Quantity: Approximately 2,900 square feet of the building exteriors. The Association also paints the wood garage doors.

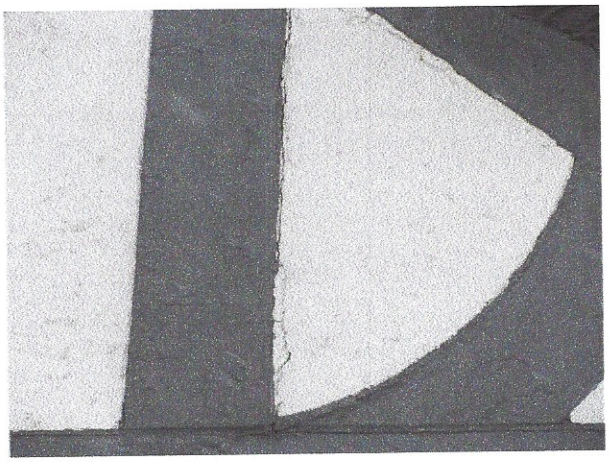
History: The age of the stucco finish was not available at the time of our inspection. The doors were painted in 2017.

Condition: Fair overall with weathered wood trim and stucco deterioration evident



Stucco and wood finish

Weathered wood

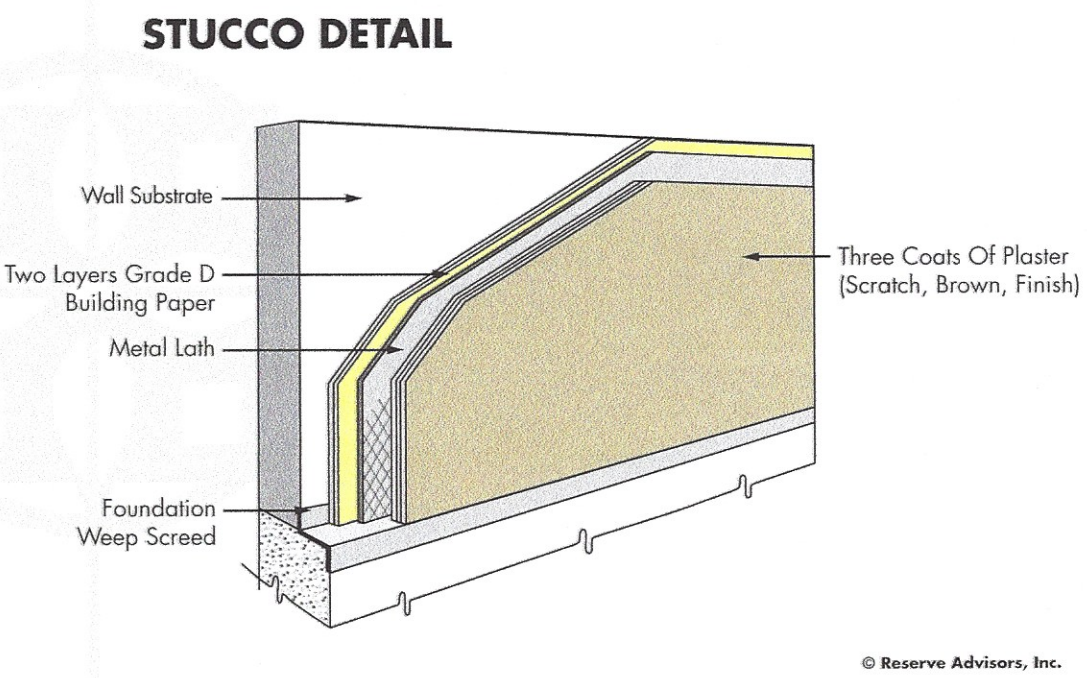


Stucco crack

Stucco deterioration at wood interface

Useful Life: We recommend inspections, repairs and paint finish applications up to every eight years.

Component Detail Notes: The following graphic details the typical components of a stucco wall system on frame construction although it may not reflect the actual configuration at St. Clair Terraces:



Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Our estimate of cost anticipates the following in coordination with each paint finish application:

- Crack repairs as needed (Each paint product has the limited ability to cover and seal cracks but we recommend repair of all cracks which exceed the ability of the paint product to bridge.)
- Replacement of up to two percent (2%), of the stucco walls (The exact amount of area in need of replacement will be discretionary based on the actual future conditions and the desired appearance.)
- Replacement of up to six percent (6%) of the wood trim

The Association should budget for interim paint finish applications to the wood as needed through the operating budget.

RESERVE ADVISORS

Property Site Elements

Asphalt Pavement, Repaving

Line Item: 4.045

Quantity: Approximately 1,250 square yards of access drives

History: The age of the pavement was not available at the time of our inspection.

Condition: Fair overall with cracks, settlement and potholes evident

Asphalt pavement

Cracks and settlement evident at asphalt pavement

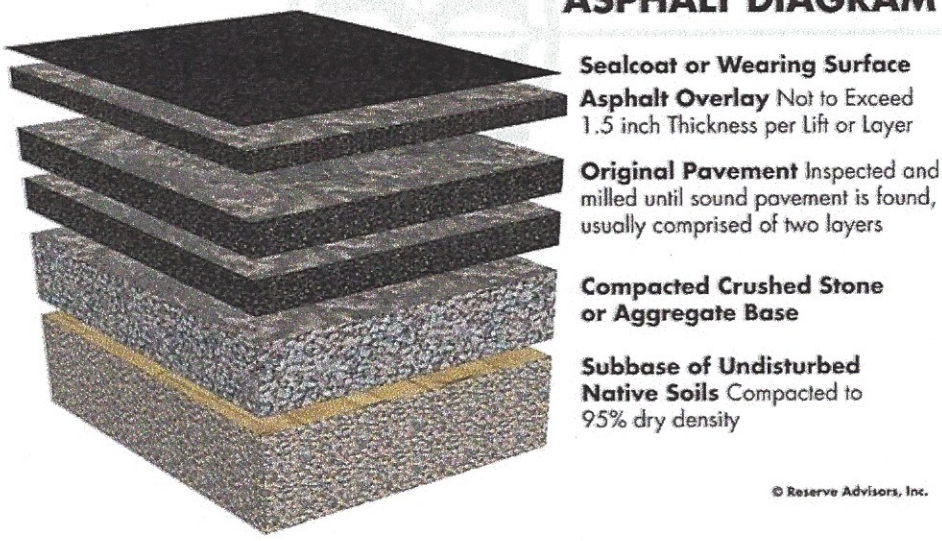
Alligator cracks

Potholes and deterioration

Useful Life: 15- to 20-years

Component Detail Notes: 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 the typical components although it may not reflect the actual configuration at St. Clair Terraces:



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 and configuration of the asphalt pavement, we recommend the total replacement method of repaving at St. Clair Terraces.

Priority/Criticality: Defer only upon opinion of independent professional or engineer

Expenditure Detail Notes: Expenditure timing and costs are depicted in the ***Reserve Expenditures*** table in Section 3. Our estimate of cost includes an allowance for capital repairs to the catch basins.