Web Forum 3: Stormwater Program Organizational Structure
Questions and Answers
May 2, 2018
2:00 p.m. – 3:30 pm (EST)

Open Graded Friction Courses (OGFC)

Presented by Bhaskar Joshi, PhD, PE, Chief, Office of Stormwater Program Development, California Department of Transportation

Question: On the research, are you distinguishing between open graded friction course (OGFC) and permeable friction course (PFC)?

Answer: There is no distinction between the two; they mean the same thing. OGFC is Caltrans terminology. There is also open graded asphalt concrete, open graded friction course, and permeable friction course. The main idea is it is 1-2 inches thick previous asphalt concrete sacrificial layer, that is used on dense graded or concrete pavement.

Question: How did the OGFC's water quality performance change over time, as in year after year?

Answer: The study lasted for four years, from 2007 to 2011. Some decline in permeability was seen, specifically in the pavements, but we did not look for a trend since the period of study was not long enough . Shown was the average influent and effluent quality in the graphs and charts. There was some analysis on the confidence levels for these constituents; they were calculated at 90%. There was not a large spread for the few years' data that were collected.

Question: How has OGFC held up in areas with significant winter snow and/or icing?

Answer: None of the sites were located in winter or snow areas, so we do not have much experience in these areas. But the literature indicates that is has been successfully deployed. For example, Massachusetts has had successful deployment of OGFC as a stormwater BMP. So, there are experiences of successful deployment in other jurisdictions.

Question: How successful have you been in convincing your regulators the concept behind OGFC?

Answer: That conversation is ongoing at this time. We have a State Water Board and nine Regional Water Boards, so although there although are people in the Water Boards who have reacted favorably towards the use of this as a treatment BMP, there may be others in regional jurisdictions who are not as convinced. We will have to present the results of our studies and bring examples from other jurisdictions to justify the use of this treatment BMP for crediting purposes. The main issue has been to show how OGFC is beneficial for stormwater treatment. It might help to have another study with a side-by-side, before and after comparison. We are presently in conversation with our regulators about this issue. The evidence is convincing; we just must present it in a manner that makes them accepting and comfortable with our conclusions. There is no doubt that it is an effective and cost-effective treatment option. DOTs have limited rights-of-way, and you do not need drainage improvements or alterations for getting stormwater treatment benefits.

Innovative Roadside Best Management Practices (BMPs)

Presented by Jana Ratcliff, Stormwater and Watersheds Program Manager, Washington State Department of Transportation

Question: What is your "go to" BMP? The BMP that you use in the majority of the state, and why?

Answer: It depends on whether it is eastern WA vs. western WA. There are very different climates on each side of the Cascade Mountains. Western WA is very continuously rainy with low-intensity storms and mild climate, whereas eastern WA has more intense storms and more severe hot and cold climate. So, the tools that we use vary depending on whether you are on the east side vs. the west side. Also, soil type and infiltration are very different and a key indicator of which type of BMP will work best. Generally, in western WA we tend to gravitate toward the compost amended vegetated filter strips and media filter drains, whereas in eastern WA, we use more biofiltration BMPs.

Question: Is the vegetated filter strip necessary for pretreatment for the media filter drain, or would the media filter drain perform without the vegetated strip, specifically in an arid area?

Answer: Vegetated filter strips can be used on their own and do not have to be paired with a media filter drain. There are a lot of options described in the Highway Runoff Manual, and Chapter 5 goes into detail about each type of BMPs. You can go to the first page of each BMP to see a high-level summary of the function, the effective life, cost, O&M then go into more specific design requirements and design drawings. But they are unique BMPs and do not have to be paired.

Question: You mentioned that you do not compact the areas that you incorporate compost. Do you have information on effect on car run off incidences? How does it affect those events? Do you have any recorded information in relation to safety?

Answer: We have seen increased maintenance needs on BMPs that have loose embankment. We do have safety concerns but I am not aware of data showing that there have been specific accidents or anything serious that has occurred based on those soft shouldered areas. We are trying to address the concern by looking at the compost blanket option, and not creating that "squishy" area. Also, we are looking at seeding media filter drains to "harden up" those areas as well.

Question: Are there any limitations to the modified vegetated filter strips?

Answer: We are still early on in this new design, and the BMP has not yet been approved for use by the Department of Ecology, so that is a huge limitation. We need to collect data on its performance, whether it meets basic treatment and/or enhanced treatment, and then submit that information to the Department of Ecology so they can hopefully approve it as both basic and enhanced treatment. Also, the other limitation that we foresee with the modified vegetated filter strip is that we do not typically use compost when there is a phosphorus-impaired waterbody, so that will be another thing to consider when using that BMP.

Question: What is the difference between basic and enhanced treatment?

Answer: Basic treatment is based on a performance goal of meeting 80% removal of total suspended solids (TSS), and enhanced treatment has a performance goal of providing a higher rate of removal of dissolved metals, specifically copper and zinc, than a basic treatment facility (which has an influent concentration range associated with it).

Winter Stormwater Management

Presented by Nick Tiedeken, Hydrologist, Minnesota Department of Transportation

Question: What is your criteria for applying salt vs. sand. Does sand have a phosphorus problem?

Answer: We generally do not use a lot of sand. We use the salt chemical to help lower the freezing point of the water. Salt can melt snow and ice, but we largely use it to prevent the ice from bonding to the pavement. Sand is more used as an abrasive for traction. Salt and sand have very different uses. Sand would be used more in a colder weather situation, where the salt becomes less effective.

Question: Do all your plow trucks have Maintenance Decision Support System (MDSS)/Automated Vehicle Location (AVL)?

Answer: Right now, about 630 of our approximately 800 trucks have the MDSS/AVL on them.

Question: How close are you to meeting your Maintenance Decision Support System (MDSS) based Chloride use goal?

Answer: The goal is to be within 10% of the MDSS recommendations within the 5-year period. We have only been measuring for a couple of years now. The last year we were about 18% over. So, pretty good but still have a way to go to meet the goal.