Notes for Presentation Introduction at NEWEA Conference, Jan 22-27, 2016

Using CWA contract vehicles for direct assistance
I suppose that when one thinks about funding availability under the CWA, he/she thinks grants and loans, but EPA also has the ability to provide direct technical assistance to communities using contract vehicles – and these are particularly relevant for demonstrating innovative technologies.

GI is a paradigm shift
Green Infrastructure (GI) for stormwater control represents a bit of a paradigm shift for practitioners b/c it's more about soils engineering than the sort of in/out systems model processing of grey water. Consequently, practitioners feel less comfortable about it; and perhaps this feeling becomes a bit overwhelming when a given technology is innovative.

EPA's interest in demonstrating GI
EPA has a strong interest in seeing that innovative GI technologies at the demonstration scale are designed and installed correctly. Technically, GI must work if installed correctly. So when it fails, there's usually some sort of mistake that was made in design or implementation; or certain 'liberties' taken to offset costs or time.

- **Case of Porous Asphalt.** Take the case of porous asphalt. If installed correctly, it must work. Yet there are a number of things that can go wrong if the design and implementation is not carefully considered – or if 'shortcuts' are adopted. Indeed, we received multiple anecdotal reports of porous asphalt failures which had the unfortunate consequence of tainting the technology. So we designed and built one ourselves. The result is that we have ourselves become, thru our own direct experience, comfortable with the various facets of the technology and can say with confidence now that, if designed and installed correctly, porous asphalt systems demonstrate excellent promise as a stormwater best management practice. This would not have been the case if we had not used the CWA to look more closely at these systems.

Background for Cape N BMP Project
Indeed, the same can be said for GI systems intended to control nitrogen. When we asked our state and municipal partners what sort of direct assistance project would be of assistance they uniformly said stormwater for nitrogen, in part b/c of the impending next-G MS4 permit and in light of the fact that at least one system installed for N had not performed as designed.

Note: we have not as of yet demonstrated the level of performance of these BMPs, but we took careful pains to design and install them according to existing UNHSC specifications, extrapolating – as was necessary - out the 'R&D' context and into a larger-scale 'real life' retrofit situation to tie into municipal MS4 trunk lines to intercept and treat the highest N loads we could find on the Cape.

Quote for Bethany Eisenberg's ASCE "Permeable Pavements" Publication:
"When carefully implemented, permeable pavement technologies have demonstrated excellent promise as a stormwater best management practice. This is perhaps particularly so in the geographically-constrained urban environ, where permeable pavements provide valuable volumetric and peak

volumetric control and good pollutant removal efficiency while retaining the necessary functionality of the urban landscape. Permeable pavement is, however, deceptively straightforward because of its obvious relation to common paving practices. Consequently it is important to emphasize to practitioners the need to adhere to critical and specific aspects of design and implementation."