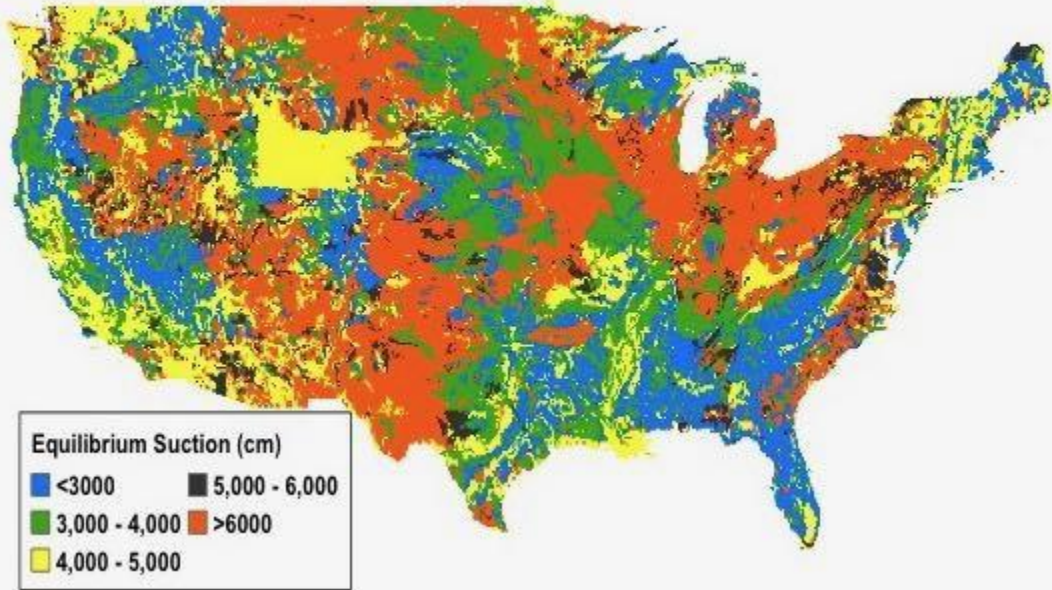


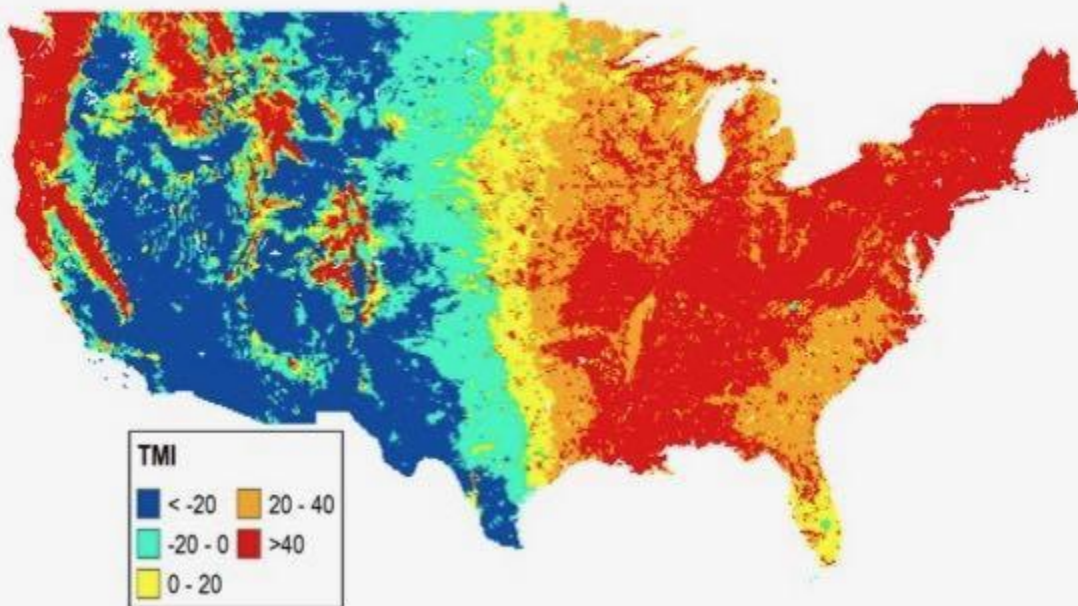
**DECEMBER 12, 2018**

Wednesday, December 12, 2018  
5:30 PM - 6:30 PM (1.0 PDH)

## Equilibrium Suction Contour Map



## Thornthwaite Moisture Index Map



**PRESENTATION**

5:30 PM - 6:30 PM (1.0 PDH)

## Title : **GIS Map of Equilibrium Suction as Controlled by the Soil and Vegetation**

Speaker : [Dr. Bob Lytton](#), Ph.D., P.E. w/ *Texas A & M University*

Dr. Lytton is an Honorary FPA Life Member, FPA Structural Committee Member, Professor of Civil Engineering in the Zachry Civil Engineering Department of the Texas A&M University, and a Licensed Professional Engineer in Texas. He has earned a BSCE in 1960 and an MSCE in 1961, both from University of Texas, Austin. He then served two years active duty in the US Army as a construction engineer followed by two years in Houston working for a consulting engineer. Then he went back to UT-Austin to complete his Ph.D. in Civil Engineering in 1967. After teaching at UT and spending time in Australia, Dr. Lytton came to Texas A&M in 1970 where he continues to teach and supervise undergraduate and graduate students today in the Zachry Civil Engineering Department.

Dr. Lytton is internationally recognized for his work in the study of the effect of expansive soil on foundations and pavements, having given presentations on the subject worldwide, recently as the keynote speaker at the 2nd Transportation Research Congress in Beijing, China in May 2017. The same Research Congress hosted a symposium that was named in his honor, called The 2nd Transportation Research Congress Symposium in Honor of Robert L Lytton. In August 2017, at the International Conference in Philadelphia, Pennsylvania, ASCE s Transportation and Development Institute (T&DI) bestowed its 2017 Francis C. Turner Award on Dr. Lytton for his advancements and innovation of pavements design and construction. He has over 500 publications to his credit, more than 200 of which are in refereed journals.

Dr. Lytton has selflessly presented to this FPA forum at least 16 times and he has also presented in past FPA seminars.

**ABSTRACT** : A critical knowledge gap exists in understanding and characterizing the cascading relationship of soil expansion caused by prolonged flooding and its impact on physical foundation infrastructure. The latent ground movement in question is brought about by the presence of an expansive soil, the length of time that an inundation condition exists, and the type of structure that will be affected by the wetting and subsequent expansion and weakening of the soil.

Given the several recent 500-year flood events in the Houston area from Tropical Storm Allison in 2001 to Hurricane Harvey in 2017, and given its low-sloped terrain and widespread occurrence of expansive soil near-grade, Houston is being studied by TAMU as a test case for an online map being developed for assessing the risk of flooding for residential and commercial structures, coupled with a cloud-based ground movement prediction tool. While the tool under development would be tested in the Houston area, it will be applicable to any given coastal community with expansive clays, as well as other similar flood prone communities.

### **WHO SHOULD ATTEND?**

Geotechnical engineers, foundation design engineers, civil engineers, pavement engineers, forensic engineers, developers, building contractors, city, county and state engineers, and others interested in a novel method for determining more accurate soil data from a GIS Map database.

### **PRESENTATION SUMMARY**

[Click here to view this speaker's slide presentation](#)

### **PAST PRESENTATION SUMMARIES**

To read summaries of previous FPA presentations by Dr. Lytton, please click:

[December 2017](#) - Designing Bases and Subgrades for Better Pavement Performance

[December 2016](#) - Design of Drilled Shafts in Expansive Soils. Part 3

[December 2015](#) - Edge Cracking in Pavements on Expansive Soils: Causes and Countermeasures

[December 2014](#) - Methylene Blue Test of Soil Properties: A Rapid and Accurate Field Test

[December 2013](#) - Design of Drilled Shafts in Expansive Soils. Part 2

[December 2012](#) - Design of Pavements on Expansive Clay Subgrades

[December 2011](#) - Design of Drilled Shafts in Expansive Soils

[December 2010](#) - Effects of Trees on Foundations

[December 2009](#) - Contrasting Design Approaches for Slabs-on-Ground and Raised Floor Foundations on Expansive Soils

[December 2008](#) - How to use the PTI-3rd Edition to Design Foundations in Houston

[December 2007](#) - Design of Structures to Resist the Pressures and Movements of Expansive Soils

[December 2006](#) - Revisitation of Expansive Soils

[December 2004](#) - Case Studies of Residential Foundation Movements in Southern Houston Area

[August 2003](#) - How to Run Soil Suction Tests

[August 2002](#) - Shallow Slope Failures and Suction from Vegetation

[August 2001](#) - Methods to Aid Structural and Geotechnical Engineers in Designing Slab-on-Grade