

## **Map 6: St Louis City & County Sinkholes and Potential Areas of Collapse**

### **Analysis performed**

For sinkholes, we have the mean center, median center, and kernel density. For areas of potential collapse, we first divided them into single parts and then ran multivariate clustering, spatially multivariate clustering and cluster and outlier analysis. Spatial autocorrelation tool was used to understand if the correlation used to obtain the clusters is significant.

### **Relationship between the area of potential collapse clusters and sinkhole density**

There are few areas of potential collapse in the north that have some overlap with the existing sinkholes. However, the clustered areas of potential collapse that are significant are not overlapping with the current sinkholes. Also, the significant outliers are also not the densely populated sinkholes. Most clustered areas of potential collapse are near the mean and median of the sinkholes and since these statistics are computed based on the location, it does have some relation to the areas of potential collapse.

### **Missing data and further questions**

Even though some of the spatial statistical analysis shows some association between the sinkhole density and potential areas of collapse, one must consider other factors too like what construction was that was happening around that area. Did the development of that area change the ecology of the areas? Especially, having the information about the fact that there are underground rivers in this area would have been useful. Also getting the information as to how these potential areas of collapse are computed would also be useful information.