VISUALIZATION/SIMULATION

Powering Applications with Map Data Layers Extracted from Satellite Imagery

Simulation-based virtual training systems require geo-specific visual environments for realistic training of military and security forces, but scenarios often are based in areas of the world with limited map data availability. LAND INFO leverages the global reach of commercial high-resolution optical satellite imagery by custom extracting map data layers optimized for visualization and simulation (viz/sim) applications.

Used by pilgrims during the Hajj, Mina (Tent City) and Jamaraat Bridge are located at the eastern outskirts of Mecca, Saudi Arabia. Realistic digital environments are created by including detailed features such as fences, compound walls, towers and other infrastructure in addition to basic layers such as transportation, buildings, hydrology and vegetation. Rich feature attribution, such as road type, is also included. The topology that is employed maintains visually correct databases, e.g., building footprints don't intersect with roads or hydrology. Shared nodes at all road intersections permit routing applications. With a stereo pair of GeoEye-1 imagery, a Digital Terrain Model and 1-meter vector contours also were created.
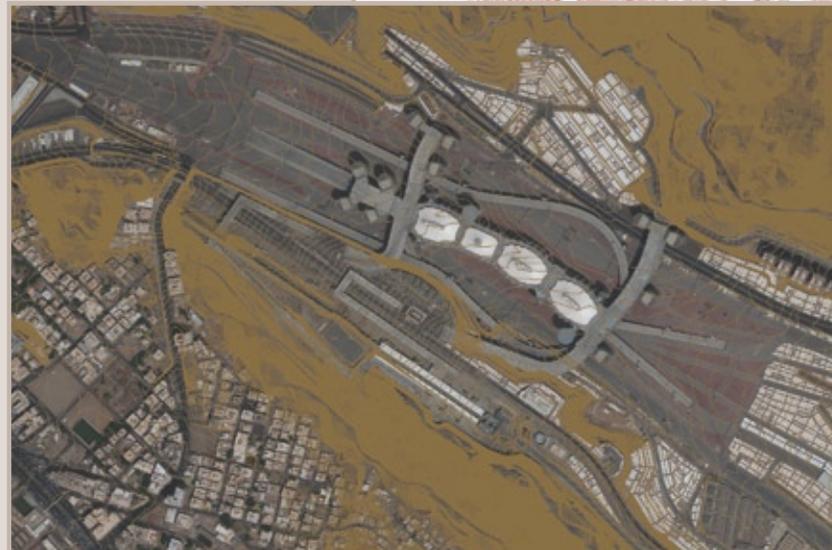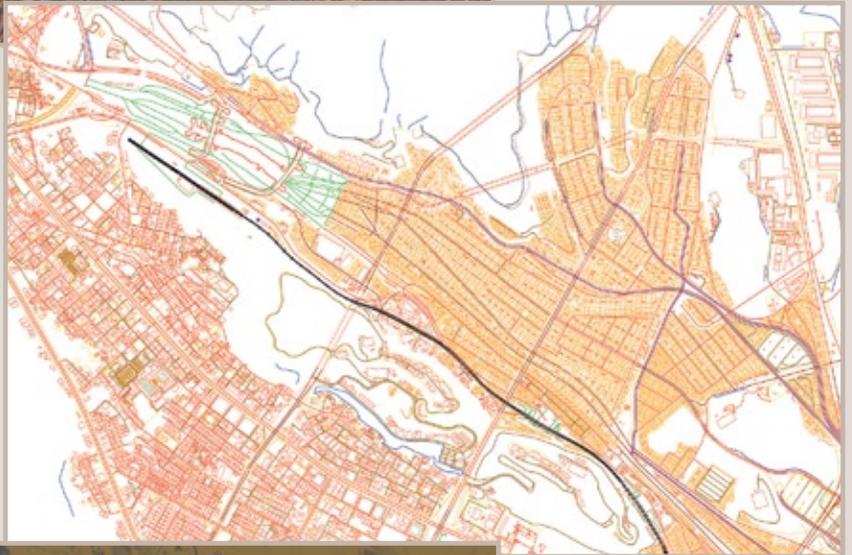
Depending on the map data layers and attribution required, a blend of manual and semi-automated techniques are employed to create the data. LAND INFO map data have been used effectively in skills trainers for small arms, gunner, convoy/route clearance, armor and aviation.

Discover the LAND INFO Geo-Data Advantage

At project inception, LAND INFO will analyze the required layers and level of detail to recommend appropri-

ate source data, making sure the customer thoroughly understands all options, including the use of archive imagery vs. new collection. During initial image processing, ensuring high absolute accuracy allows multiple data types from different sources to be integrated while maintaining high relative accuracy, resulting in visually correct environments.

LAND INFO's topologically correct map data layers afford a significant cost and time savings for customers who want to finalize their own visual databases, or we can deliver turnkey 3-D models. Additionally, LAND INFO can custom create data from a wide range of collection platforms, or we can correlate a customer's existing data to satellite imagery for improved accuracy and currency.

Visit *www.landinfo. com* for additional information on all LAND INFO products and services, including how to empower your viz/sim applications with the LAND INFO geo-data advantage.

High-resolution imagery gives needed detail over urban areas, but medium-resolution imagery, such as RapidEye, can be ideal for large-area regional coverage. To improve the absolute accuracy of the coarser regional data, and the relative match between the two datasets, the high-resolution image is used as horizontal control. Object-based image analysis enhances classification and feature-extraction results while yielding faster deliveries at reduced cost.