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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 18731-2025

Replacing GB/T 18731-2002

Rules for locating arterial highway

干线公路定位规则

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document replaces GB/T 18731-2002 "Rules for Positioning of Trunk Roads". Compared with GB/T 18731-2002, except for the structural adjustment and In addition to editorial changes, the main technical changes are as follows.

- a) Added the terms and definitions of "arterial highway", "positioning element" and "general highway point" (see 3.1.1, 3.1.2 and 3.1.7);
- b) The definitions of the terms "highway positioning reference system", "highway positioning benchmark" and "highway positioning reference point" have been changed (see 3.1.3, 3.1.4, 3.1.6, 3.1, 3.2, 3.4 of the 2002 edition);
- c) The design elements of the positioning reference system for trunk roads have been modified (see 4.1, 5.1 of the 2002 edition);
- d) Modified the design requirements for the positioning reference system for trunk roads (see 4.2, 4.1 of the 2002 edition);
- e) The positioning method of the arterial highway positioning reference system (see 4.2 of

the 2002 edition) has been deleted;

- f) The identification method of geodetic coordinates has been changed (see 5.1.2, 6.1.1 of the 2002 edition);
 - g) Added the provisions for 6° zone and 3° zone projection (see 5.1.3.2 and 5.1.3.3);
 - h) Added geodetic height identification method (see 5.1.4);
 - i) Changed the identification method of mileage posts (see 5.1.5, 6.1.4 of the 2002 edition);
 - j) The coordinate identification requirements for the spatial position of the positioning elements of trunk roads have been changed (see 5.2.2.1, 6.2.2.1 of the 2002 edition);
 - k) Changed the method for selecting mileage pile numbers (see 5.2.4, 2002 edition);
 - l) The composition of the positioning elements of arterial roads has been modified (see 6.1, 5.1 and 5.2 of the 2002 edition);
 - m) Added requirements for selecting positioning benchmarks for trunk roads (see 6.2.1.1);
 - n) Added the method for selecting general points on trunk roads (see 6.2.4);
 - o) The accuracy requirements for positioning element data have been changed, including the addition of positioning data such as photogrammetry, lidar measurement, and real-world data.
- Element collection methods and accuracy requirements (see 7.1, 7.2, and 8.1 of the 2002 edition);
- p) The requirement for converting the Beijing coordinate system to the Xi'an coordinate system has been deleted (see 9.4.1 of the 2002 edition);
 - q) Added the content of conversion of 3D surveying and mapping results in the conversion of actual mileage of trunk roads and mileage of surveying and mapping results (see 7.3.3);
 - r) Changed the requirements for transformations between the national geodetic coordinate system and other reference ellipsoid coordinate systems (see 7.3.4, 9.4.2 of the 2002 edition);
 - s) Added the requirements for conversion between geodetic height and normal height (see 7.3.5);
 - t) The requirements for conversion between topographic map data have been modified (see 7.3.6, 9.4.3 of the 2002 edition);
 - u) The requirements for the coding structure of positioning elements for arterial roads have been changed (see 8.1.1, 10.1.1.1 of the 2002 edition);
 - v) The coding method for positioning reference points of trunk roads has been changed (see 8.1.2.3, 10.2.1 of the 2002 edition);

- w) The coding method for main control points of trunk roads has been changed (see 8.1.2.4, 8.1.2.5, and 10.2.2 of the 2002 edition);
- x) The coding method of reference points for trunk roads has been changed (see 8.1.2.6, 10.2.3 of the 2002 edition);
- y) Added the coding method for general points on trunk roads (see 8.1.2.7);
- z) Changed the route number and administrative division code in the trunk road location element coding (see 8.1.3, 8.1.4, 2002 edition) 10.1.1.2);
- aa) The positioning coding structure of mileposts along the route has been changed (see 8.2.2, 11.1 of the 2002 edition);
- bb) The road network node connection method (see 11.2 of the 2002 edition) has been deleted;
- cc) Added the requirement for reference position coding based on mileage distance (see 8.2.3);
- dd) Added the requirement for reference location coding based on sequence numbers (see 8.2.4);
- ee) Added the provisions for spoke number codes and direction identification codes (see 8.2.5 and 8.2.6);
- ff) Added requirements for setting positioning elements in the application of arterial highway positioning information (see 9.1.1);
- gg) Added the requirements for basic information exchange diagrams selected for the trunk road positioning reference system (see 9.1.2.1);
- hh) Changed the requirements for the security of trunk road location information (see 9.1.3, 12.2 of the 2002 edition);
- i) Added requirements for the application areas of positioning elements (see 9.2);
- j) The conversion method between the actual mileage of trunk roads and the mileage obtained through surveying and mapping has been changed (see Appendix A, 9.3 of the 2002 edition);
- kk) The classification code for positioning elements has been changed (see Appendix B, Appendix B of the 2002 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

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The previous versions of this document and the documents it replaces are as follows.

- First published in 2002 as GB/T 18731-2002;
- This is the first revision.

1 Scope

This document specifies the design, identification, selection, collection, coding and other aspects of the positioning reference system for trunk roads consisting of national and provincial roads.

and positioning information application requirements.

This document is applicable to the positioning of trunk roads consisting of national and provincial highways, and can be used as a reference for other roads.

2 Normative references

GB/T 917

GB/T 2260

GB/T 7930

GB/T 7931

GB/T 12897

GB/T 12898

GB/T 12979

GB/T 13977

GB/T 13990

GB/T 16831

GB/T 17942