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Research Note: Madhu Rao

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In a few years Southeastern Massachusetts will once again benefit from rail service to Boston. In preparation for the arrival of commuter trains, extensive research is being conducted to determine the impact of the project on land use and transit.

One such research project is being conducted by Dr. Madhu Rao of the Department of Earth Sciences and Geography. Dr. Rao is working on the integration of remote sensing and Geographic Information Systems (GIS) technologies to examine land use impact of commuter rail service in Southeastern Massachusetts.

This research project will apply emerging technology for automated detection of land use change from satellite sensors and infrared aerial photography using a $17,000 state-of-the-art GIS system, ARC/INFO, acquired by Dr. Rao for Bridgewater State College. The demographic and spatial data for the study area, the Middleboro Branch of the Old Colony Railroad, will be extracted directly from TIGER (Topologically Integrated Geographic Encoding and Referencing) files of the U.S. Bureau of Census, which provide information on road networks, railroads, power lines, water bodies, census tracts/blocks, election districts, and other geographic features. The GIS and remote sensing softwares on campus, not only allow researchers like Dr. Rao to input data from a digitizer, but also can import aerial photographs, satellite imagery, scanned maps, plans, quad map images, or such other documents and trace each into a map file and thus keep data accurate and current for GIS analysis and modeling. The goal of Dr. Rao's research is to develop a computer-demonstration of land use change employing satellite imagery and predictive models of transit use with the Old Colony Railroad commuter service as the demonstration site. Dr. Rao's work will be invaluable as the Old Colony Railroad project moves forward and eventually impacts land use and transit in the region.