

JTG

**PROFESSIONAL STANDARD
OF THE PEOPLE'S REPUBLIC OF CHINA
中华人民共和国行业标准**

JTG D20—2006

**Design Specification for Highway
Alignment**

公路路线设计规范

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JTG D20-2006

Chief Development Organization: China Communications First Highway Survey, Design
and Research Institute

Approval Department: Ministry of Communications of the People's Republic of China

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Announcement of the Ministry of Communications of the People's Republic of China

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Notice on publishing the “Design Specifications for Highway Alignment”

It is hereby proclaimed that

The “Design Specifications for Highway Alignment” (JTG D20–2006) has been issued and shall be implemented since October 1, 2006; the original “Design Specifications for Highway Route” (JTJ 011–1994) shall be abolished simultaneously.

In the “Design Specifications for Highway Alignment” (JTG D20–2006), Items 6.6.1, 6.6.2, 6.7.2, 7.9.1, and 12.2.6 are compulsory provisions and must be enforced strictly. The compulsory provisions specified in the “Compulsory Provision of Engineering Construction Standards” (Highway Engineering) (Edition 2002) related to the “Design Specifications for Highway Route” (JTJ 011–1994) shall be abolished simultaneously.

Ministry of Communications is in charge of the administration and the explanation of the “Design Specifications for Highway Alignment” (JTG D20–2006). The chief development organization- China Communications First Highway Survey, Design and Research Institute is responsible for the routine explanation and supervisory work.

All relevant organizations are kindly requested to sum up and accumulate your experiences in actual practices. The relevant modification opinions and advice, whenever necessary, can be posted or passed on to China Communications First Highway Survey, Design and Research Institute (address: No. 2, Keji Erlu Road, High- and New-tech Development West District, Xi'an City, Shaan'xi Province, 710075, China; Tel: +86-29-88322888) with a view to being referred in next revision.

Ministry of Communications of the People's Republic of China

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Foreword

According to the requirements of Document Jiao Gonglu Fa [1999] No. 82 issued by Ministry of Communications—"Notice on Printing the Development and Revision Plan of Engineering Construction Standards, specifications and quota in 1998", this specification is the revision of "Design Specifications for Highway Route" (JTJ 011-94).

In the revision procedure, the Ministry of Communications has just decided to revise the "Technical Standard of Highway Engineering" (JTJ 001-97) on April, 2001, and required the development organizations to revise the "Design Specifications for Highway Route" (JTJ 011-94) at the same time cooperating with the standard revision.

The "Technical Standard of Highway Engineering" (JTG B01-2003) has already been issued and implemented on March 1, 2004, and this specification hereby has completed the revision on "Design Specifications for Highway Alignment" (JTJ 011-94).

Currently, China is at a large-scale construction period of highway, how to learn and sum up the home and abroad experiences and lessons on highway construction, inherit the past and usher in the future, carry forward the tradition, make the highway construction in China not only meet the traffic demand of human, supply safe and comfortable traffic mode, but also make the highway, natural environment and social environment be in harmony, satisfy the sustainable development demand of future generations, realize the sustainable development, which all require to realize the great-leap forward development in design and philosophy. Therefore, this edition is supplemented and perfected in accordance with the highway design philosophy established on meeting of survey and design of nationwide highway in 2004. Thereafter, principles and opinions are separately compiled according to the design specifications and design details issued by Department of Highway Ministry of Communications, this edition is readjusted and modified, and the contents in the design specifications on such aspects as "two to do" are deleted.

The main contents in "Design Specifications for Highway Alignment" (JTJ 011-94) that are revised cover:

1. According to those specified in "Technical Standard of Highway Engineering" (JTG B01-2003), the class of highway and the design road speed are correspondingly revised, design philosophies such as the highway functions and adopting different design speed according to design sections are stressed.
2. In the chapter of "highway capacity", such contents on traffic volume, traffic capacity, vehicle referring factor and service level are newly added.
3. This specification is modified and perfected in accordance with that the highway construction must comply with the principle of "safety, environmental protection, and sustainable development" and the highway design philosophy.
4. The inspection method by adopting "operating velocity" and "safety assessment" and the "full lifetime" design philosophy are introduced.

5. In the chapter of “highway and highway grade crossing”, the traffic control mode is newly added, the signal crossing is introduced, and the key technical indexes on non-channelization crossing, channelization crossing, and roundabout crossing are supplemented and perfected.

6. The chapter of “highway and highway over crossing” is supplemented and perfected with the related key technical indexes.

All relevant organizations are kindly requested during the process of implementing this code to post or pass on the relevant problems and advice, whenever discovered to the China Communications First Highway Survey, Design and Research Institute (address: No. 63, Keji Erlu Road, High- and New-tech Development West District, Xi'an City, Shaan'xi Province, 710075, China) with a view to being referred in the next revision.

Chief Development Organization:

China Communications First Highway Survey, Design and Research Institute

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Contents

1	General Provisions.....	1
2	Highway Grading and Grade Adoption	3
2.1	Highway Grading	3
2.2	Adoption of Highway Grade and Design Speed.	4
2.3	Control of Egress and Ingress	6
3	Highway Capacity.....	8
3.1	General Provisions	8
3.2	Traffic Capacity of Freeway.....	11
3.3	Traffic capacity of Arterial Highway.....	14
3.4	Traffic Capacity of the Secondary and Tertiary Highway	16
4	Overall Design	18
4.1	General Provisions	18
4.2	Keys of Overall Design	19
5	Route Selection.....	21
6	Highway Cross-section.....	23
6.1	General Provisions	23
6.2	Lane.....	25
6.3	Intermediate zone	26
6.4	Shoulder	27
6.5	Crown Slope.....	28
6.6	Highway Construction Limit.....	29
6.7	Scope of Highway Land.....	32
7	Highway Plane.....	34
7.1	General Provisions	34
7.2	Straight Line.....	34
7.3	Circular curve.....	34
7.4	Circling Line	35
7.5	Super-elevation of Circular Curve	36

7.6	Widening of Circular Curve	38
7.7	Transition Section of Super-elevation and Widening	39
7.8	Length of Horizontal Curve	40
7.9	Sight distance	40
7.10	Hairpin Curve.....	41
8	Highway Vertical Section	43
8.1	General Provisions	43
8.2	Longitudinal Slope	44
8.3	Slope Length	45
8.4	Climbing Lane.....	46
8.5	Composite Gradient.....	47
8.6	Vertical Curve.....	47
9	Geometric Design	49
9.1	General Provisions	49
9.2	Plan alignment Design	50
9.3	Longitudinal Alignment Design	52
9.4	Cross Section Design	54
9.5	Alignment Combinational Design.....	55
9.6	Coordination of Alignment and Bridge/tunnel.....	56
9.7	Conjugation of Alignment and Along- facilities.	57
9.8	Harmonization of Alignment and Environment	57
10	Highway and Highway Grade Crossing	59
10.1	General Provisions	59
10.2	Alignment of Road at the Grade Crossing	61
10.3	Sight Distance	62
10.4	Turning Design.....	63
10.5	Auxiliary Lanes and Traffic Island.....	64
10.6	Reconstruction of the Grade Intersection.....	67
11	Highway and Highway over Crossing	68
11.1	General Provisions	68

11.2	Sight Distance.....	71
11.3	Ramp Design.....	72
11.4	Quantity of Basic Lanes and Equalization of Lane Quantity	82
11.5	Bifurcation and Converging of Mainline and Diverging and Converging among Ramps	84
11.6	Grade Crossing in Traffic Interchange	87
11.7	Separate Grade Separation	88
12	Intersections between Highways and Railways/country roads/pipelines.....	91
12.1	General Provisions	91
12.2	Highway and Railway Interchange	91
12.3	Highway and Railroad Grade Crossing.....	94
12.4	Highway and Country Road Intersection	95
12.5	Highway and Pipeline Intersection.....	97
	Explanation of Wording in The Code	99

1 General Provisions

1.0.1 This code is especially formulated with a view to exactly applying “Technical Standard of Highway Engineering” (JTG B01–2003) and reasonably determining the highway classification, construction scale and the key technical indexes.

1.0.2 This specification is compiled according to the fundamental rules and the key technical indexes on the highway classification, control factors, path and path crossing specified in “Technical Standard of Highway Engineering” (JTG B01–2003).

1.0.3 This specification applicable to path and path cross-over design of the constructed and renovated highways’.

1.0.4 The highway design shall reasonably determine the highway classification and the path direction and corridor according to the highway functions, tasks and its actions in road net, and also considering the relation of the transportation modes such as railway, waterway, aviation and pipeline with the town and farm planning.

1.0.5 Based on the selected corridor zone and principal control points, the route scheme shall have the layout and overall design, reasonably apply the technology indexes, compare and select among the feasible route schemes to determine the design scheme. When adopting different design road speeds, technology indexes or design schemes have significant difference in engineering costs, natural environment and socioeconomic performance, the technical and economic demonstration of same depth shall be carried out.

1.0.6 The selection of route shall select the route position and main horizontal and longitudinal technology indexes according to the topography and ground object conditions based on the adequate survey on engineering geology, hydrological geology, and natural disaster at mountains, road materials, ecological environment and natural landscapes.

1.0.7 The route design must go through with the fundamental national policies of strengthening the environmental protection and rationally using the land resources; in the design of determining the structural shapes, installation positions of such manual structure as subgrade, pavement, bridge, tunnel, intercrossing, traffic engineering and on-line facilities, soil collecting and dumping ground, and the requisition of land, the influence on the on-line ecological environment caused by the highway construction shall be reduced, combining with the landscaping or adopting corresponding engineering measures to coordinate and improve the cooperation between manual structures and on-line natural landscapes, and improve the environmental quality of highway.

1.0.8 The geometric design shall comprehensively consider the relations among the plane, vertical section and cross section of the highway to achieve the straight plane, uniform vertical section and reasonable cross section. And the highway perspective drawing may be adopted for analyzing and assessment if necessary.

1.0.9 The highways of different classes shall lay stress on geometric design to make them be able to guide the visual line visually, make people feel comfortable and safe mentally, and



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