

Compare NBCS Design Standards the current road or street, and to proposed design values

Completed by: _____

Date: _____

Project Number: _____

Classification Area Standards Applied (Rural or Urban): _____

National: _____ Terrain (Level or Rolling): _____

State: _____

Standards Table
<u>Subsection</u> <u>Part</u>

Initial Year of Completion: _____

Design Year: _____

Initial Year ADT, VPD: _____

Design Year ADT, VPD: _____

Work Type: _____

Percent Heavy Trucks: _____

Section Type: _____

Tr Way Paved (Yes or No): _____

HCZ Slope: _____

Shoulder Type: _____

	MDS Design Criteria	Design Standard (DS)	Current Facility (CF)	CF-DS	Design	DV-DS
				Delta	Value (DV)	Delta
	1 Design Speed					
	2 Lane Width					
	3 Shoulder Width					
Horizontal Alignment	4 Superelevation, max, %					
	5 Radius, based on e_{max}					
Vertical Alignment	6 Crest K Value					
	Sag K Value					
	7 Grade, max, %					
	8 Stopping Sight Distance					
Cross Slope	9 Lane, %					
	Shoulder, %					
	10 Horizontal Clear Zone (HCZ) Width					
	11 Vertical Clearance					
	12 Clear Bridge Width					
	13 Design Structural Loading Capacity					

Lists - MDS Values vs Design Values

National Functional Classifications

- Interstate
- Other Freeways and Expressways
- Other Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local

State Functional Classifications

- Interstate
- Expressway
- Major Arterial
- Other Arterial
- Collector
- Local
- Scenic-Recreation Major Arterial
- Scenic-Recreation Other Arterial
- Scenic-Recreation Collector
- Scenic-Recreation Major Arterial
- Scenic-Recreation Local
- Scenic-Recreation Internal
- Minimum Maintenance
- Remote Residential

Subsection

- 02.
- 03.
- N/A

Part

- C
- D
- E
- F
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P
- Q
- R

Lists - MDS Values vs Design Values

S
T
V
W
X
N/A

Work Types
New
Reconstructed
3R
Maintenance

Section
Non-curbed
Curbed

HCZ Slope
1V:6H
1V:5H
1V:4H

Design Loading Structural Capacity
HL93
HS15

YesNo
Yes
No

Area
Urban
Rural

Terrain
Level
Rolling

Shoulder Type
Paved
Aggregate
Turf/Earth

Checklist for the Relaxation of Standards

GENERAL REQUIREMENTS	✓	
	<input type="checkbox"/>	Work/Project involves an interlocal agreement; more than one entity is requesting
	<input type="checkbox"/>	Work/Project does not involve an interlocal agreement; only one entity is requesting
	<input type="checkbox"/>	Written request to Secretary of Board <i>from each entity</i>
	<input type="checkbox"/>	Signed by appointed superintendent (or, if lacking such officer, the person responsible for the road or street program) <i>of each entity</i>
	<input type="checkbox"/>	Resolution of Adoption passed by governing body <i>from each entity</i>
	<input type="checkbox"/>	Written description of peculiar, special or unique situation(s) that preclude conformance to the applicable standard(s). Explain compelling and demonstrated reasons why standard values should not be used. Include consideration of adjacent roadway sections - describe include sub-standard conditions beyond construction limits.
	<input type="checkbox"/>	Timely submittal - Upon receipt of a request, the Secretary for the Board shall set a hearing date for the request no later than sixty (60) days after the filing of the request.
	<input type="checkbox"/>	Request is for a road with a State Functional Classification of Scenic-Recreation
	<input type="checkbox"/>	Request is for a low-water stream crossing
	<input type="checkbox"/>	Request is for a road classified as Minimum Maintenance. A relaxation request is required if design does not meet or exceed National Local functional classification Rural area standards.
DOCUMENTATION	<input type="checkbox"/>	1 One (1) copy of the Resolution of Adoption signed by the proper officials
	<input type="checkbox"/>	2 One (1) copy of a completed One- and Six-Year Plan Highway, Road or Street Improvement Work/Project form , from the current One- and Six-Year Plan, including a Notification of Revision of One-Year Plan, if the work is being added to the One-Year Plan.
	<input type="checkbox"/>	3 Project identifiers on documentation, including project number, structure number(s) and federal-aid project numbers and control numbers for federally funded projects.
	<input type="checkbox"/>	4 For federal-aid projects , documentation of approval by NDOR
	<input type="checkbox"/>	5 One (1) copy of proposed construction plan sheets which are pertinent to the request.
	<input type="checkbox"/>	6 A map, aerial photograph or topographic map showing the location and area of the work.
	<input type="checkbox"/>	7 Identification of the applicable standards (Rural Area, Urban Area, etc.), State and National functional classifications , and type of work (New, Reconstructed and/or 3R).
	<input type="checkbox"/>	8 Applicable State and National functional classification maps .
	<input type="checkbox"/>	9 Design data (current and design traffic volumes, design speed, posted speed, percent of heavy trucks, hydraulic study if applicable, geometrics, and other such pertinent information).
	<input type="checkbox"/>	10 The required standard value and the proposed value of the design feature shall be clearly stated. Standard values come from tables and/or notes (specific notes and parts of notes are identified in the request).

REQUIRED SUPPORTING I

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| 11 | Effect on the safety and operation of the facility, and its compatibility with adjacent sections of the road or street. The overall safety of the road or street should not be degraded. |
| 12 | Sufficient crash history analysis should include the crash rate and/or history of the project to comparable routes, identifying crash types and crash trends within the project limits, and locations for potential safety improvements. |
| 13 | A detailed cost analysis of attaining full standards versus the requested alternative or alternatives must be quantified. |
| 14 | Features (improved roadway geometry, signing, delineation, roadside safety, etc.) added to mitigate the effects of not meeting minimum design standard. |
| 15 | Future improvements or work that will correct the substandard design feature, including project number (if available) and anticipated or estimated construction date |
| 16 | Environmental impacts including scenic, historic and other environmental features, if full standards cannot be achieved due to environmental implication. |
| 17 | Other factors that could affect the decision: for example, delays, proposed development in the project area or local concerns may be issues to be addressed. |
| 18 | Attachments shall include the existing typical section and the proposed typical section . |
| SR1 | Scenic-Recreation only: One (1) copy stating that the application of such standard would defeat the purpose of the Scenic-Recreation |
| SR2 | Scenic-Recreation only: One (1) copy of a certification of approval or disapproval of the request by the governing body having jurisdictional responsibility for that segment of highway, road or street. |
| LW1 | Low Water Stream Crossing only: A statement that the road does not provide the only access to an occupied dwelling. Low water stream crossings or fords will normally not be permitted in any road providing primary access to an occupied dwelling. |

004 RELAXATION OF STANDARDS – STATE HIGHWAY, COUNTY ROAD, AND MUNICIPAL STREET SYSTEMS

004.01 Whenever the application of standards of design, construction, or maintenance, as promulgated by the Board of Public Roads Classifications and Standards, works a special hardship on any segment of highway, road, or street, a county or municipality may request that the Board relax the standards for such segment.

004.01A All requests for relaxation of standards must be in writing and must be filed with the Secretary for the Board. All requests for relaxation of standards for federally funded projects are required to be reviewed by NDOR prior to filing with the Secretary for the Board.

All county requests for relaxation of standards must be made by the County Highway Superintendent for that county, or in counties lacking such officer, by the person responsible for the county highway program. All municipal requests for relaxation of standards must be made by the City Street Superintendent for that municipality, or in municipalities lacking such officer, by the person responsible for the municipal street program. In the case of multiple entities, each entity must sign and file a resolution of adoption, and there must be a written request from each entity's superintendent (or in entities lacking such officer, the person responsible for the highway, road or street program). Additionally, whenever the application of standards of design, construction, or maintenance would defeat the purpose of the Scenic-Recreation functional classification, a county, municipality or other There must be compelling and demonstrated reasons why standard values should not be used. All requests shall specify in detail what peculiar, special or unique situations would make the application of the standards not feasible. Analysis should include consideration of adjacent roadway sections therefore the relaxation of standards request may need to include sub-standard conditions beyond construction limits.

Documentation for county road and municipal street relaxation of standards shall describe and explain the conditions that preclude conformance to the applicable design standard, including but not limited to the following:

004.01A1 One (1) copy of the Resolution of Adoption signed by the proper officials.

004.01A2 One (1) copy of a completed NBCS Form 7 One- and Six-Year Plan Highway or Street Improvement Project, from the current One- and Six-Year Plan, or NBCS Form 10 Notification of Revision of One-Year Plan, if the work is being added to the One-Year Plan.

004.01A3 Project identifiers on documentation, including federal-aid project numbers and control numbers for federally funded projects, and structure numbers.

004.01A4 For federal-aid projects, documentation of approval by NDOR.

004.01A5 One (1) copy of proposed construction plan sheets which are pertinent to the request.

004.01A6 A map, aerial photograph or topographic map showing the location and area of the work.

004.01A7 Identification of the applicable standards (Rural Area, Urban Area, etc.), State and National functional classifications, and type of work (New, Reconstructed and/or 3R).

004.01A8 Applicable State and National functional classification maps.

004.01A9 Design data (current and design traffic volumes, design speed, posted speed, percent of heavy trucks, hydraulic study if applicable, geometrics, and other such pertinent information).

004.01A10 The required standard value and the proposed value of the design feature shall be clearly stated.

004.01A11 Effect on the safety and operation of the facility, and its compatibility with adjacent sections of the road or street. The overall safety of the road or street should not be degraded.

004.01A12 Sufficient crash history analysis should include the crash rate and/or history of the project to comparable routes, identifying crash types and crash trends within the project limits, and locations for potential safety improvements.

004.01A13 A detailed cost analysis of attaining full standards versus the requested alternative or alternatives must be quantified.

004.01A14 Features (improved roadway geometry, signing, delineation, roadside safety, etc.) added to mitigate the effects of not meeting minimum design standards.

004.01A15 Future improvements or work that will correct the substandard design feature, including project number (if available) and anticipated or estimated construction dates.

004.01A16 Environmental impacts including scenic, historic and other environmental features, if full standards cannot be achieved due to environmental implications.

004.01A17 Other factors that could affect the decision: for example, proposed development in the project area or local concerns may be issues to be addressed.

004.01A18 Attachments shall include the existing typical section and the proposed typical section.

004.01B A request for relaxation of standards for a Scenic-Recreation highway, road or street by any county or other interested party shall also include:

004.01B1 One (1) copy stating what application of such standard would defeat the purpose of the Scenic-Recreation functional classification.

004.01B2 One (1) copy of a certification of approval or disapproval of the request by the governing body having jurisdictional responsibility for that segment of highway, road or street.

004.01C A request for relaxation of standards for a low water stream crossing or ford shall also include:

004.01C1 A statement that the road does not provide the only access to an occupied dwelling. Low water stream crossings or fords will normally not be permitted in any road providing primary access to an occupied dwelling.

004.01D Upon receipt of a request, the Secretary for the Board shall set a hearing date for the request no later than sixty (60) days after the filing of the request, and notice will be given to the requesting party at least ten (10) days prior to the hearing.

004.01E Upon the date of the hearing, the board will meet and consider the request. After considering all information before the board, the board shall:

004.01E1 Vote to grant or deny, in whole or in part, the relaxation request, or;

004.01E2 Vote to continue the hearing until the next meeting. A request may only be continued once before the board must act as stated in 004.01E1.

004.01F An affirmative vote of at least six (6) members will be necessary to grant, deny or continue a request. A permanent record will be maintained of the board's decision. A copy will be distributed to the party requesting the relaxation, to the Nebraska Department of Roads, and to any interested party requesting a record of the proceeding.

004.01G If the board votes to continue a request, the board should make a record in its minutes of the reason for the continuance and whether, and if so, what additional information is needed. The board shall notify the party requesting the relaxation of what information is needed and the requesting party shall provide such within fourteen (14) days of the board's action.

Sources of Values
NBCS Minimum Design Standards

In selecting minimum and maximum values and ranges of values, the Board relied most heavily on the following key publications, which are considered national consensus guidance:

Legend	
3.3.3, 4.2.2	AASHTO <i>A Policy on Geometric Design of Highways and Streets</i> (commonly referred to as the “Green Book”), 2011 Edition
P198-P200	Transportation Research Board (TRB), National Research Council, Special Report No. 214 <i>Designing Safer Roads – Practices for Resurfacing, Restoration and Rehabilitation</i> , 1987
T.3-1, P3-3	AASHTO <i>Roadside Design Guide</i> , 4 th Edition, 2011 Edition
Page 48	AASHTO <i>Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)</i> , 2001
P40-43	FHWA <i>Mitigation Strategies for Design Exceptions</i> , July, 2007
§§39-2103	State Statutes, Rules and Regulations

§§39-2113, 1.3.1, 7.3	MDS Tables – Rural Areas and Urban Areas		
1.2, 1.3	Functional Classification <i>Highway Functional Classification Concepts, Criteria and Procedures</i> , FHWA, 2013, Publ. No. FHWA-PL-13-026		National: 5.1, 5.2.1, 5.3.1, 6.1, 6.2.1, 6.3.1, 7.1, 7.2.1, 7.3.1 State: 5/4/10 T428 Chap 1, §§39-2103, §§39-2104
	Design Criteria	New & Reconstructed	3R
2.2.5, 2.2.8, 2.3.6, 3.3.1 (1 st Para)	Design Speed	Local 5.2.1, 5.3.1 Collector 6.2.1, 6.3.1 Arterial 7.2.2, 7.3.2	P205
4.3, 4.4.2	Lane Width and Shoulder Width	Local 5.2.2, T.5-5, 5.3.2 Collector 6.2.2, T.6-5, 6.3.2 Arterial 7.2.3, T.7-3, 7.3.3	P194 (Rural) P196 (Urban)
3.3	Horizontal Alignment	Local 5.2.1, 5.3.1 Collector 6.2.1, 6.3.1 Arterial 7.2.2, 7.3.2	P196
	Superelevation (maximum), e_{max}		
	Radius (based on e_{max})		
3.4	Vertical Alignment (Note G-7 for New & Reconstruction) (Note G-8 for 3R)	Local 5.2.1, 5.3.1 Collector 6.2.1, 6.3.1 Arterial 7.2.2, 7.3.2	P198
3.4.6	Crest K Value T.3-34		
	Sag K Value T.3-36		
3.4.2	Grade	Local 5.2.1, T.5-2, 5.3.1 Collector 6.2.1, T.6-2, 6.3.1, T.6-8 Arterial 7.2.2, T.7-2, 7.3.2, T.7-4	
3.2.2	Stopping Sight Distance	T.3-1 Local 5.2.1, T.5-3, 5.3.1 Collector 6.2.1, T.6-3, 6.3.1 Arterial 7.2.2, T.7-1, 7.3.2	P198

Sources of Values
NBCS Minimum Design Standards

3.3.3, 4.2.2	Cross Slope		
4.2.2, T.4-1	Lane	Local	5.2.1, 5.3.1
		Collector	6.2.1, 6.3.1
		Arterial	7.2.2, 7.3.2
4.4.3	Shoulder		4.4.3
4.6	Horizontal Clear Zone (Note G-23)	Local	5.2.4, 5.3.4
		Collector	6.2.4, 6.3.4
		Arterial	7.2.4, 7.3.4
		Rural	T.3-1, P3-3
		Urban	P10-1, P10-2
		<i>AASHTO Geometric Design of Very Low-Volume Roads Manual, Page 48</i>	
P61-62	Vertical Clearance	Local	5.2.3
		Collector	6.2.3, 6.3.3
		Arterial	7.2.5, 7.3.5
		Statute	§60-6,289
P40-43	Clear Bridge Width, Rural Non-curbed	Local	5.2.3, T.5-6, 5.3.3
		Collector	6.2.3, T.6-6, 6.3.3
		Arterial	7.2.5, 7.3.5
P64	Clear Bridge Width, Urban Curbed	Local	5.3.3
		Collector	6.3.3
		Arterial	7.3.5
4.8.2	Structural Capacity	Local	5.2.3, 5.3.3
		Collector	6.2.3, 6.3.3
		Arterial	7.2.5, 7.3.5