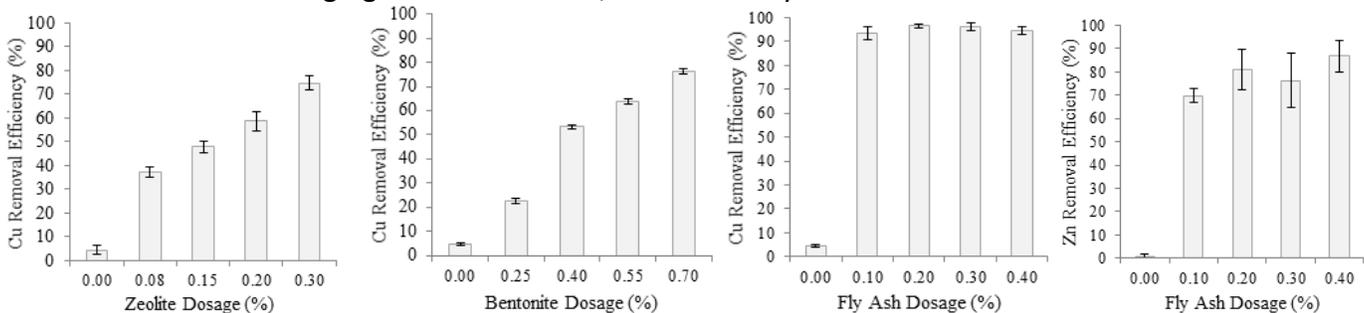


# Multi-functional Open Graded Friction Course (MOGFC) for in situ Treatment of Highway/Roadway Runoff

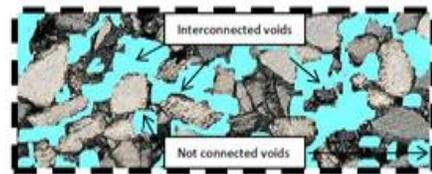
Storm water runoff from highways/roadways contains both organic and inorganic contaminants. Conventional methods of treating runoff are land intensive and have high maintenance costs. Traditional open-graded friction course (OGFC) has little to no ability to remove dissolved (as opposed to particulate) organic matter and heavy metals (primarily Cu and Zn) from highway storm runoff. To overcome these limitations, The University of Louisiana at Lafayette has developed a novel multifunctional open graded friction courses (MOGFC) for in-situ highway runoff treatment. MOGFC is created by adding technically selected additives into the voids of the OGFC. The additives in MOGFC stay in the pore spaces/voids and adsorb heavy metals when water soaks into the voids vertically and drains out laterally. The below-right figure illustrates the concept of the pollutants (heavy metals) removal mechanism. Polluted storm water percolates vertically into the MOGFC, travels through interconnected air voids where adsorbents stay and adsorb heavy metals/dissolved pollutants from the water. The treated water percolates further and drains out through the horizontal channels of interconnected air voids. This novel treatment technology removes the dissolved (as opposed to particulate) organic matter and heavy metals and eliminates the need for external treatment facilities.

The following figures show the Cu/Zn removal by MOGFC with different additives:

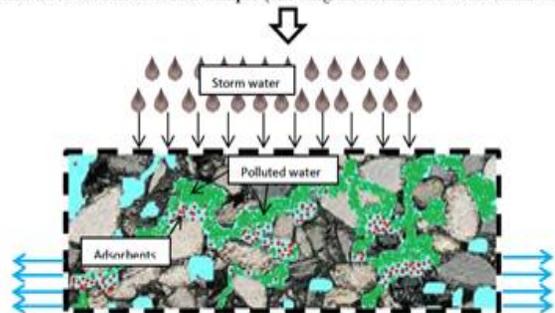


## Technology Advantages of MOGFC:

- Removes dissolved metals (Cu/Zn)/pollutants from runoff;
- Eliminates the need for external treatment facilities;
- Saves on land usage and maintenance costs;
- Can be applied on bridges with long spans;
- Highly resistant to moisture induced damage;
- The exhausted MOGFC can be removed and recycled as traditional hot mix asphalt (HMA) mixtures;
- Reduces splash, and improves visibility and traction, and decreases noise;
- **Based on a UL Lafayette Patent Pending Technology.**



Typical cross section of OGFC sample (showing interconnected voids distribution)



Typical cross section of MOGFC sample (pollutant removal mechanism)

## Office of Innovation Management

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