

What Happened to My Street?

With the support of our elected representatives, our street maintenance professionals are employing an alternative process known as “Polymer-modified Asphalt Surface Sealant,” or PASS.

Because this process is very different from traditional hotmix paving, it has generated a number of questions from residents. This article was written in an effort to explain the rationale for the new process, and to answer some of the community’s frequently asked questions about the PASS method.

The PASS process is a relatively new street rehabilitation method that is being used by jurisdictions throughout the United States to achieve long-lasting, cost-effective results. In the past, street rehabilitation work typically involved grinding the old pavement, and applying a new layer of asphalt on top of the old surface (the “overlay” method). The PASS system uses the same materials as traditional paving methods, but results in a longer-lasting street at significantly reduced cost and impact on the environment. The PASS system has a proven track record, and has been used throughout the United States and Europe.

On a typical street where the PASS system is utilized, the street is first carefully examined to determine the condition of the underlying road base, which is beneath the upper layers of asphalt. If this inspection reveals minimal failure (usually, depressions in the surface of the street), the street is a good candidate for the PASS system. The first step in the process is to repair any failing areas with a thin layer of asphalt. A layer of oil is then applied to the entire street, followed by a layer of small rock material, which is then pressed into any cracks in the street using rolling equipment and sweepers. After a few days, the street receives a thicker application of liquid asphalt containing very small rock material. This final layer quickly hardens into an impervious surface which initially can be quite rough, and which will generate excess fine debris as vehicles travel over the street. The final step involves sweeping the street to remove this fine material.

How PASS works

Fills cracks and voids, including those that cannot be seen with the unaided eye.



Rejuvenates existing asphalt.



Forms a reflective crack membrane between existing pavements and future overlays or seals. This is also called a stress-absorbing interlayer.



There are a number of reasons we believe this new system is superior to old paving methods:

1. Longer street life. In communities where the PASS system has been used, it has proven to be a paving method at least equal to, and perhaps superior to, the traditional overlay method. One key advantage to the PASS system is that it utilizes the strength of the existing paving, while creating a new, long-lasting street surface.

Streets receiving the overlay method typically show new cracks in just a few years following rehabilitation, often in the same location as the underlying asphalt layers. Streets where PASS has been applied demonstrate much fewer and smaller cracks. Cracks are the enemy of all streets, allowing water to intrude, gradually deteriorating the underlying base of the street, creating potholes.

2. Environmentally friendly. The traditional overlay method requires grinding and disposal of large quantities of asphalt, typically in a landfill. The grinding process generates large quantities of dust and requires extensive trucking of asphalt material from a local plant over local freeways and streets. In contrast, the PASS system requires virtually no grinding of asphalt or debris disposal and requires less volume of oil-based materials.

3. Cost effective. While not the primary reason for selection of the PASS system, the cost savings from use of this method are significant. Because the PASS system uses significantly smaller quantities of oil-based materials, virtually no debris disposal, and requires less preparation, the cost of the system is 50-60% less than the traditional overlay method. Despite recent increases in petroleum costs, these savings will help to ensure we will be able to meet our maintenance objectives responsibly with available funding.

4. Neighborhood friendly. The PASS system requires very little disruption of residential neighborhoods as compared to the overlay method with its grinding, noise and dust. Each step in the process is typically completed in a short period of time, allowing residents to access their homes very soon after work is performed. Following application of the last layer, residents are able to drive on the street in 5-6 hours – always before the end of the day.

Many residents have noted that the surface of a PASS street is “rough,” compared to a traditional overlay street. This roughness is a result of the small material contained in the final layer applied during the PASS process, and will gradually dissipate as vehicles travel over the surface and the material fully cures. With additional street sweeping and weather, residents can expect a surface that becomes nearly as smooth as a traditional overlay street.

Our engineering department welcomes your comments and questions at: