Road Construction and Maintenance Methods

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What are the Borough's roads made of?

There are three main types of road pavement construction:

- **Rigid construction** – usually concrete
- **Flexible construction** – usually a mixture of granular material (e.g. crushed rock or ballast) as a pavement foundation and layers of either bound material (e.g. asphalt) or modular blocks as upper pavement layers for wear and safety purposes.
- **Composite construction** – mixture of rigid and flexible construction

The Borough Council has roads, footways, cycletracks and backways of all three pavement construction types, consisting of a wide range of historic materials of varying layer thicknesses, on varying strength underlying clays and sands.

Why is road maintenance required?

Only the most modern roads have been designed for the current levels of traffic flow and wear that the Borough's highway network experiences today. All road construction materials and particularly the top (wearing) layers have a finite life which is dependant on the type of materials used in construction of the road, and factors such as the type and number of vehicles using the road, and the environment that it is subject to e.g. weather conditions. For example if significant amounts of water enter the road through cracks in the surface and are subject to the process of freezing and thawing during the winter, the surface can break up under the forces involved.

The major aim of routine maintenance operations is to keep the road surface safe and free from hazardous defects, most commonly by patching.

The major aim of planned major maintenance (in addition to preserving safety), is to get the maximum life from a road. The aim is to keep the running surface safe and durable (e.g. sealed), and protect the pavement foundation from deterioration which could otherwise result in significant reconstruction of the road pavement layers and major cost, as well as use of valuable finite natural resources and major cost.

The effective removal of surface water from the road is critical for safety reasons but also to prevent deterioration of the road construction layers. It is essential that any road maintenance scheme also maintains the road drainage system in the area, be that an urban gulley and piped underground system or a rural system of grips and adjacent drainage ditches.

When is maintenance required?

With unlimited resources, works to extend the life of the carriageway would be carried out at regular planned intervals at an ideal point in time to preserve safety and extend the useful life of the road for minimum cost. In reality there is a finite amount of money available for planned maintenance of the Borough's roads and maintenance therefore tends to be carried out on the worst condition sites in the Borough on the basis of priority need (see Fact Sheet No. HAM/ HNM/101).

The maintenance treatments used will depend on what improvement is needed in the condition of the road, the road construction, surrounding environment and remaining useful road life. The pavement may require maintenance of the wearing layers, improvement of the skidding resistance or even improving the pavement strength. The Borough may be able to consider some preventative maintenance to halt further deterioration whilst the road is still generally in good order, or more likely have to replace pavement layers where the condition is poor.