

***The Effect of Inclusion of Sea Level Rise on the Evolution of Roadway Design Modeling***

**Carroll, Paul**

*AECOM*

This presentation will describe the evolution of modeling scenarios considered for a vital portion of a state highway that serves as an evacuation route in the Chesapeake Bay area. The study site is susceptible to both riverine watershed discharge as well as coastal storm surge. Modeling scenarios for various return frequency events (i.e. 2-yr, 10-yr, and 100-yr) under existing site conditions were compared to results from the same return events given a series of proposed hydraulic (culverts or bridge) designs. Further complicating the picture was the inclusion of Sea Level Rise (SLR) in a third round of modeling. A client stipulated requirement for a successful hydraulic design was to prevent over-topping of the roadway. Due to the inclusion of SLR, typical design conditions that might apply for a project today may not be practical solutions under the circumstance of projected higher seas. The influence of SLR on designs for the subject site not only impacted the scale and cost of the project, but the prime objective, providing a safe evacuation route, remained elusive.