

Data Capture Quality Control Issues in Cadastration

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ABSTRACT

Cadastral data quality directly influences the veracity and authority of cadastral. One of the main problems to build cadastre information system is the data quality problem. In general, some courses, such as proprietary investigation, boundary point and feature point data capture, and the surveying data handle, are the key of influencing cadastral data quality. The objective of this paper is to explore the data capture quality control issues in digital cadastre taking into account Chinese situation.

Firstly, the quality control of property investigation and boundary point surveying are discussed based on data collecting procedures of digital cadastre. For this purpose, in practice, work units can be defined on bases of street blocks. Property investigation follows the mode of 'application-investigation-surveying' so as to finish one block by one work group in one-step. This mode can effectively avoid mistakes and omission, and thus guarantee the quality of property investigation in the field. Secondly, Some geometric conditions, such as orthogonal conditions, line conditions and distance conditions, which the boundary points should be satisfy to, are discussed, and conditional adjustment method is adopted in surveying data procession. Thirdly, Graded adjustment method for large amount of boundary points in one area is proposed. There can be 1 grade to 3 grades in graded adjustments according to the complexity of feature points. In cases of simple figures and few conditions, there is no need for graded adjustment, just list all condition equations and adjust them integrally. In cases of more complex figures, 2 grades, or even 3 grades of adjustment may be necessary. Exterior boundary points of a street block are used as first grade control, forming a closed route. Then list condition equations for them and adjust them. The coordinates of those exterior points are then used as fixed in the adjustment next grade, and the interior points of buildings can be adjusted with respect to orthogonal conditions. Lastly, a feasible technical method to eliminate gross errors is presented. Data detection and thresholding method, for instance, are adopted to find and eliminate gross errors.

In summary, the work mode of 'application-investigation-surveying' can finish work in one-step by one group, and thus can guarantee the quality of property investigation in field. Graded adjustment can solve the batch adjustment of boundary points within an area. Adjustment, accuracy assessment, and feasible technical method to eliminate gross errors can enhance the accuracy of captured data, and thus are helpful to the quality control of cadastral data capture.

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