

# Pavement Management

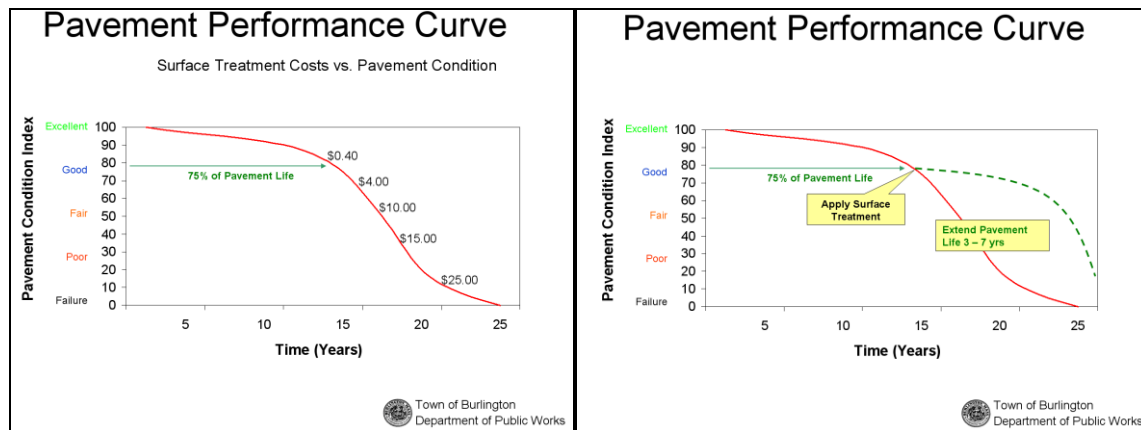
The Town of Burlington's Philosophy to Pavement Management is to apply the proper surface treatment at the appropriate time to maintain and extend the service life of street pavement.

For many years the Town followed a "Worst First" approach; prioritizing the streets based on condition and paving those that are in the worst condition. Typically those streets are beyond repair and must be pulverized, regraded, and paved with two layers of hot mix asphalt; a very expensive method of restoration. Aside from "Worst First" being an unsound management technique from a cost/benefit standpoint, the construction cost of continuing such a program is prohibitive; asphalt that in 2003 was \$29/ton increased to as high as \$93/ton in 2008.

The Town's focus in maintaining & preserving pavements using various techniques, in addition to hot mix asphalt, the Town has adopted such methods as crack sealing, micro-surfacing, and patching. We have also optimized surface treatment strategies in order to extend pavement life using available funds as is listed in the table below:

Pavement Condition	Method
Good	Crackseal
Good to Fair	Micro-surfacing
Fair	Overlay/ Coldplane Overlay
Fair to Poor	Coldplane Overlay
Poor to Failure	Pulverize & pave

Our goal is to preserve and maintain roads with pavements that are in good condition, main roads are given a higher priority since they are heavily used and more expensive to repair. Roads that have poor or failed pavements do not significantly degrade from year to year and are therefore funded at a lower level. Pavements in good or fair condition can quickly degrade if not properly maintained, are given a higher priority and receive more funding. As depicted in the following Performance Curves a pavement's life can be extended at a low cost while it is still in good condition versus deferring surface treatment and allowing the pavement to fail, at which time a significant capital expenditure is required to repair that road.



The priority list is updated and reevaluated annually, and the pavement program developed with input from the Director of Public Works, Highway Superintendent, and Town Engineer.

## **System Overview**

The Pavement Management process is an ongoing perpetual cycle of Inspection, Analysis, and Application of Surface Treatment. The Pavement Management System was developed using a common sense approach and off-the-shelf technology to develop a road inventory and pavement priority list. It is computer based; using a Windows tablet running ESRI's ArcPad Geographical Information System (GIS) software to collect data in the field, then the data is processed using Microsoft Access and ESRI's ArcGIS to develop a pavement condition.

### **INSPECTIONS**

Although a complete road network inspection each year is not practical, about a third of the roads are inspected on an annual basis; Main roads are inspected more frequently due to the heavy traffic volume and the high cost to repair if not properly maintained. Local roads are inspected less often, since those roads experience less "wear & tear" due to the low volume of vehicles that use those roads.

### **ANALYSIS**

Once the inspection data is collected, it is exported to a Microsoft Access database, analyzed, and used to generate a Pavement Condition Index (PCI). Based on the PCI, as well as other factors such as proximity to other roads of similar condition and utility replacement projects, a priority list for pavement maintenance and resurfacing can be created.

### **SURFACE TREATMENT**

The Pavement Priorities List is a guide that assists in the development of the Paving Program, which typically schedules specific road paving projects for two (2) years. Due to the fluctuating pavement costs as well as funding constraints, forecasting beyond two years is unrealistic. Current funding sources are State Aid, known as "Chapter 90" funds, which can be expended on only Town accepted streets (public ways), although local appropriations approved by Town Meeting, which can be used for any Town way.