

Virginia Tech Risk Analysis and Management for Pipeline VT-RAMP

ABSTRACT:

Advanced pipeline risk management is contingent on accurately locating the buried pipelines, the milieu and also the physical condition of the pipelines. This Web-GIS based Risk Analysis and Management for Pipeline (RAMP) tool provides a robust way to assess the risk associated with the failure of water and wastewater pipelines. This research focuses on the development of RAMP tool and a network level global risk model for the quantitative risk assessment of water and wastewater pipelines by taking into account of the likelihood and consequence of pipeline failure. Extensive global parameters are taken into consideration to determine the likelihood and consequence of pipeline failure, and these parameters are evaluated by water and wastewater utilities in US, and derived by GIS using advanced geospatial tools. A Web-GIS based RAMP application is developed as a tool for utilities to access the risk model results for the water pipelines. An exclusive working environment will be provided for each utility with access to their respective data and to access the global risk assessment model results with the ability to export the queried results, and thus this serves as a comprehensive tool for sustainable utility risk management. Also, this is a global risk model for strategic infrastructure risk management and it is to be used for asset allocation, financial planning, and determining condition assessment methods on a network level.

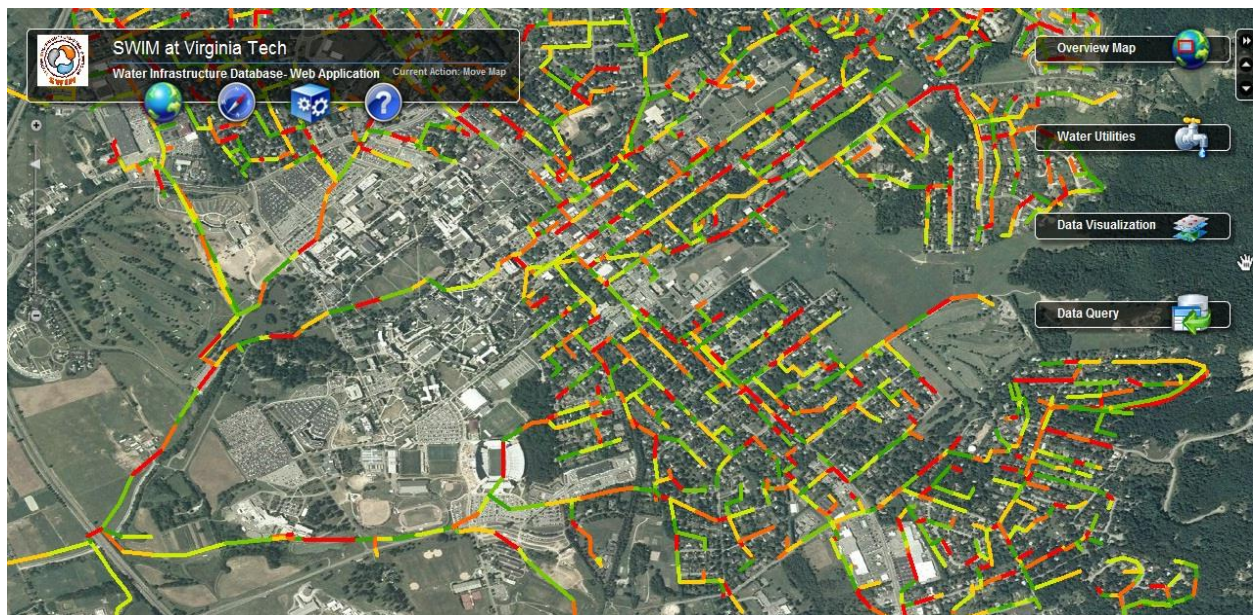


Figure 1: Web-based Risk Visualization for RAMP Tool

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