

The Tacoma Youth Community Mapping Project (TYCMP) aims to engage middle and high-school students from the Tacoma region to identify community areas of perceived danger, and to highlight those areas as high-risk that youth actively avoid. This data is used to inform decision-making on community safety, youth community programming, and citizen community awareness and engagement. The preliminary round of data collection has been completed and proof-of-concept GIS polygons and heat-maps have been generated. The TYCMP now seeks to scale its operations to include more schools, data inputs, and to create on-the-fly maps of the results; currently a labor-intensive process. This capstone automates the data processing and data visualization aspects through a publically available web-portal. Hand-validated datasets are fed into the portal, where the polygons are compiled and validated on a server. The results are served as either single-serve geoTIFF files or may be consumed by a web map that allows users to explore the datasets spatially through an interactive application, activating and deactivating the data layers to suit their needs. This capstone represents the development of a scalable framework through which the TYCMP may be brought to other school boards, municipalities or cities, while minimizing the overhead labor associated with the project. Through this capstone, the TYCMP process can be expanded to power youth and community engagement in other locales which strive to develop a deeper understanding of the hyper-local knowledge of youth who walk their streets every day.