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

Completed by: __________________________

Date: __________________________

Project Number: __________________________

Area Standards Applied (Rural or Urban): __________________________

National: __________________________  Terrain (Level or Rolling): __________________________

State: __________________________

<table>
<thead>
<tr>
<th>Standards Table</th>
<th>Subsection</th>
<th>Part</th>
<th>Design Year</th>
<th>Initial Year of Completion</th>
<th>Design Year ADT, VPD</th>
<th>Design Year ADT, VPD</th>
<th>Percent Heavy Trucks</th>
<th>Tr Way Paved (Yes or No)</th>
<th>Shoulder Type</th>
</tr>
</thead>
</table>

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

July 16, 2017 Version
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

<table>
<thead>
<tr>
<th>S</th>
<th>T</th>
<th>V</th>
<th>W</th>
<th>X</th>
<th>N/A</th>
</tr>
</thead>
</table>

### Work Types
- New
- Reconstructed
- 3R
- Maintenance

### Section
- Non-curbed
- Curbed

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

### Design Loading Structural Capacity
- HL93
- HS15

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Area
- Urban
- Rural

### Terrain
- Level
- Rolling

### Shoulder Type
- Paved
- Aggregate
- Turf/Earth
Checklist for the Relaxation of Standards

**GENERAL REQUIREMENTS**

- Work/Project involves an interlocal agreement; more than one entity is requesting
- Work/Project does not involve an interlocal agreement; only one entity is requesting
- Written request to Secretary of Board from each entity
- Signed by appointed superintendent (or, if lacking such officer, the person responsible for the road or street program) of each entity
- Resolution of Adoption passed by governing body from each entity
- 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.
- 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.

**REQUEST IS FOR A ROAD WITH A STATE FUNCTIONAL CLASSIFICATION OF SCENIC-RECREATION**

**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.**

**REQUEST IS FOR A LOW-WATER STREAM CROSSING**

**REQUIRED SUPPORTING DOCUMENTATION**

- One (1) copy of the Resolution of Adoption signed by the proper officials
- 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.
- Project identifiers on documentation, including project number, structure number(s) and federal-aid project numbers and control numbers for federally funded projects.
- For federal-aid projects, documentation of approval by NDOR
- One (1) copy of proposed construction plan sheets which are pertinent to the request.
- A map, aerial photograph or topographic map showing the location and area of the work.
- Identification of the applicable standards (Rural Area, Urban Area, etc.), State and National functional classifications, and type of work (New, Reconstructed and/or 3R).
- 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).
- 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).
**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.

**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.

**A detailed cost analysis of attaining full standards versus the requested alternative or alternatives** must be quantified. Features (improved roadway geometry, signing, delineation, roadside safety, etc.) added to **mitigate the effects of not meeting** minimum design standard.

**Future improvements or work** that will correct the substandard design feature, including project number (if available) and anticipated or estimated construction date

**Environmental impacts** including scenic, historic and other environmental features, if full standards cannot be achieved due to environmental implication.

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.

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 entity 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.
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).

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

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.

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.

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

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

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

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

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

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

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

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

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.

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

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.

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.

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

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.
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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>§39-2113, 1.3.1, 7.3</td>
<td>MDS Tables – Rural Areas and Urban Areas</td>
</tr>
</tbody>
</table>

**Sources of Values**

**NBCS Minimum Design Standards**

1. 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:


5. FHWA *Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤ 400)*, 2001


**MDS Tables – Rural Areas and Urban Areas**

<table>
<thead>
<tr>
<th>Design Criteria</th>
<th>New &amp; Reconstructed</th>
<th>3R</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.2.5, 2.2.8, 2.3.6, 3.3.1 (1st Para)</strong></td>
<td>Design Speed</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arterial</td>
</tr>
<tr>
<td></td>
<td>Lane Width and Shoulder Width</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arterial</td>
</tr>
<tr>
<td><strong>3.3</strong></td>
<td>Horizontal Alignment</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arterial</td>
</tr>
<tr>
<td></td>
<td>Superelevation (maximum), $e_{\text{max}}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Radius (based on $e_{\text{max}}$)</td>
<td></td>
</tr>
<tr>
<td><strong>3.4</strong></td>
<td>Vertical Alignment</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td>(Note G-7 for New &amp; Reconstruction)</td>
<td>Collector</td>
</tr>
<tr>
<td></td>
<td>(Note G-8 for 3R)</td>
<td>Arterial</td>
</tr>
<tr>
<td><strong>3.4.6</strong></td>
<td>Crest K Value</td>
<td>T.3-34</td>
</tr>
<tr>
<td></td>
<td>Sag K Value</td>
<td>T.3-36</td>
</tr>
<tr>
<td><strong>3.4.2</strong></td>
<td>Grade</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arterial</td>
</tr>
<tr>
<td><strong>3.2.2</strong></td>
<td>Stopping Sight Distance</td>
<td>Local</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Collector</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arterial</td>
</tr>
</tbody>
</table>

July 16, 2017 Version
<table>
<thead>
<tr>
<th>3.3.3, 4.2.2</th>
<th>Cross Slope</th>
<th>Local 5.2.1, 5.3.1</th>
<th>Collector 6.2.1, 6.3.1</th>
<th>Arterial 7.2.2, 7.3.2</th>
<th>P203</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.2.2, T.4-1</td>
<td>Lane</td>
<td>Local 5.2.4, 5.3.4</td>
<td>Collector 6.2.4, 6.3.4</td>
<td>Arterial 7.2.4, 7.3.4</td>
<td>P200-P201</td>
</tr>
<tr>
<td>4.4.3</td>
<td>Shoulder</td>
<td>Local 5.2.3</td>
<td>Collector 6.2.3, 6.3.3</td>
<td>Arterial 7.2.5, 7.3.5</td>
<td>P200-P201</td>
</tr>
<tr>
<td>4.6</td>
<td>Horizontal Clear Zone (Note G-23)</td>
<td>Rural T.3-1, P3-3</td>
<td>Urban P10-1, P10-2</td>
<td>AASHTO Geometric Design of Very Low-Volume Roads Manual, Page 48</td>
<td></td>
</tr>
<tr>
<td>P61-62</td>
<td>Vertical Clearance</td>
<td>Local 5.2.3</td>
<td>Collector 6.2.3, 6.3.3</td>
<td>Arterial 7.2.5, 7.3.5</td>
<td>§60-6,289</td>
</tr>
<tr>
<td>P40-43</td>
<td>Clear Bridge Width, Rural Non-curbed</td>
<td>Local 5.2.3, T.5-6, 5.3.3</td>
<td>Collector 6.2.3, T.6-6, 6.3.3</td>
<td>Arterial 7.2.5, 7.3.5</td>
<td>P198-P200</td>
</tr>
<tr>
<td>P64</td>
<td>Clear Bridge Width, Urban Curbed</td>
<td>Local 5.3.3</td>
<td>Collector 6.3.3</td>
<td>Arterial 7.3.5</td>
<td>5.3.3</td>
</tr>
<tr>
<td>4.8.2</td>
<td>Structural Capacity</td>
<td>Local 5.2.3, 5.3.3</td>
<td>Collector 6.2.3, 6.3.3</td>
<td>Arterial 7.2.5, 7.3.5</td>
<td>7.3.5</td>
</tr>
</tbody>
</table>