

Village of Carol Stream

Capital Improvements Program Asphalt Pavement Maintenance

The Village uses several methods to extend the life of asphalt pavement in order to avoid expensive and disruptive roadway reconstruction projects. A neglected pavement may need to be replaced in 10-15 years, but a properly maintained pavement might last 30 to 40 years. This results in a great savings to the residents of Carol Stream.

Roadway Management System

Engineering staff regularly inspects the pavement condition and enters the data into a computerized “roadway management system”. This system documents the existing conditions, and helps predict future conditions based on past history. The reports generated by this system are used as tools to create the asphalt pavement maintenance portion of the capital improvements program.

Rejuvenator

New asphalt pavements are sealed with an “asphalt rejuvenator”. This product softens the asphalt, fills in small micro cracks, protects the pavement from oxidation (graying) due to sunlight exposure, and prevents water from entering the pavement structure. The expansion and contraction of water due to freeze/thaw cycles can quickly destroy a pavement. Sand is used for skid resistance.

Crackfilling

Due to a few years of shifting ground and thermal stresses, larger cracks in the pavement will eventually develop. At this point these larger cracks need to be filled with a flexible asphalt “crackfill” material. We use an asphalt liquid reinforced with polyethylene fibers. Although somewhat unsightly, this procedure prevents water from entering the pavement structure and creating larger cracks and potholes.

Restorative Seal

The asphalt rejuvenator and crackfill procedures can usually be done twice on a pavement before a “restorative sealer” is used. This procedure covers the existing crackfill, fills in small cracks and pits, and again seals the pavement from water infiltration. Sand is also used to help restore a smooth surface. Restorative seal takes a little longer to cure than the rejuvenator because it is thicker and applied heavier.

Resurfacing

After the pavement surface is no longer serviceable, the asphalt is ground off and replaced as part of the “street resurfacing” or “structural overlay” programs. The structural overlay is a thicker overlay for industrial and heavily traveled roadways; it may also involve use of a pavement reinforcement to further strengthen the asphalt. At this point deteriorated curbs and sidewalks are also replaced if they meet our criteria.

Reconstruction

It is only after the entire pavement structure, surface and base, are no longer serviceable that the roadway will need to be reconstructed. Only then will all of the asphalt be removed and new layers of asphalt base and surface be constructed. When the new asphalt surface is placed the entire cycle of rejuvenator, crackfilling, and restorative seal procedures can be repeated. Concrete curb and sidewalk may also need to be replaced if it is in poor condition.