

# The Design of Open Land Grade Information System

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Abstract: The design idea of Open Land Grade System based on G I S is introduced in this paper, which aims at the characteristic of influence factor's diversification in land grading and combined with geography tightly. It realizes open of the grade factor system, variability of map layers of factors, standardization of index's content、 alternation of factors' calculation method、 practicability of the system and expanding of the achievement, and combining the data organization and task flow closely .The open system of land grade factor shows that the factors can be organized at will, such as changing factors' name, adding and deleting the factor, etc. It is important to build up a applicable land grade system in different cities. The region of spatial entity factor and social economic factor that related to spatial entity can be displayed in different graph type (points, lines and polygons) in land grade. In Land Grade Information System, all the factors can be classified to different type layers, and the problem of uncertainty factors can be solved. The standardization of data is the base of factors 'calculating and analyzing. The standard input control of indexes' content related to attribute fields can build up in template, it avoids the factitious error。 The detachment between the program and the data is one of the important life in G I S. The process of factor's calculation becomes uncertain because of the open of factor system.

The process of calculating the factors' influence mainly includes calculating the value of factors' function, the influence radius, the influencing value to object unit, and so on. Firstly, every process of factors is divided into minimize steps, and every steps are coded, then the corresponding public procedure function are built. So the calculation method is composed of codes of many steps. Secondly, every variable is coded in each step, and the corresponding public variable functions are built. The attribute calculation is realized by formula anti-compiling and the influence way of factors is got by code translated. Algorithms such as analysis of buffer, the shortest and optimal path are combined with the theories of land grade to overcome the shortcoming in traditional process. The object unit in factor spatial analysis is a reseau layer covering the whole grade region. The fixed and homogeneous reseau not only provides a base of piling up the factor s' spatial attribute in land grading, but also prepares for the evaluation of land standard price based on the land grade.

The design idea of open system was well applied in the demonstrate project of The Land Grade and Evaluation Information System in BaoAn Town of ShenZhen City. It enlightens the apply of special G I S。

Key words: open system, G I S , grade、 path、 buffer