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One of the researches I did this summer with the help of my colleague Jermaine Hemby was to Develop a Geographic Information System for simulation city bus movements. The purpose of this work is to develop high-resolution population distribution databases (extending upon ORNL's LandScan USA) for U.S. metropolitan areas to obtain refined hour-of-day and cohort-specific population distribution data amenable for human exposure modeling purposes. Our objective was scientist would like to know how much potential and environmental hazard school kids are expose to daily as they travel to and from school. In getting started with this research, I collect various data research looking into Philadelphia bus routes. With the given information I put data into a database and then display the results in GIS.

Another research I did was to Develop Daytime Population Estimates for U.S. Ports. The purpose of this research is to estimate the daily population of workers entering all businesses and facilities within maritime ports in the United States. Since 1999, Oak Ridge National Laboratory's (ORNL's) Geographic Information Science and Technology (GIST) Group has been developing and refining a high-resolution population distribution model and database (called LandScan USA). LandScan USA population model can provide population data at higher spatial resolution than the U.S. Census data and provide temporal variability in the spatial distribution of the population within a metropolitan area. The Transportation Security Administration

(TSA) Office of Transportation Policy has a demand for developing a population estimate for each of approximately 362 U.S. Ports and associated services collocated at these ports.

ORNL will apply their LandScan USA high resolution population distribution model to selected urban/metropolitan areas associated with each port location to produce a single population estimate for each port. It will utilize all of the usual data sources in this Task, such as U.S. Census data, land use and transportation data, and other information. Data sources that will be used will include publicly available data sources, but are not restricted to: the National Geospatial-Intelligence Agency (NGA) Vector Map series data, National Geospatial-Intelligence Agency's Digital Elevation Terrain Data (DTED), US Geological Survey's National Land Cover Data (NLCD), and the National Oceanic and Atmospheric Administration's "Lights of the World" data system. In addition, commercial databases will be required to meet the expected data quality.

Using TSA provided data on businesses collocated at each of the 362 ports; ORNL will refine the output from Task 3.1 using this additional data resource. For this task, ORNL will rely upon commercial business demographic datasets to factor the daytime populations associated with each of the 362 U.S. ports.

LandScan USA an innovative approach with Geographic Information System ORNL's LandScan global population project has developed a population distribution model that produces the finest resolution population distribution data available for the US Port as an expansion to global LandScan, ORNL is currently developing a very high-resolution population distribution data (LandScan USA) for the U.S. Port. LandScan USA includes nighttime (residential) as well as daytime population distributions.

LandScan USA is more spatially refined than the resolution of block-level census data and includes demographic attributes. The potential benefit of LandScan USA has been demonstrated for locating daytime populations requires also other socio-economic data including places of work, journey to work, and other mobility factors. The combination of both residential and daytime populations will provide significant enhancements to geospatial applications ranging from homeland security to socio-environmental studies.

What is ArcView GIS? ArcView allows you to easily create maps, and add your own data to them. Using ArcView visualization tools, you can access records from existing databases and display them on maps. ArcView can be use to integrate and share, data across your organization, work with your data geographically—seeing undetected patterns, revealing hidden trends and distributions, and gaining new insights, map customer and competitor site locations, understand relationships between the forces that drive your research, and make better decisions to solve research problems faster and smarter, publish intelligent maps and create interactive map presentations by linking charts, tables, drawings, photographs, and other files, develop custom tools, interfaces, and complete applications.

Spatial data is a core component of a GIS (Geographic Information System). Converting information into useable data for a GIS is non trivial. For example, researchers need the data to understand how to characterize population of ports. Researchers need to collect and collate different kinds of data that are ready to use in GIS. The purpose is to demonstrate computational procedures of collecting data from databases to support the estimation of the population for ports and service providers.

The Benefit of this research was to better assessment of port worker population potentially at risk during an emergency. Better port worker counts will result in more accurate cost estimates for implementation of Transportation Worker and Identification Credentialing (TWIC). Output will provide high-resolution counts of port workers to be used as input for cost-benefit analysis of impacts will be better understood from more accurate daytime population.

After completion my research, it is expected to be a single population estimate of the daytime population for each port in a format that is mutually acceptable to TSA and ORNL staff. The database for U. S. Ports will be used to provide a daytime population estimate database for U.S. ports that can be incorporated into the Transportation Security Administration (TSA) cost-benefit model.