Notes for Guidance on selection of materials:

6mm size Dense Bitumen Macadam Surface Course (AC 6 Dense Surf 100/150)

Suitable for use on footways, and low speed, low stress roads. This material can be used on Local Access Roads and quieter rural roads. Can be laid 20-30mm thick. An alternative material for new construction of these roads is hot rolled asphalt that may have a higher initial cost but will provide a beneficial whole life cost.

10mm size Close Graded Macadam Surface Course (AC 10 Close Surf 100/150)

Suitable for use on low speed, low stress roads. This material can be used up to local distributor roads with little heavy traffic or infrequent bus services. Can be laid 30-40mm thick. An alternative material for new construction of these roads is hot rolled asphalt that may have a higher initial cost but will provide a beneficial whole life cost.

30% Hot Rolled Asphalt (HRA 30/14 F Surf 40/60)

This is the preferred material, especially on heavier trafficked roads. There can however be problems especially during maintenance, providing sufficient road width to accommodate the chipping spreader, safety zones and passing traffic lanes. Recommended thickness 45mm. If rutting is considered likely, a slightly stiffer mix can be specified – HRA 35/14 F Surf 40/60. The preferred option is Design Mix (rather than Recipe). Cold weather can cause problems with chipping embedment. Also the material needs to cool before being open to traffic.

55% Hot Rolled Asphalt (HRA 55/14 F Surf 40/60)

This is a very stiff material and should only be used if the base is structurally sound. It is therefore unsuitable for streets where there are multiple Stats trench reinstatements. No additional chippings are required, so is an alternative to 30% HRA. Not an easy material to hand lay (specify 45% in small areas such as bell mouths where the paving machine cannot access easily). May not achieve the required texture depth, so is not recommended for roads with speeds greater than 40 mph. Normally laid 50mm thick, and so may not be suitable where high PSV aggregates are required because the thick layer requires more premium aggregate.

Thin Surface Course (To Clause 942)

These are proprietary materials that have to be certified by BBA through the HAPAS mechanism. It comes with a 5 year guarantee. However, texture depth may not be maintained throughout the life of the material. They can be installed up to 50mm thick. They tend to be permeable and are therefore not recommended for use on a cracked or crazed binder course, which is in need of waterproofing. In such situations, a binder course should also be specified. It is a suitable material in built up areas due to low noise characteristics. It is available in 3 nominal coarse aggregate sizes, 14mm, 10mm and 6mm. The smaller the aggregate size the quieter the tyre noise generated. Aim to lay around 30mm thick. A suitable material where high PSV aggregates are required because the thin layer reduces the quantity of premium aggregate required. It has been highlighted ‘for use with restriction’ on 4a type roads as Hot Rolled Asphalt or Close Graded Macadam would be the preferred options.
Notes for Guidance on selection of materials (continued):

**Generic Stone Mastic Asphalt (SMA 10 (or 14) Surf 40/60)**

An alternative to HRA and Thin Surface Courses, for use on roads with speeds limits less than 40 mph. These thin surfacings are proprietary materials i.e. they are marketed as brand named products. Generic SMA is not ‘best practice’ as controls on quality of supplied materials and on laying are less onerous than with BBA HAPAS products. For example early life fatting up and loss of skid resistance and texture depth is more likely. Shall comply with BSEN 13108-5:2006.

As a result, this material is no longer recommended for use on Leeds roads as its durability is suspect. It is only included in this guide for completeness.

**Micro Asphalt**

Can be very similar to conventional hot mix 6mm and 10mm "dense" macadams, but may be produced cold, and therefore may not be as substantial. It is more expensive than surface dressing. However, it is more "robust" on difficult sites and may be appropriate in "sensitive" urban areas. Can be laid by a surfacing machine and can improve the road shape slightly. This process is not thought of as adding any significant strength to a road pavement, but like a surface dressing, by sealing an oxidised and fretting surface it will extend the life of the road pavement, improve its appearance, and improve skid resistance. The applied layer is capable of sealing minor, non-structural cracking, but isolated serious cracking associated with road pavement weakness should be rectified prior to applying the treatment.

**Slurry Surfacing (sub section of Micro Asphalt)**

A bitumen emulsion with fine aggregate layer of nominal thickness of 6mm. Can only be used to restore some skidding resistance and seal the surface of the road. A temporary preventative maintenance treatment for minor roads - type 4b and 4a, traditional estate roads only. Has a Life expectancy of around 5 years. Mainly used on footways.

**Shallow Depth Recycle**

Consists of pulverising and remixing the top 75mm of the road surface in-situ. Aggregate can be added to provide the correct grading before foamed bitumen, bitumen emulsion and/or cement is added to it as a binding agent. After reshaping, the revitalised material is compacted by rolling. A surface dressing is applied to seal the road surface. To produce a more durable and improved running surface a conventional surface course can be applied but this increases the cost considerably and reduces the truly recycled approach. Is not suitable in Type 4b Roads due to the size of plant required.

**Surface Dressing**