



“A Cleaner Road to the Future”

Kartar Singh Project Proposal



Overview

“A Cleaner Road to The Future” is a concept which will provide local authorities with better quality roads, increased levels of recycling and a healthier environment with reduced expenditure and increased financial savings.

A Cleaner road to the future focuses on the development of road maintenance, with the use of plastic waste. With a growing concern of pothole reports, and the disposal of plastic waste becoming more difficult globally, further research into this technology could reward us with more efficient and durable roads, whilst helping the environment.

Councils across the UK will have the ability to repair potholes and road surfaces with the use of a plastic based aggregate, that will be cheaper to produce and will be a stronger surface that will require less maintenance over time.

The ability to use recycled plastic in the production of this material will allow councils to reduce the amount of waste sent to landfill or to be incinerated. Not only are these methods costly, they can have a negative impact on our environment. Using some of the plastic waste already being collected as a material for road repairs would provide councils with a financial saving, higher levels of recycling and a possible income for the use of the plastic collected as a new material.

The Situation

There is perhaps no local issue that unites citizen’s frustrations against authorities as much as the pothole. Everyone thinks they should be filled more quickly, and they are encountered by road users daily. With the demand for Local Authorities to repair the work increasing because of harsher winters, and the financial strain on highway budgets tightening, it is a problem which requires a more efficient and robust solution. It is estimated that a national onetime catch up fix for potholes and repairs would take **14 years** to complete and cost **£9.31bn** to execute.

There is also a big push internationally on our awareness of plastic usage and the worrying effects it has on our environment if it is not recycled. As a nation, we have relied on foreign exportation of our plastic waste to ease a deficit in our plastic consumption and to make a much-needed income, however with the recent ban on exports to China and Hong Kong we face a **350,000-tonne** annual shortfall of plastic waste being recycled. The damaging effect has wider implications as the abundance of plastic internationally has left our oceans and wildlife suffering. It is estimated that **46,000 pieces** of plastic are floating on every Sq-Mile of ocean.

The Solution

Innovations in road resurfacing are emerging through various methods with small-scale recycling elements being involved, however, despite these developments, the level of repair work needed on Britain's roads requires a more radical and strategic approach.

By using recycled plastic as an aggregate combined with stone, we will enable councils to provide a **Greener, Stronger** and more **Cost-Effective** highway. The use of Plastic waste recycled as an aggregate which will consume up to 20% of the current road laying material used when fixing potholes and resurfacing roads can help councils achieve:

- Financial savings of up to **15%** on road surfacing costs
- Stronger and more durable roads
- Reduction in pothole compensation costs. In 2017 alone, claims regarding potholes cost councils **£7.3m** in compensation with a further **£21m** on staffing costs
- Increasing our national recycling rates by making use of our waste plastic.
- A greener solution to improving our environmental footprint
- Reduction in valuable agricultural land being quarried and mined, which is in danger of encroaching our highways and towns.
- Further cost savings achieved on reducing plastic waste being sent to landfill, or incinerated, with a added possibility of a incineration tax looking likely in the near future.
- Allow Councils to be the market leaders in providing the material as we are responsible for collecting the plastic currently.

The Business Model

The UK highways maintenance market is valued at more than £10bn, with expenditure by Local Authorities in England on highways and transport approximately £4.4 billion annually, with a third of this spent on material costs. By making a 15% saving on materials alone councils can see a saving of **£220m** annually, with further savings being made on using plastic waste collected in the process.

Initially I will be looking to use the Bruce-Lockhart bursa, to work with partners in the plastic and highways field, those being Wavin Plastics, and local companies such as C&G civils, Ringway and Colas, alongside Wiltshire council to test out the production of a plastic based aggregate product and the use of the product on three testing sites across Wiltshire. Please see Costings on **Appendix 1**.

An agreement will be set up with participating companies to share intellectual property rights upon completion of testing, which will be shared across all local authorities as the approach can be scalable nationally. Furthermore, as Councils will have control of their own highway network Maintenance needs, and a control on the material through their collections, a caveat on road surfacing contracts can be applied to initially ensure a proportion of roadworks are completed using this method, with the proportion increasing to full over the next 5 years (whilst initial trial runs for 18-24 months), to ensure councils have a system in place to use their plastic waste in this practical and sustainable manner.

Naturally a project with large opportunities holds its own risks, which I have provided on **Appendix 2**

A Cleaner Environment and Improved Highways will help us prosper as a nation – Let's achieve this with" A Cleaner Road to the Future"

