

Strong & Resilient



Faruk Oksuz



Jim Schlaman

Building & retrofitting resilient water management systems

As climate threats and the passing of time take a toll on the nation's infrastructure, resiliency becomes increasingly important. Mary Beth Nevulis, former managing editor of SWS, spoke with Black & Veatch's Faruk Oksuz and Jim Schlaman about challenges and opportunities for resilience in water and storm water infrastructure.

Mary Beth Nevulis: What does resiliency refer to when it comes to infrastructure?

Faruk Oksuz: Infrastructure resiliency refers to sustainable and integrated systems planning, preparedness and implementation measures that can handle climate-based and other unforeseen natural stresses, as well as the ability and capacity to quickly adapt and modify infrastructure to restore and maintain their functions.

Nevulis: How can existing infrastructure be retrofitted to be more resilient?

Jim Schlaman: Smart retrofitting of existing systems should create redundancy and be cost-effective improvements when installed with minimal maintenance requirements. Modular and ready-to-erect flood defense or emergency management systems are also frequently used in retrofitting of existing infrastructure for resiliency.

Nevulis: What are some other trends seen in water and storm water management projects?

Oksuz: Green infrastructure. We refer to green infrastructure as a catalyst and often the manifest for public approval of other much larger and sometimes underground gray infrastructure, i.e., tunnels and pipeline, when used in tandem. An integrated watershed approach is a necessity in the development of storm

water management projects.

Schlaman: Flood management and water quality are now also joined at the hip. A "storm water master plan" is no longer just about preventing flood losses, but is also about meeting the water quality [requirements] and improving the quality of life for beneficiaries. Therefore, integrated watershed management and holistic planning across multiple departments has become the right thing to do. As the cities recognize the value of their urban creeks and rivers, we are also engaged in many stream and river restoration projects with multiple benefits that all address storm water resilience objectives.

Nevulis: What will be future challenges?

Schlaman: Storm water impacts water quality issues across the country, yet many municipalities do not have proper funding and most are far distant from having a storm water utility established. There are both political and financial challenges in setting up a storm water utility to fund the projects and programs and provide for long-term resiliency and sustainability.

Oksuz: We look at most challenges as opportunities and work with utilities and communities on the economic benefits of incorporating storm water resilience into storm water management projects. Demonstrating economic benefits to the communities also helps gain the funding needed for these multi-purpose projects. **SWS**

Faruk Oksuz, P.E., is vice president, infrastructure systems, for Black & Veatch. Oksuz can be reached at oksuzf@bv.com or 312.683.7850. Jim Schlaman, P.E., is water resources practice manager for Black & Veatch. Schlaman can be reached at schlamanjc@bv.com or 913.458.3359.