

## **ABSTRACT**

The U.S. Office of the Border Patrol defends the nation at its borders from unauthorized entry and terrorist incursion through the strategic application of detection, delay and response resources in variable terrain. Compounding their task, the expansive geography of the border region, along with a constrained budget, necessitate the allocation of resources to areas of greatest concern based upon a perceived threat that varies both spatially and temporally. The purpose of this research is to demonstrate a flexible geospatial decision support model that incorporates human and geographic variables identified through intelligence collection to define a threat and predict human route selection along a path of adversary least cost. Leveraging historical research into the characteristics and motivational factors of illegal border crossers, this research models a hypothetical terrorist threat to predict a route from a location near the U.S.-Mexico border to a predetermined location within the U.S. The model utilizes cost-weighted rasters representing postulated threat-based factors contributing to human route selection. The results of the model are intended to serve as a demonstration-of-concept to aid in defense resource allocation along the U.S.-Mexico border. It is anticipated that the results of this research will demonstrate a novel geospatial approach toward resource allocation through the synergy of intelligence information and spatial analysis techniques to yield likely transnational adversary routes.