GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 03.220.20

R 80

GB/T 39898-2021

Technical specifications for the construction of intelligent traffic management system

智能交通管理系统建设技术规范

Issued on: March 09, 2021 **Implemented on: October 01, 2021**

Issued by: State Administration for Market Regulation;
Standardization Administration of PRC.

Table of Contents

Technical specifications for the construction of intelligent traffic management system

1 Scope

This standard specifies the composition and technical requirements of the intelligent traffic management system.

This standard applies to the planning, design, construction of intelligent traffic management systems in provinces (autonomous regions, municipalities), districted cities, counties (cities).

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB 14886 Specifications for road traffic signal setting and installation

GB 14887 Road traffic signal lamps

GB/T 19056 Vehicle travelling data recorder

GB/T 20609 Traffic information collection - Microwave traffic flow detector

GB 21139 Basic requirements for standard data of fundamental geographic information

GB/T 21255 Motor vehicle speed detector

GB/T 22239 Information security technology - Baseline for classified protection of cybersecurity

GB 25280 Road traffic signal controller

GB/T 26942 Loop vehicle detector

GB/T 28181 Technical requirements for information transport, switch and control in video surveillance network system for public security

security

GA/T 1403 Guidelines for intelligent traffic management system planning

GA/T 1426 General technical specifications for automatic recording system for illegal parking of motor vehicles

GA/T 1494 General technical specifications for pavement icing monitoring system

JT/T 714 Road weather environment - The visibility meter

JT/T 794 GNSS system for operating vehicles - Technical specification for vehicle terminals

JT/T 809 GNSS system for operating vehicles - General specifications for data exchange between platforms

JT/T 1032 Guiding device for highway traffic safety in fog weather

GH [1987] No.78 Reply of the State Council on the Use of the "1985 National Elevation Benchmark"

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Intelligent traffic management system

Public security traffic command system

It is a system, which uses intelligent traffic technology and methods to manage road traffic; has the function of traffic command, traffic control, traffic law enforcement, traffic information service.

3.2

Integrated application platform

An application software system, which integrates road traffic monitoring, decision-making, control, service.

3.3

Application support system

of the sub-command center, the front-end supporting fundamental facilities.

3.7

Front end

Equipment and related ancillary facilities, which are installed on roads and other places, for traffic control, traffic law enforcement, traffic information collection and release.

4 General rules

4.1 Classification of intelligent traffic management system

The intelligent traffic management system is divided into two types: provincial (autonomous region) intelligent traffic management system AND urban intelligent traffic management system, according to the different central management authority and core tasks. The structure diagram is as shown in Appendix A. For expressways directly managed by municipalities, counties (cities) and provinces (autonomous regions), it should be constructed with reference to the urban intelligent traffic management systems.

4.2 General rules

The construction rules of the intelligent traffic management system are as follows:

a) The planning shall meet the requirements of GA/T 1403;

b) The design shall meet the requirements of GA/T 515;

c) The project construction process shall meet the requirements of GA/T 651;

d) The front-end settings shall meet the requirements of GB 14886, GA/T 993, GA/T 1047, etc.;

e) Front-end maintenance shall meet the requirements of GA/T 1043;

f) For other construction content, please refer to the relevant standards in Appendix B.

The construction rules of the traffic management data resource management system are as follows:

a) It should use big data and cloud computing technology framework;

b) It shall construct a unified and standardized basic hardware resource, that meets the requirements of data volume and computing power;

c) There shall be standardized interfaces and interactive protocols, which are suitable for different systems;

d) It shall adopt standard data format and exchange interface;

e) Data shall be cleaned, repaired, classified, correlated, stored, etc., to ensure data specification and data quality;

f) Classified preprocessing and storage of traffic management data resources, including structured data, unstructured data, semi-structured data;

g) Unified planning of information resources and classified construction of various thematic data resource libraries, classified display of data storage time;

h) It shall be equipped with data analysis tools for custom production of various business application model libraries;

i) There shall be technical measures and mechanism requirements for data security, data backup and recovery.

6.1.3.1.2 Data interaction

It mainly realizes data exchange with the following systems:

a) Higher-level public security organs;

b) Urban intelligent traffic management system in the province (autonomous region);

c) Relevant departments in the province (autonomous region);

d) Internet companies;

e) Intelligent traffic management system of neighboring provinces (autonomous regions);

f) Related systems in the public security network;

g) Related systems in the private network;

6.1.4.1 Communication system

6.1.4.1.1 General rules

The communication system shall have the ability, to provide a channel for the transmission of information and instructions, BETWEEN the various components of the intelligent traffic management system AND the external related systems. Communication methods include wired communication and wireless communication.

6.1.4.1.2 Wired communication

Wired communication shall meet the following requirements:

a) Provide channels for information exchange with relevant departments;

b) Provide channels for information exchange, between public security information and communication networks, private networks, the Internet.

6.1.4.1.3 Wireless communication

Wireless communication shall provide wireless transmission communication links for video, audio, data. It should adopt 5G communication, if conditions permit.

6.1.4.2 Information security protection system

6.1.4.2.1 System composition

The information security protection system is mainly composed of front-end basic system security protection, network communication system security protection, integrated application platform security protection, data resource computer room security protection, etc. The information security protection system shall at least include information security management system and security protection equipment.

6.1.4.2.2 Security level protection

The security level protection requirements are as follows:

a) According to the deployment of software and hardware equipment, in different communication systems, reasonably divide the security zone, determine the security boundary, carry out regional protection, formulate appropriate security management strategies and goals.

b) The protection level shall be configured, according to the system deployment and application conditions. The public security network shall be configured, according to the level-3 requirements. The video private

6.1.5.2 Conference decision-making room

The area of the conference decision-making room shall be configured, according to the requirements of emergency command and dispatch consultation and decision-making.

6.1.5.3 Video conference system

The video conference system shall meet the following requirements:

a) Realize interconnection and intercommunication with superior and lower-level video conferencing systems;

b) Conduct video networking applications with video surveillance systems.

6.1.5.4 Standby room

The area of the standby room shall be configured, according to the number of standby personnel.

6.1.5.5 Display system

The display system shall have the ability to clearly display information, such as video surveillance images, traffic operating status, traffic geographic information, vehicle and personnel satellite positioning information, event alarms, vehicle and personnel deployment control pre-alarms, etc. It shall support simultaneous display of multiple signals, image zooming, splicing display.

6.1.5.6 Other systems

It shall determine the functions and configurations of the systems, such as power supply and distribution system, lightning protection grounding system, lighting system, air conditioning system, fresh air system, fire extinguishing system, multimedia centralized control system, digital conference system, sound reinforcement system, video security monitoring system, access control system, according to the actual needs of the command center hall.

6.1.5.7 Computer room

The construction rules for computer room are as follows:

a) The computer room should be set up independently;

b) The construction content shall meet the requirements of GB 50174;

c) The area shall be compatible with the equipment placed; it shall leave room for expansion.

e) Internet-related systems;

f) The construction system of relevant departments of the city government;

g) The construction system of social enterprises and institutions.

6.2.3.2 Traffic management geographic information system

The construction rules of the traffic management geographic information system are as follows:

a) It should use the unified call of provincial (autonomous region) geographic information systems for construction;

b) It should adopt the 1985 national elevation datum, in accordance with the relevant requirements of the GH [1987] No.78 document;

c) Traffic management geographic information's spatial data should adopt the 2000 National Geodetic Coordinate System (CGCS 2000), in accordance with the relevant requirements of GB 21139;

d) The scale of expressways, national highways, provincial highways, fast roads, trunk roads, secondary trunk roads, branch roads, etc., shall not be less than 1:2000. The scale of interchanges and level intersections shall not be less than 1:500. It should be able to distinguish the types of lanes;

e) Geographical information's graphic symbols should be implemented in accordance with the relevant requirements of GA/T 492;

f) The special information data format for traffic management business should be constructed, in accordance with the technical requirements in GA/T 493. It should be subject to the spatial processing of highway code;

g) It shall be able to determine the path and driving direction, through the centerline of the road; to express the planar and three-dimensional connectivity of the road, through the topological relationship;

h) The business management thematic layer should be constructed, in accordance with the relevant requirements of GA/T 493. It shall be displayed hierarchically, at least according to the location and jurisdiction of different management agencies, as well as the front-end distribution of each system of focus;

i) For the window display service of real-time information, such as video surveillance, road network traffic operation status, emergency events, traffic police, vehicle and personnel deployment control and early warning, it shall be constructed in accordance with the relevant requirements of

The equipment for monitoring and recording illegal traffic safety violations on pedestrian crossings, shall comply with the relevant requirements of GA/T 1244.

6.2.4.5.7 Other traffic violation monitoring equipment

Other traffic violation monitoring equipment shall have the ability to monitor retrograde, trespassing on one-way lanes, occupation of dedicated roads and other violations, by means of images or videos.

6.2.4.6 Motor vehicle check and control system

6.2.4.6.1 System composition

The motor vehicle check and control system is mainly composed of a central management system, transmission equipment, road vehicle intelligent monitoring and recording equipment.

6.2.4.6.2 Central management system

The central management system can share the check and control function modules of the integrated application platform. It shall have functions, such as control deployment, control removal, comparison of traffic information, early warning, disposal.

6.2.4.6.3 Intelligent monitoring and recording equipment for road vehicles

The intelligent monitoring and recording equipment for road vehicles shall meet the relevant requirements of GA/T 497. The acceptance shall meet the relevant requirements of GA/T 961.

6.2.4.7 Electronic identification application system of motor vehicle

6.2.4.7.1 System composition

The electronic identification application system of motor vehicle is mainly composed of a central management system, transmission equipment, reading and writing equipment, motor vehicle electronic identification.

6.2.4.7.2 Central management system

The central management system shall have functions, such as the issuance of motor vehicle electronic identification, secret key management, motor vehicle operation monitoring, key vehicle supervision, pass management.

6.2.4.7.3 Read-write device

The function and performance of the read-write device shall meet the relevant requirements of GB/T 35786. The safety performance shall meet the relevant

This is an excerpt of the PDF (Some pages are marked off intentionally)

------ The End ------