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INTEGRATION OF GIS TECHNOLOGY IN THE URBAN PLANNING TO EXTEND THE CITY OF ZAMORA, SPAIN

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Abstract

The present study has established a methodology to determine the most environmentally sustainable area for the expansion of a city center using Geographic Information System (GIS) technology. This technology permits the graphical information associated with a municipality to be manipulated, integrated, analyzed and represented in a simple way that is cost effective during the early decision making steps, which analyze the various options regarding the urbanistic planning prior to taking final decisions.
In order to delimit the growth zones, three types of factors were established: restrictive (those whose presence made urbanization impossible: close proximity to a treatment system, risk of flooding, steep slopes, protected land, high quality agricultural land and geotechnical problems); determinant (those who determined which sectors would require additional costs upon urbanization: distance to the preexisting infrastructures, heavy traffic and close proximity to an administrative center) that determined which periphery areas were suitable for the construction of new buildings; and finally establishing which areas were to be built up through a decision factor that satisfied a particular municipal need.
Moreover, to facilitate the urbanistic process, the selected areas were divided into cadastral parcels that were analyzed, and their dimensions and existing visual impact were determined. In addition, the type of dwelling to be utilized was recommended once an urbanistic analysis was carried out on the adjacent areas and the urban transport system was designed, connecting the new growth area to the city center.

Key words: Geographic Information System, geo-environmental cartography, sustainable growth, urban planning

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