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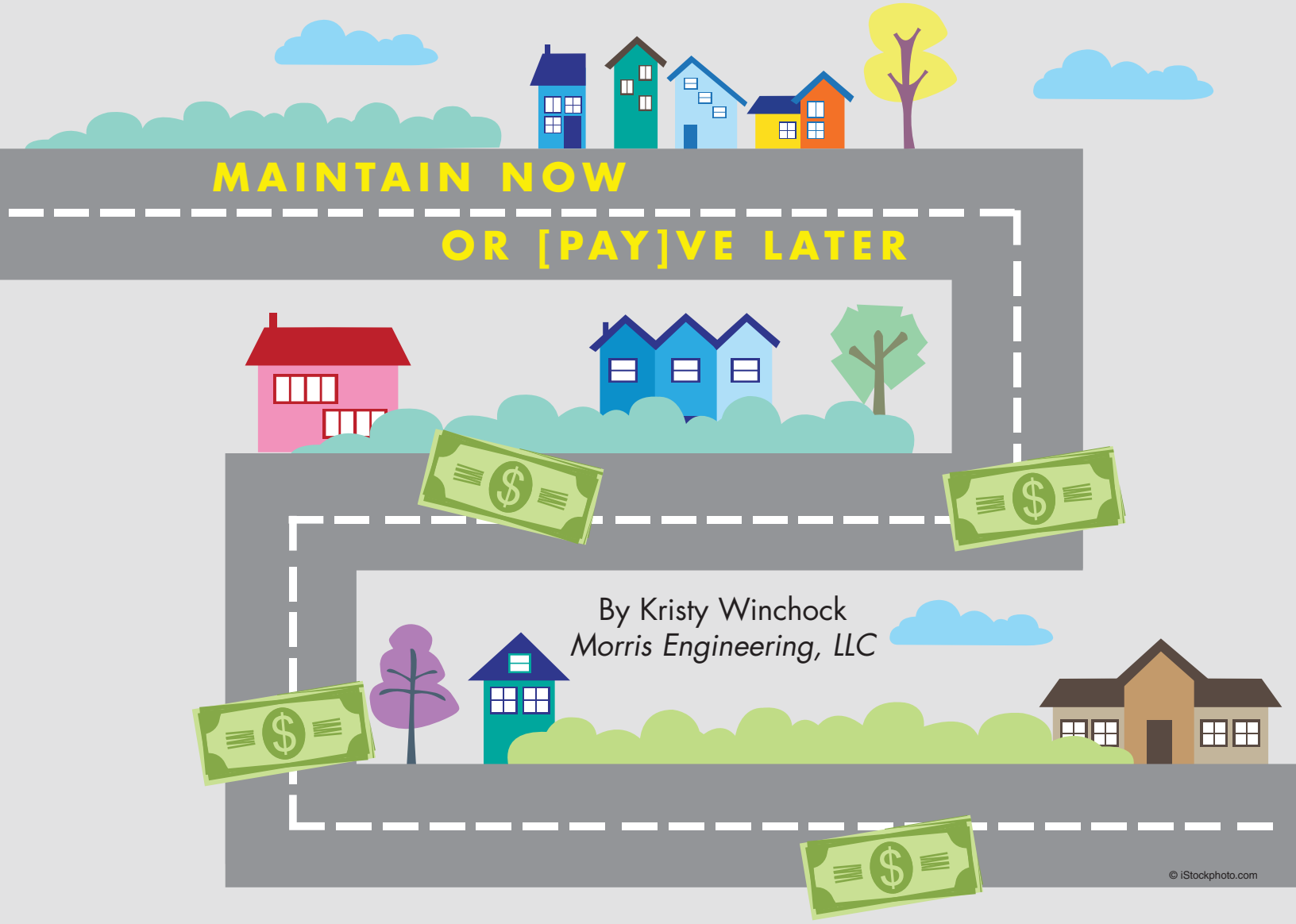

MAINTAIN NOW OR [PAY]VE LATER

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Whether it is driving lanes, cul-de-sacs, parking stalls, or driveways, every community utilizes asphalt construction. Asphalt roadways provide the main pathway for vehicle and pedestrian traffic to travel through the community. It is important that the roadways be maintained because unattractive roadways can detract from appeal and reduce the property value of the community, and lack of maintenance can create unsafe conditions which are a legal liability for the Association. Potential buyers may be less likely to purchase a unit or home in a community with deteriorating, poorly maintained roadways.

Asphalt pavement is composed of several layers of different materials of varying thicknesses constructed over native soils and a stone subbase. The base layers provide the main structural support for the roadway. The surface layer provides a smooth driving and drainage plane.

Asphalt pavement surface course has a typical useful life of 15 years, depending on a number of factors including the original construction and thicknesses of the pavement layers, traffic loading, weather exposure, and how well the roadways have been maintained. During the pavement's life cycle the asphalt surface course will oxidize, fatigue and lose its flexibility. As the pavement becomes brittle, cracks will develop in the surface course layer. Left untreated, minor cracks subject to weather conditions and water infiltration will develop into larger failures, both in area and in depth. Roadway maintenance is the most important thing that can be done to address aging and help the pavement reach its full potential useful life. Performing timely, regular, and proper maintenance will reduce future roadway repair and replacement costs.

There are various methodologies for pavement preservation. Each community, based on their roadway conditions

CONTINUES ON PAGE 16

[PAY]VE...

from page 14.

and budgetary constraints, will adopt one or a combination of the following methodologies:

- **Preventative maintenance –** treatment applied within the first two years of the pavement surface's initial installation to retain the oils to maintain flexibility within the asphalt and reduce initial wear. Includes the installation of a seal-coat material.
- **Routine maintenance –** treatments applied on a scheduled basis, typically every 3-5 years. Includes patching, crack sealing, and sealcoating intended to prolong the pavement's life by reducing water migration through the pavement layers.
- **Reactive maintenance –** unscheduled, "as needed" response to an observed failure in the roadway. Typically includes, patching, filling of potholes, and limited crack sealing.
- **No maintenance –** do nothing and hope for the best.
- **Rehabilitation –** replacement of the pavement's surface course and repairs to the base layers at the end of its useful life. With reactive or no maintenance, the useful life will be reduced. With preventative and/or routine maintenance, the full or an extended useful life may be achieved.

The specific goals and budget of the community should be considered in the development of specifications for a maintenance program. The specifications should include material selection, installation requirements,

and performance standards that appropriately address or help prevent deficient pavement conditions. When considering a maintenance program, an Association should review their budget, the intended life cycle of the maintenance item, and the age of the roadways throughout the community.

For example, if a particular roadway is nearing the end of its useful life, the association may elect to perform temporary or less expensive repairs to reduce further damage to the pavement layers until a replacement project can be afforded.

There are many techniques for patching, crack sealing, and sealcoating that provide various levels of performance at different installation costs. Typical maintenance programs will include some degree of the following:

CONTINUES ON PAGE 18

[PAY]VE...

from page 17.

- **Patching –** Pothole filling, infrared asphalt repair, or removal and replacement of areas of alligator cracking, potholes, depressions and upheavals.

Pothole filling ($): *the installation of a cold patch material within a pothole.*

Pros:

- Immediate, temporary repair to relieve safety hazard

Cons:

- Does not prevent the expansion of the deteriorated area
- Typically is a temporary repair and will require replacement over time

Infrared asphalt repair ($$): *heating the area to be repaired until the existing asphalt becomes workable, removing a portion of existing material, mixing in new asphalt material, and compacting the area.*

Pros:

- No seam between old and new pavement in which water can penetrate
- Quicker process means less disruption to the community – no need to shut down portions of the roadway for long durations

Cons:

- Recycles existing pavement that has been exposed to weather, has oxidized and lost some of its oils
- If the issue in the surface course is caused by a deficiency in the base layers, this process will not allow for the base layers to be repaired, and the issue in the surface is likely to reoccur

Removal and replacement ($$$): *saw*

CONTINUES ON PAGE 69

[PAY]VE...

from page 18.

cutting the perimeter of the failed area, removing the existing pavement, replacing the failed pavement layers, and sealing the perimeter of the repair with a crack sealant material.

Pros:

- Most effective method in cases where the underlying cause of the surface deficiency is issues in the base layers of the roadway

Cons:

- May require partial road closure

- **Crack sealing –** the installation of a rubberized liquid asphalt based sealant that reduces water migration through moderate cracks.

Cold-pour sealant ($): *asphalt based sealant that does not require heating and is installed cold.*

Pros:

- Less equipment required on site
- Less time required to perform repair

Cons:

- Cures to a rigid material that will not expand or contract with the asphalt pavement during temperature changes. This inflexibility can lead to the crack seal material becoming dislodged and allowing water to continue to migrate into the crack
- If the crack is too wide, the cold-pour material tends to shrink and will no longer be bonded to the surrounding pavement, again allowing water to migrate into the crack
- Lower life expectancy

Hot-pour sealant ($$): *asphalt based sealant require heating on site and is installed hot.*

Pros:

- Cools to a flexible, rubber-like material that responds better to temperature changes
- Better value over time
- Longer life expectancy

Cons:

- More equipment required on site
- More time required to perform repair
- May track in hot temperatures

- **Sealcoating –** the installation of a liquid coating in order to help maintain and restore the flexibility and improve the appearance of the pavement surface course, prevent water penetration, and resist damage from gasoline and other harmful vehicular contaminates. Sealcoating is not a structural method for resurfacing or addressing failed or deteriorated pavement such as potholes, but it is effective in sealing or bridging minor cracks.

Coal tar sealcoat ($): *sealcoat with a base made from the by-products of coal distillation.*

Pros:

- Will be effective for most community Association needs
- Has traditionally been the standard for sealcoat material on the east coast
- More durable to traffic wear than asphalt based sealcoat

Cons:

- Considered harmful to the environment

Asphalt based sealcoat ($): *sealant composed of emulsified asphalt.*

Pros:

- Considered more environmentally friendly than coal tar

Cons:

- Suggested for lower volume roadways

CONTINUES ON PAGE 70

[PAY]VE...

from page 69.

- Less durable to traffic wear than coal tar
- Less effective at protecting the underlying pavement from petroleum based contaminants

Roadway replacement is a large expense for a community Association. With timely, regular, and proper maintenance performed over the life of the pavement, the overall cost of a replacement project can be reduced. Technical data in the industry indicates that $1 spent in upfront maintenance costs can save $4-$6 in rehabilitation costs. It is never too early to start thinking about a maintenance program for your community! ■

ATTIC FANS...

from page 25.

sons of the year. During the summer months, the passive ventilation system cools the attic, keeping the roof shingles from overheating which would otherwise void the roof shingle manufacturer warranties. In the winter months, the passive ventilation system allows warm air carrying moisture a means to escape to the exterior, thereby preventing condensation from occurring. The cool temperature of the attic can also greatly reduce the potential for temperature differentials between the interior and exterior that would otherwise be conducive to the formation of ice dams.

Passive ventilation does not actively pull conditioned air from the home and therefore does not create negative pressure within the home. Therefore, passive ventilation does not create the potential for combustion CO gases to be pulled back into the home, nor does it create the potential to pull humid air into the building envelope in the summer.

For these reasons, proper "passive" ventilation is generally recommended as the preferred ventilation by most Roof Shingle Manufacturers.

Conclusions and Final Thoughts

Building codes do not prohibit the use of active attic fan systems. However, for these systems to function properly in the Northeast, there must be provisions to remove warm moist air from the attics in the winter months, which most fans do not have

CONTINUES ON PAGE 72