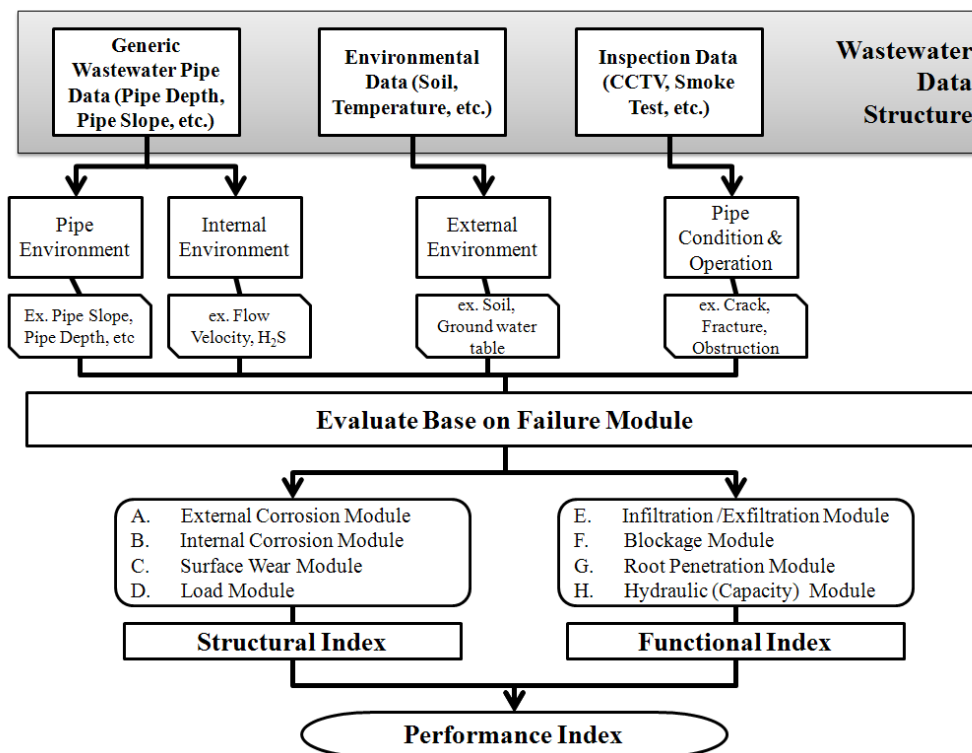


# Virginia Tech Drinking Water Pipeline Performance Index VT-WWPPI

## ABSTRACT:

Accurate prediction of wastewater pipe structural and functional deterioration plays an essential role in the utility asset management process and capital investment planning. The key to implementing an asset management strategy is a comprehensive understanding and prediction of asset condition and performance. The primary objective of this research is therefore to develop protocols and methods for predicting the remaining economic life of wastewater pipe assets. This research presents a development of a robust Wastewater Pipeline Performance Index (WWPPI), considering all parameters for the wastewater pipe system including physical/structural, operational/functional, environmental and others parameter are included, considering not only the pipe but the entire system. Data analysis was done in order to find the statistical significant of each parameters through participating utilities' data. These parameters are grouped into pipe properties, internal environment and external environment. The proposed performance rating system evaluates each parameter and combines them mathematically through a weighted summation and a fuzzy inference system that reflects the importance of the various factors. The Performance Index comprises of structural and functional index, and each index evaluates pipes in scale from zero to hundred.



**Figure 1:**  
Process for  
Wastewater  
Pipeline  
Performance  
Index

## CONTACT:

Dr. Sunil Sinha; Email: [ssinha@vt.edu](mailto:ssinha@vt.edu); Phone: 540-231-9420