

## **ABSTRACT**

Anthropogenic climate change, growing populations, the decrease of essential resources, and the availability of funding to deal with these emerging conditions, provide the incentives for cities to mitigate and adapt through urban sustainability programs. Though web GIS applications visualizing features of sustainability do exist, few visualize actual sustainability indicators, and almost none visualize performance on the refined scale of the city. A web GIS application targeting such objectives with urban sustainability indicators was developed for Oakland, California. The application demonstrates a tool for planners and the public by creating a starting point for a time-referenced spatial view for the pace of progress. The six broad indicator elements determined by the city of Oakland's Annual Sustainability Report worked as the foundation to customize spatially related indicators meeting specifications of quality in representation and function. These customized indicators are climate change vulnerability, employment availability, housing, public transit accessibility, natural resource project inventory, as well as culture and community. Another application with editing capabilities informs the culture and community indicator with volunteered geographic information (VGI). The features demonstrated in the applications' functions include classifying methods of performance, a strategy-based approach informed with municipal policy, access to indicator attributes, as well as basic map capabilities allowing for zoom to neighborhood, toggling of individual indicator visibility, and an integration with social media resources. An overview of the steps in the application development process was documented. The application was made available for testing with a survey for feedback that was both utilized and acknowledged for future considerations