

#### 4.4.1

### **Benefit Cost Analysis of Strategic Provincial Roads in Southern and Eastern Afghanistan**

#### **Presenter**

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Wilbur Smith Associates, in conjunction with the IRD and the USAID, is currently developing a benefit cost analysis framework to evaluate 32 road development projects in Southeastern Afghanistan. This framework will incorporate traditional project evaluation methodologies, key social and economic factors and the ramifications of road improvements. The main project objectives include the estimation of road construction and maintenance costs, current and future traffic volumes and evaluation of the primary and secondary transport benefits that result from road improvements.

An important component of this project involves the use of GIS to measure secondary benefits. These benefits consist of various social, economic and security improvements such as improved access to government, educational and health facilities; access to urban, agricultural and employment centers, and improved cross-cultural access. A variety of raster and vector GIS techniques including travel-time, connectivity and catchment area analyses were used to evaluate various scenarios related to road improvements. These results, along with the results of other analyses, were used in the benefit cost framework.

The presentation will discuss the GIS methodologies employed in this study, as well as results and challenges encountered.