



Repaving the way for A14 junction improvements

Repave is a hot in situ recycling process for rejuvenating and resurfacing existing surface courses on carriageways and airfields. It minimises the need to remove existing material to go to landfill. Our Repave process is the only in situ surface course recycling process that is currently available in the UK.

It has been established in the industry for more than 30 years and has become a preferred surface course recycling process within the industry.

On behalf of the HA, Aone+ instructed Colas to carry out the resurfacing works on the A14 between the Capthorpe Interchange and junction 1.

Following a number of successful projects and convinced by the advantages of this process, Repave was chosen in the design stage to minimize cost and waste.

In October 2013, the works on 130,000m² of surface course replacement started. With a full road closure set up between the hours of 9pm and 6am, Colas

planed off 25mm of the existing and worn surface course at lane width before recycling 25mm of the existing pavement material below. Using the Repave machine, the material is heated to around 150 degrees and pre-compacted before being overlaid with 25mm of thin surface course material. By compacting both the recycled layer and the new material, a homogenous bond is created resulting in a new 50mm surface course.

The process reduces not only 50% of new material, it also increases the laying speed and the volume of area being treated within a single shift. The typical output was well over 4,000m²,

| | |
|-------------------|--|
| Key Facts: | |
| Client: | Aone+ on behalf of the Highways Agency |
| Area: | East Midlands |
| Location: | A14 between the Capthorpe Interchange and junction 1 |
| Date: | October 2013 |
| Duration: | 38 days |

with 5,058m² achieved as the maximum output in a single shift.

Higher average volumes might have been achieved for the projects but the outputs were mainly restricted by the haulage capacity and the quarry productivity. It became evident that Repave's advantage of using far less lorry movements was invaluable as suppliers were struggling to supply enough material not only for this project but to projects that were running locally at the same time. It is fair to say that, had the project been carried out

conventionally, it would have been delayed significantly due to the lack of required material volumes.

Given the savings that the process achieved during this scheme when compared to the conventional resurfacing method, it is apparent that the project has been a great success. By using an environmentally friendly process, the HA and Aone+ have shown dedication in taking on sustainable road maintenance alternatives that save time, waste, energy and above all cost.



Savings

| 130,351m ² | | Repave | Conventionally | Saving | % |
|---------------------------|-----|---------|----------------|--------|-------|
| Waste produced | Ton | 6995 | 13686 | 6691 | 48.9% |
| Material used | Ton | 8690 | 15642 | 6952 | 44.4% |
| Lorry movements | No | 784 | 1466 | 682 | 46.5% |
| Energy consumption | GJ | 13606.6 | 16777.1 | 3171 | 18.9% |
| CO ₂ emissions | Ton | 927.9 | 1098.6 | 171 | 15.5% |

Total Energy Consumption, GJ

Conventional – Plane out 50 mm & replace with 50 mm HRA

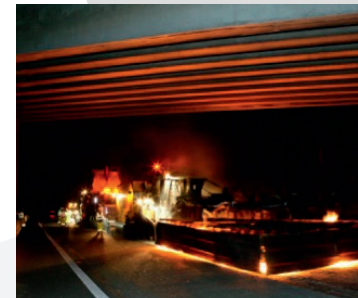
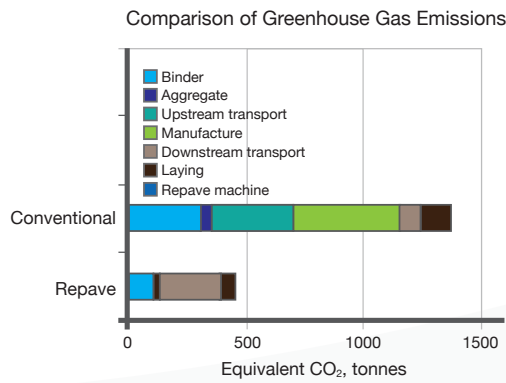
Repave – Plane out 28 mm, repave & replace with 28 mm HRA

Area = 130,351 m²

| Structure | Binder | Aggregates | Upstream Transport | Manufacture | Downstream Transport | Laying | Repave Machine | Total |
|--------------|--------|------------|--------------------|-------------|----------------------|--------|----------------|---------|
| Conventional | 3840.8 | 1002.5 | 2317.4 | 6188.2 | 2020.5 | 1407.8 | | 16777.1 |
| Repave | 2116.7 | 623.5 | 1386.0 | 3674.5 | 1185.4 | 1277.4 | 3343.2 | 13606.6 |
| | | | | | | | Savings | 3170.5 |
| | | | | | | | | 18.9% |

GHG Emission in Equivalent CO₂, tonnes

| Structure | Binder | Aggregates | Upstream Transport | Manufacture | Downstream Transport | Laying | Repave Machine | Total |
|--------------|--------|------------|--------------------|-------------|----------------------|--------|----------------|--------|
| Conventional | 225.9 | 36.7 | 170.5 | 409.0 | 148.7 | 107.8 | | 1098.6 |
| Repave | 124.5 | 22.9 | 102.0 | 242.6 | 87.2 | 97.8 | 250.9 | 927.9 |
| | | | | | | | Savings | 170.7% |
| | | | | | | | | 15.5% |



(Depending on the length the above information culminates to we could list these benefits as we did for the A57)

Benefits

- Achieve total resurfacing with the removal of much less waste
- Reduced carbon emissions
- Reduced energy consumption
- Avoids waste being sent to landfill
- Minimised disruption to the local road network
- Reduced time on site and road space occupation
- Significantly reduced costs
- Can be used in low ambient temperatures

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