

A Handy Guide to

Carriageway Micro Surfacing



WORKING TOGETHER TO IMPROVE OUR HIGHWAY

Micro Surfacing at-a-glance

What is Micro Surfacing?

Micro surfacing (also referred to as 'micro asphalt', 'micro' or 'thin surfacing') is a 'surface treatment' for roads; one which is laid over the top of the existing surface to seal and protect it. It consists of a water-based mix of stones and bitumen which is spread over the existing surface by a special machine. It can take out minor dips and bumps; restore grip and texture and create a new, waterproof surface but it will not repair structural faults.

Why do roads need maintenance?

- **Age and Weather:** Asphalt becomes brittle and cracks as it ages; sealing the surface is a simple and cheap way of extending the life of the road surface.
- **Wear and Tear:** Milton Keynes roads are very busy and roads, like many other things, wear out with use and need periodic maintenance.
- **Other Issues:** Other problems that sometimes require maintenance treatments include utility trenches and poor underlying ground conditions.

When do we use Micro surfacing?

We tend to use micro surfacing in urban areas, often on less-busy roads, where we need to seal and maintain the surface and repair cracks and other limited defects before the road gets into a poor condition.

Advantages:

- Low cost
- Seals the surface
- Extends road life
- Restores texture and grip
- Quick to apply - less disruption
- Low carbon footprint
- Removes minor dips and
- Fills small defects like potholes

Disadvantages:

- Does not remove major structural unevenness
- Not suitable for very high-stress sites

Key things to be aware of:

It can look untidy to start with

When just laid, the surface looks brown and very coarse or 'open' in texture and loose stones will remain on the road surface for a while. Road markings like white lines are usually replaced a week or two after the surfacing as part of the aftercare (although safety-related markings go back earlier on a temporary basis if necessary). Because of this, *initial* public reaction can sometimes be a bit negative although there is no cause for concern and they should be assured that these factors are a normal part of the process.

Aftercare is an important part of the process

We expect all of the factors mentioned above and cater for them. We undertake sweeping to remove the loose stones and replace the white lines once the new surface has settled down – putting them back too soon could damage the new surface.

	Micro Surfacing
Seals the Surface?	Yes
Restores Grip?	Yes
Extends the Life of the Road?	Yes
Repairs Surface Defects?	Yes
Removes Minor Dips?	Yes
Removes Major Unevenness?	No
Adds Strength?	No
Repairs Foundation Problems?	No
Cost	Low
Environmental Impact	Low
Disruption	Low

Fact Sheet - Micro Surfacing

Type	Surface Treatment
Also known as	Micro asphalt, thin surfacing, 'Micro', Slurry seal (similar – see below)
Variants include	Slurry Seal (a thinner version of micro asphalt) 'Ralumac' (a proprietary premium version)
Advantages	<ul style="list-style-type: none">• Low cost• Seals the surface and extends road life• Restores texture and grip• Quick to apply meaning less disruption• Low carbon footprint• Removes minor dips and fills potholes
Disadvantages	<ul style="list-style-type: none">• Does not remove major structural unevenness• Loose stones will remain on the road surface for some weeks after laying making it look 'tatty' initial public reaction can therefore be poor.• Not suitable for very high-stress sites

Typical Costs:

Micro asphalt costs between £5 per m² and £8 per m².

The cost varies depending on how much preparation work (like patching) is needed and on other factors like how busy the road is. Busy roads can be more expensive both because a higher grade of treatment is usually used and because we are more likely to have to work off-peak to reduce disruption which increases the cost of the works. These costs include normal levels of patching to repair significant defects before the road is dressed but would increase further if the road was in poor condition.

The Process

Before: Any major defects are repaired ahead of time. Minor defects like cracks and surface potholes can usually be filled by the treatment without additional work.

On the day: The road is swept to clean it and remove debris and then the micro asphalt is laid over the existing road surface. It is usually laid in two coats; the first helps to fill defects and regulate out dips in the road surface, the second provides the new road surface.

The micro asphalt itself is laid as an emulsion – a mix of bitumen binder and stones of various sizes suspended in water. The emulsion is laid cold, not hot like conventional asphalt, reducing the energy used in production (and consequently the carbon footprint).

The emulsion stays liquid for between 20 minutes and two hours before it 'breaks' (or goes off) at which point the surface can be opened to traffic. However, the material will stay relatively soft for several weeks after laying so not all roads are suitable for this treatment.

Manhole covers and drains are adjusted to suit the new road level which will be about 15mm to 20mm higher than the old road due to the thickness of the micro asphalt.

Aftercare: There will be loose stones on the surface of the road for several weeks as stones naturally loosen from the surface of the new material. This is normal, although it can look a bit unsightly. The road will usually be swept several times during this period and the white lines will be replaced after the last sweep. This will usually be a few weeks to a month after the treatment. Once the surface has bedded in, been swept and the white lines have gone back, the new micro asphalt surface will look like any other road.

Micro Surfacing Gallery

Before

A typical candidate for micro asphalt or similar thin surfacing; the surface is old and worn with numerous minor defects

During

The material is laid in a semi liquid form by a specialist machine; this helps it level out messy dips and bumps but it looks (and is) quite a messy process



Before



During



Immediately after



One year later

Immediately after

The new surface has a red tinge when still wet but quickly turns black. Initially it has a rather open texture and there are usually loose stones for the first few weeks

One year later

The new surface has fully bedded in and is indistinguishable from any other road surface