Basics of a Good Road

2014

Cornell Local Roads Program

New York LTAP Center

Updated 5-17-16

Nebraska Administrative Code
Title 428

Rules and Regulations of the
Board of Public Roads Classifications and Standards
(Administrative Host: Nebraska Department of Roads)

Note: *Only sections which distinguish separate regulations within a chapter are shown.*

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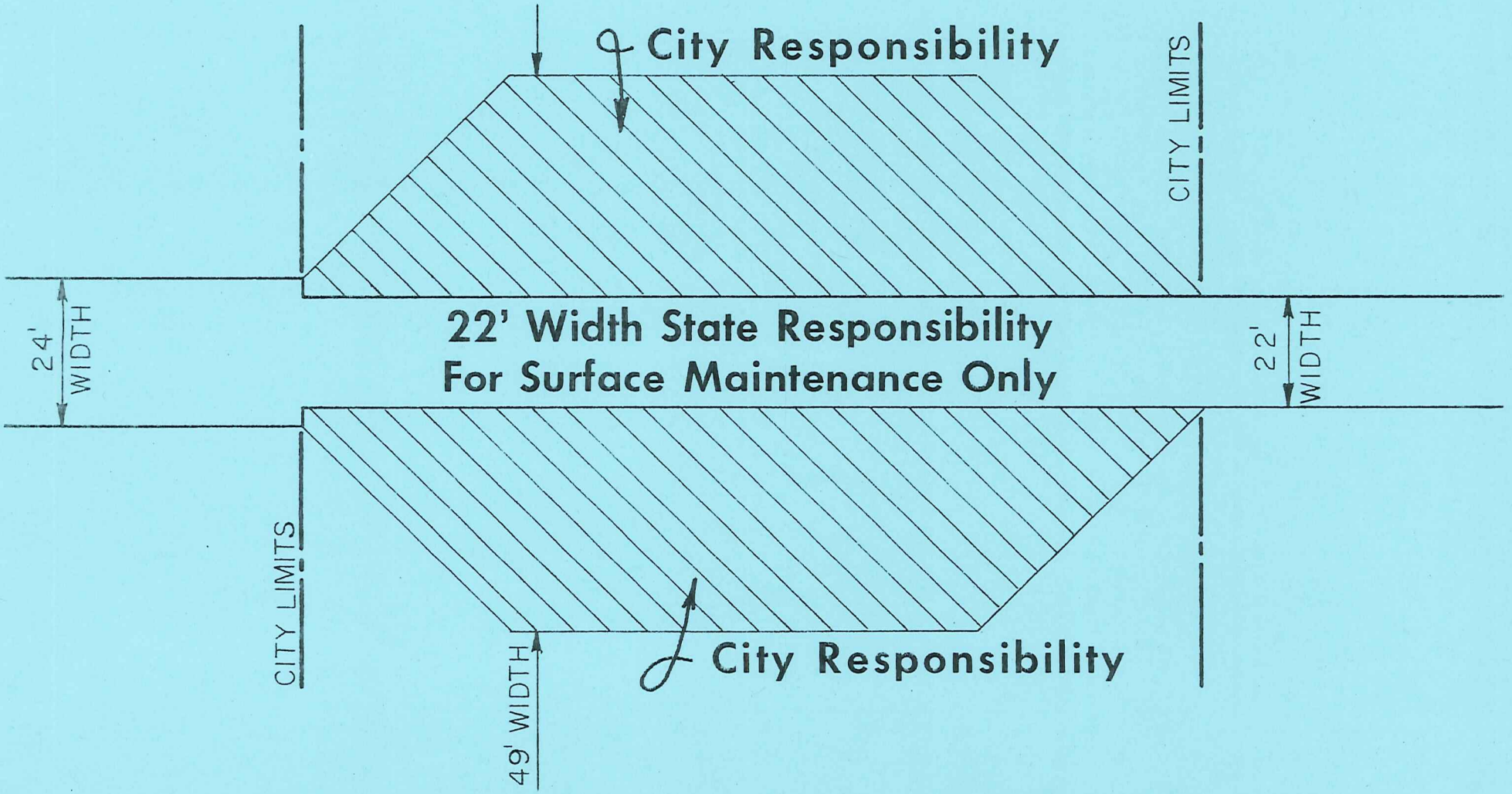
Title 428 - Board of Public Roads Classifications and Standards

NOTE: Chapters 1 & 2 are included in this publication. Chapters 3, 4 & 5 are not included but are available on the Nebraska Department of Roads, Boards-Liaison Services website: http://www.transportation.nebraska.gov/gov-aff/gov-aff-main.html

MUNICIPAL EXTENSIONS

REFERENCE SECTION 39-2105 NEB. REV. STAT.



State **Municipal** Functional Classifications (6)

State Functional Classification			Description	Jurisdictional Responsibility	
§39-2104		Classification		§39-2105	Jurisdiction
(1)	Mobility	Interstate	Federal designated National System.	(1)	State (NDOR)
(2)		Expressway	Extension of rural state highway expressways & routes with very high traffic volumes within urban areas (municipalities over 5,000 population).	(1)	State (NDOR)*
			Of a purely local nature.	(3)	Municipality
(3)		Major Arterial	Extension of rural State highway major arterials through municipalities.	(1)	State (NDOR)*
(4)		Other Arterial	Extension of rural county other arterials & internal streets that connect major areas of activities such as shopping centers, the central business district, manufacturing centers, and industrial parks.	(3)	Municipality
(5)		Collector	Collect traffic from residential streets and move it to smaller commercial centers or to the arterial system.	(3)	Municipality
(6)	Access	Local	Balance of streets, short trip length, residential and local business access.	(3)	Municipality

* Exception: Municipality is responsible for that portion that exceeds the design of the rural highway that leads into the municipality

State **Rural** Functional Classifications (9)

State Functional Classification			Description	Jurisdictional Responsibility	
§39-2103		Classification		§39-2105	Jurisdiction
(1)	Mobility	Interstate	Federal designated National System.	(1)	State (NDOR)
(2)		Expressway	Highways next in importance to the Interstate. Should ultimately be developed to multilane divided standards.	(1)	State (NDOR)
(3)		Major Arterial	The balance of State highways serving major statewide transportation interests; high-speed long-distance travel.	(1)	State (NDOR)
(4)		Scenic Recreation (optional)	Serve state parks, recreation or wilderness, geographical, historical, geological, biological, archaeological significant or scenic beauty areas.	(3)	State (NDOR) or County *
(5)		Other Arterial	Serve places of smaller population and smaller recreation areas not served by State Highways.	(2)	County
(6)		Collector	Carries traffic from local or land-service roads and to community centers or arterial roads. The main school bus routes, mail routes, and farm-to-market routes.	(2)	County
(7)		Local	Remaining roads, except minimum maintenance and remote residential.	(2)	County
(8)	Access	Minimum Maintenance (optional)	Alternative access used by a limited number of people for areas served primarily by local, collector, or arterial roads. Or, the principal access roads to agricultural lands for farm machinery; not primarily used by passenger or commercial vehicles.	(2)	County
(9)		Remote Residential (optional)	Roads in remote areas with population density ≤ 5/SqMi, or an area ≥ 1,000 SqMi serving ≤ 7 residences.	(2)	County

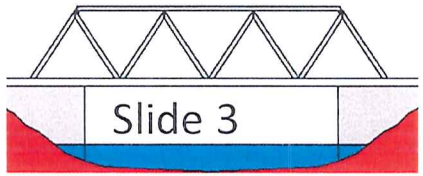
* Remains with the government subdivision responsible before the change in classification

Notes 6, 18 and 22

Initial Planned Work Scope	2016 Minimum Design Standar				
	Bridge/NBS Clear Bridge Width (CBW)	Note	Roadway Lane Width (Traveled Way)		
Roadway-only N&R	**3R**	6, 18			
Roadway-only 3R (widened)	**3R**	18			
Roadway-only 3R (not widened)	**3R** (conditional*)	6			
Structure-only N&R (reconstructed, i.e. replaced or lengthened)		22	ADT, VPD ≥ 400	**N&R**	
		22	< 400	**N&R** (conditional where Rural Area standards apply)	
Structure-only 3R (CBW increased, or culvert extended)		6		**3R** (conditional*)	
Bridge/NBS-only 3R work (CBW not increased) work termini within the structure e.g. re-deck or add bent or stiffeners				Maintenance	

Flexibility

Neb. Rev. Stat. §39-2101



* Conditional - if significant related crash history and B/C ≥ 1.0

Design Safety Considerations

If asked to discuss the design safety considerations of a highway, road or street project, what are some of the items you will think about?

- What is the highway type (low volume two-lane, urban street, etc.)
- What is or what should be the design speed
  - Proper speed for roadway, moves traffic safely and efficiently
- What is the ADT
- Traffic character
  - % trucks, recreational use, local traffic, etc., of the traffic using the roadway
- Existing physical and operational conditions related to safety
  - Identify specific safety problems
  - Determine and verify existing geometry such as roadway widths, horizontal and vertical curvature, intersection layout, and other geometrics specific to the roadway section being examined
- Consider intersection, roadside, and traffic control improvements that may enhance safety
- Access control
  - Private/public and commercial/business access drives
- Vehicle crash history or potential crash issues
- Utility location
- MINIMUM DESIGN STANDARD CRITERIA

What safety items will make roadway safer? The physical safety items...

- Traffic control - signing
- Lighting
- Guardrail
- Delineation
- Lateral clearance
- Paint stripping
- Site distance

If the road/street project involves a bridge...

- Is bridge widening necessary
- Is there a need to improve guardrail installations at the bridge approaches
- Do bridge rails require rehabilitation or replacement
- Is approach signing or delineation adequate

Consider less costly safety measures such as...

- Widening narrow pavements
- Flattening steep side slopes
- Removing or relocating roadside obstacles
- Installing traffic control devices and pavement markings

PRACTICAL EXERCISES

Design Safety Considerations

U.S. Department of Transportation
Federal Highway Administration

Highway Functional Classification Concepts, Criteria and Procedures

2013 Edition

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U.S. Department of Transportation
Federal Highway Administration

SECTION 3. CRITERIA

3.1 Definitions and Characteristics

The previous section provided a general overview of the functional classification categories of Arterial, Collector and Local. For Federal functional classification purposes, this section breaks these categories down further to stratify the range of mobility and access functions that roadways serve. Additionally, the physical layout and the official designation of some roadways dictate the classification of certain roadways.

Access control is a key factor in the realm of functional classification. All Interstates are "limited access" or "controlled access" roadways. The use of the word "access" in this context refers to the ability to access the roadway and not the abutting land use—these roadways provide no "access" to abutting land uses. Access to these roadways is controlled or limited to maximize mobility by eliminating conflicts with driveways and at-grade intersections that would otherwise hinder travel speed. Access to these roadways is limited to a set of controlled locations at entrance and exit ramps. Travelers use a much lower functionally classified roadway to reach their destination.

3.1.1 Interstates

Interstates are the highest classification of Arterials and were designed and constructed with mobility and long-distance travel in mind. (**Figure 3-1**) Since their inception in the 1950's, the Interstate System has provided a superior network of limited access, divided highways offering high levels of mobility while linking the major urban areas of the United States.

Figure 3-1: Example of Interstate

Source: CDM Smith

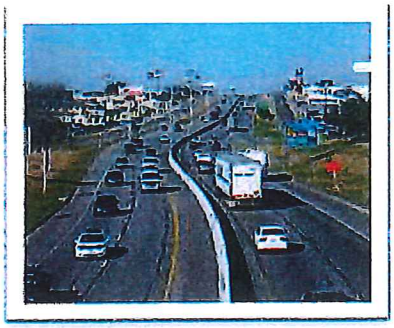
Determining the functional classification designation of many roadways can be somewhat subjective, but with the Interstate category of Arterials, there is no ambiguity. Roadways in this functional classification category are officially designated as Interstates by the Secretary of Transportation, and all routes that comprise the Dwight D. Eisenhower National System of Interstate and Defense Highways belong to the Interstate functional classification category and are considered Principal Arterials.

3.1.2 Other Freeways & Expressways

Roadways in this functional classification category look very similar to Interstates. While there can be regional differences in the use of the terms 'freeway' and 'expressway', for the purpose of functional classification the roads in this classification have directional travel lanes are usually separated by some type of physical barrier, and their access and egress points are limited to on- and off-ramp locations or a very limited number of at-grade intersections. Like Interstates, these roadways are designed and constructed to maximize their mobility function, and abutting land uses are not directly served by them.

3.1.3 Other Principal Arterials

Figure 3-2: Example of Other Principal Arterial



Source: CDM Smith

These roadways serve major centers of metropolitan areas, provide a high degree of mobility and can also provide mobility through rural areas. Unlike their access-controlled counterparts, abutting land uses can be served directly. Forms of access for Other Principal Arterial roadways include driveways to specific parcels and at-grade intersections with other roadways. (**Figure 3-2**) For the most part, roadways that fall into the top three functional classification categories (Interstate, Other Freeways & Expressways and Other Principal Arterials) provide similar service in both urban and rural areas. The primary difference is that there are usually multiple Arterial routes serving a particular urban area, radiating out from the urban center to serve the surrounding region. In contrast, an expanse of a rural area of equal size would be served by a single Arterial.

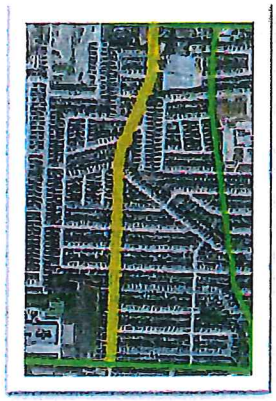
Table 3-1 presents a few key differences between the character of service that urban and rural Arterials provide.

Table 3-1: Characteristics of Urban and Rural Arterials

Urban	Rural
• Serve major activity centers, highest traffic volume corridors and longest trip demands • Carry high proportion of total urban travel on minimum of mileage • Interconnect and provide continuity for major rural corridors to accommodate trips entering and leaving urban area and movements through the urban area • Serve demand for intra-area travel between the central business district and outlying residential areas	• Serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel • Connect all or nearly all Urbanized Areas and a large majority of Urban Clusters with 25,000 and over population • Provide an integrated network of continuous routes without stub connections (dead ends)

3.1.4 Minor Arterials

Figure 3-3: Example of Urban Minor Arterial



Source: Unsourced photo

Minor Arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher Arterial counterparts and offer connectivity to the higher Arterial system. In an urban context, they interconnect and augment the higher Arterial system, provide intra-community continuity and may carry local bus routes. (**Figure 3-3**)

In rural settings, Minor Arterials should be identified and spaced at intervals consistent with population density, so that all developed areas are within a reasonable distance of a higher level Arterial. Additionally, Minor Arterials in rural areas are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement. The spacing of Minor Arterial streets may typically vary from 1/8- to 1/2-mile in the central business district (CBD) and 2 to 3 miles in the suburban fringes. Normally, the spacing should not exceed 1 mile in fully developed areas (see **Table 3-2**).

Table 3-2: Characteristics of Urban and Rural Minor Arterials

Urban	Rural
• Interconnect and augment the higher-level Arterials • Serve trips of moderate length at a somewhat lower level of travel mobility than Principal Arterials • Distribute traffic to smaller geographic areas than those served by higher-level Arterials • Provide more land access than Principal Arterials without penetrating identifiable neighborhoods • Provide urban connections for Rural Collectors	• Link cities and larger towns (and other major destinations such as resorts capable of attracting travel over long distances) and form an integrated network providing interstate and inter-county service • Be spaced at intervals, consistent with population density, so that all developed areas within the State are within a reasonable distance of an Arterial roadway • Provide service to corridors with trip lengths and travel density greater than those served by Rural Collectors and Local Roads and with relatively high travel speeds and minimum interference to through movement

3.1.5 Major and Minor Collectors

Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network. Within the context of functional classification, Collectors are broken down into two categories: Major Collectors and Minor Collectors. Until recently, this division was considered only in the rural environment. Currently, all Collectors, regardless of whether they are within a rural area or an urban area, may be sub-stratified into *major* and *minor* categories. The determination of whether a given Collector is a Major or a Minor Collector is frequently one of the biggest challenges in functionally classifying a roadway network.

In the rural environment, Collectors generally serve primarily intra-county travel (rather than statewide) and constitute those routes on which (independent of traffic volume) predominant travel distances are shorter than on Arterial routes. Consequently, more moderate speeds may be posted.

The distinctions between Major Collectors and Minor Collectors are often subtle. Generally, Major Collector routes are longer in length; have lower connecting driveway densities; have higher speed limits; are spaced at greater intervals; have higher annual average traffic volumes; and may have more travel lanes than their

Minor Collector counterparts. Careful consideration should be given to these factors when assigning a Major or Minor Collector designation. In rural areas, AADT and spacing may be the most significant designation factors. Since Major Collectors offer more mobility and Minor Collectors offer more access, it is beneficial to reexamine these two fundamental concepts of functional classification. Overall, the total mileage of Major Collectors is typically lower than the total mileage of Minor Collectors, while the total Collector mileage is typically one-third of the Local roadway network (see **Table 3-3**).

Table 3-3: Characteristics of Major and Minor Collectors (Urban and Rural)

MAJOR COLLECTORS	
Urban	**Rural**
• Serve both land access and traffic circulation in higher density residential, and commercial/industrial areas • Penetrate residential neighborhoods, often for significant distances • Distribute and channel trips between Local Roads and Arterials, usually over a distance of greater than three-quarters of a mile • Operating characteristics include higher speeds and more signalized intersections	• Provide service to any county seat not on an Arterial route, to the larger towns not directly served by the higher systems and to other traffic generators of equivalent intra-county importance such as consolidated schools, shipping points, county parks and important mining and agricultural areas • Link these places with nearby larger towns and cities or with Arterial routes • Serve the most important intra-county travel corridors
MINOR COLLECTORS	
Urban	**Rural**
• Serve both land access and traffic circulation in lower density residential and commercial/industrial areas • Penetrate residential neighborhoods, often only for a short distance • Distribute and channel trips between Local Roads and Arterials, usually over a distance of less than three-quarters of a mile • Operating characteristics include lower speeds and fewer signalized intersections	• Be spaced at intervals, consistent with population density, to collect traffic from Local Roads and bring all developed areas within reasonable distance of a Collector • Provide service to smaller communities not served by a higher class facility • Link locally important traffic generators with their rural hinterlands

3.1.6 Local Roads

Locally classified roads account for the largest percentage of all roadways in terms of mileage. They are not intended for use in long distance travel, except at the origin or destination end of the trip, due to their provision of direct access to abutting land. Bus routes generally do not run on Local Roads. They are often designed to discourage through traffic. As public roads, they should be accessible for public use throughout the year.

Local Roads are often classified by default. In other words, once all Arterial and Collector roadways have been identified, all remaining roadways are classified as Local Roads (see **Table 3-4**).

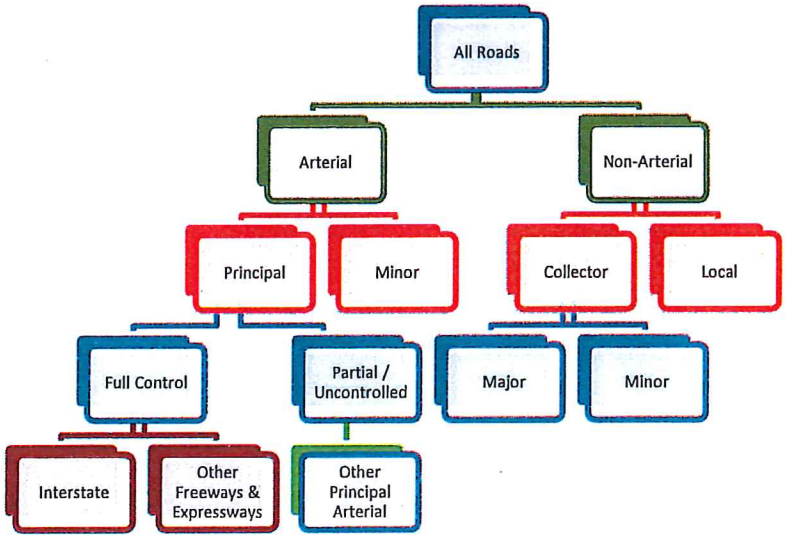
Table 3-4: Characteristics of Urban and Rural Local Roads

Urban	Rural
• Provide direct access to adjacent land • Provide access to higher systems • Carry no through traffic movement • Constitute the mileage not classified as part of the Arterial and Collector systems	• Serve primarily to provide access to adjacent land • Provide service to travel over short distances as compared to higher classification categories • Constitute the mileage not classified as part of the Arterial and Collector systems

3.2 Putting it all Together

The functional classification system groups roadways into a logical series of decisions based upon the character of travel service they provide. **Figure 3-4** presents this process, starting from assigning the function of an Arterial by its level of access (limited or full) or Non-Arterial (full access).

Figure 3-4: Federal Functional Classification Decision Tree

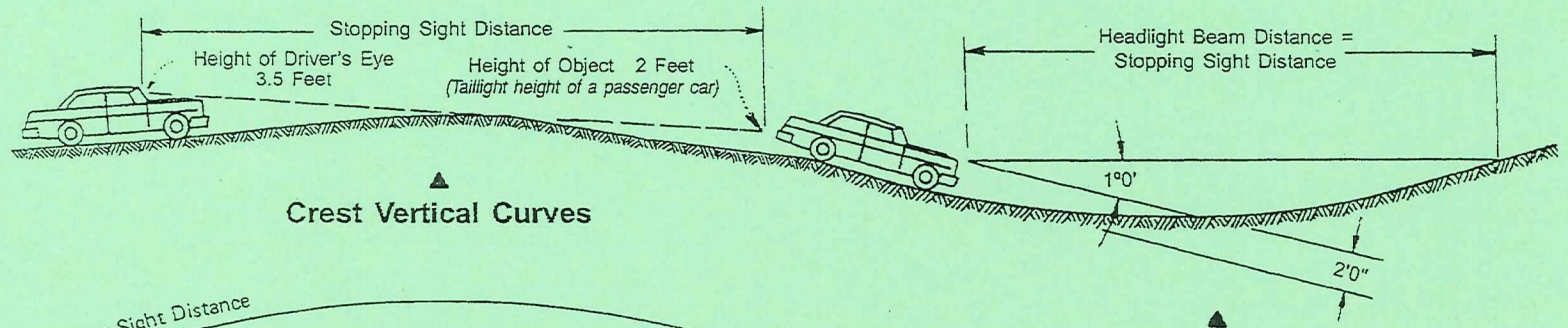


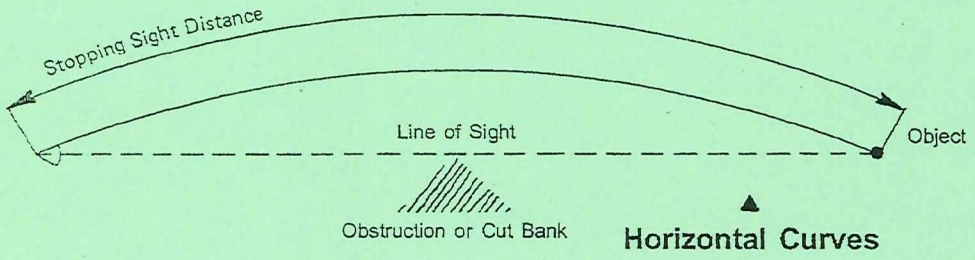
Source: FHWA and CDM Smith

While this document emphasizes the importance of function and service over the urban/rural distinction when classifying roads, the classification process is still influenced by the intensity and distribution of land development patterns. Classification of roadways in urban areas is typically guided by the local comprehensive planning and design process, or the fundamental principles of roadway functional classification. In comparison, rural development patterns are often more diverse, if not less orderly, thereby making the functional classification determination of some rural roadways more challenging (see **Figure 3-5** and **Figure 3-6**).

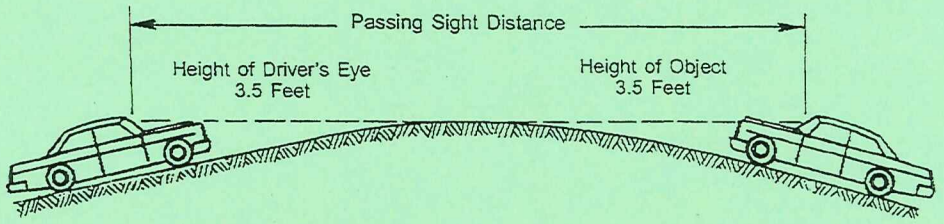
Sight Distance

- Definition: Length of roadway ahead that is visible to the driver.
- Stopping Sight Distance: **Brake Reaction Time Distance + Braking Distance**





- **Decision Sight Distance:** Distance needed for a driver to detect an unexpected or otherwise difficult-to-perceive information source or condition in a roadway environment that may be visually cluttered, recognize the condition or its potential threat, select an appropriate speed and path, and initiate and complete the maneuver safely and efficiently.
- **Passing Sight Distance:** Distance needed to complete normal passing maneuvers in which the passing driver can determine that here are no potentially conflicting vehicles ahead before beginning the maneuver.



SOCIETAL COSTS OF NEBRASKA TRAFFIC ACCIDENTS

REVISED SEPTEMBER 30, 2013

Fatal Accident	$4,451,200
A-Injury accident	$381,250
B-Injury accident	$80,620
C-Injury accident	$42,080
All types of Combined Injury Accident	$116,080
Propery Damage Accident	$7,490
Non-Reportable Propery Damage Accident	*$1,000*

MULTI-VEHICLE ACCIDENTS	URBAN	RURAL
Right Angle Collision	$48,100	$238,400
Rearend Collision	$32,000	$81,100
Sideswipe (Same Direction)	$23,100	$76,300
Sideswipe (Opposite Direction)	$55,100	$280,800
Head-on Collision	$105,600	$1,120,800
Left-turn Collision	$59,800	$156,600
Other Collision	$16,300	$20,000

SINGLE VEHICLE ACCIDENTS	URBAN	RURAL
Collision with Train	$482,600	$551,700
Collision with Pedestrian	$203,200	$702,600
Collision with Bicycle	$117,100	$515,200
Collision with Animal	$14,500	$17,800
Collision with Parked Vehicle	$17,900	$50,000
Collision with Fixed Object	$69,500	$120,500
Overturn	$202,400	$222,500
Other Single Vehicle Accident	$45,300	$47,000

Sources: Federal Highway Administration research report Number, FHWA-RD-91-055, The Cost of Highway Crashes, October 1991; Nebraska Department of Roads Accident Data 2007-2009; Adjusted to Jnanuary 2013 costs using the Gross Domestic Product (GDP) Implicit Price Deflator, U.S. Department of Commerce, Bureau of Economic Analysis (2013).

Non-Reportable Crashes: Less than $1,000 in damage to one vehicle involved in the crash, or no injuries or fatality.

Information to know for B/C calculation:

Crashes at location — Potential work cost — Work expected life

Average Daily Traffic (ADT) — Crash Modification Factor (CMF) for mitigated crash type *

* crash modification factors (CMF) can be obtained from http://www.cmfclearinghouse.org or contact LTAP for

Example #1 Safety work: Cut down vertical curve to improve sight distance and asphalt pave the new vertical alignment to keep vehicles to the right of the centerline.

Work cost: $ **350,000** determined by preliminary design

Location: **Rural**

Type of crashes potentially mitigated: side swipe (opposite direction)

Work service life: **12** years

1 Crash(es) over a Crash-History Period of: **10** years

1) Determine Average Daily Traffic, ADT, for a year at that location — **250 ADT** — Slide 197

Take a Traffic Count at the potential location, *LTAP has traffic counters for loan*

2) To account for Average Daily Traffic for a year multiply by 365 days a year — Slide 197

250 vehicles per day **X** 365 days per year = 91,250 vehicles per year ÷ 1,000,000 = **0.091** million vehicles per year (MV/yr.)

3) Determine Economic Cost before Safety Work for each mitigated crash — Slide 198

Example: Rural location, mitigating head-on collisions, using **10** years of crash data

Societal Cost per Crash (refer to table on Page 1 of this handout): = **$1,120,800** rural head-on collisions

Total Societal Cost = 1 Crashes **X** $ 1,120,800 = **$1,120,800**

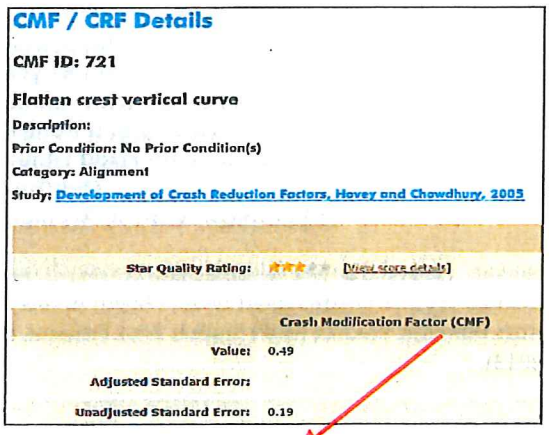
4) Determine average cost per mitigated (m) crash — Slide 198

$$\frac{\text{total m crash cost}}{\text{total m crashes}} = \frac{\$1,120,800}{1} = \$1,120,800 \text{ per m crash}$$

5) Determine mitigated (m) crash rate per million vehicles — Slide 199

$$\frac{\text{total mitigated crashes}}{\text{years of crash data}} = \frac{1}{10} = 0.10 \text{ mitigated crashes per year}$$

$$\frac{\text{mitigated crashes per yr.}}{\text{MV per yr.}} = \frac{0.10}{0.091} = 1.096 \text{ mitigated crashes per MV}$$



6) Determine savings from safety work — Slide 199

mitigated crashes/MV		MV/yr.		work life, years		$/mitigated crash		cmf		
1.096 from Step 5	**X**	0.091 from Step 2	**X**	12	**X**	$1,120,800 from Step 4	**X**	0.49	=	**$659,030** Benefits of Safety Work

7) Determine Benefit/Cost for safety work — Slide 200

$$\frac{\text{benefits of safety work}}{\text{work cost}} = \frac{\$659,030}{\$350,000} = \boxed{1.88} \text{ B/C (Benefit to Cost)}$$

Example #2 Safety work: Cut down vertical curve to improve sight distance and asphalt pave the new vertical alignment to keep vehicles to the right of the centerline.

Work cost: $ **350,000** determined by preliminary design

Location: **Rural**

Type of crashes potentially mitigated: side swipe (opposite direction)

Work service life: **12** years

2 Crash(es) over a Crash-History Period of: **10** years

1) Determine Average Daily Traffic, ADT, for a year at that location **250 ADT** Slide 197

Take a Traffic Count at the potential location, *LTAP has traffic counters for loan*

2) To account for Average Daily Traffic for a year multiply by 365 days a year Slide 197

250 vehicles per day **X** 365 days per year = 91,250 vehicles per year ÷ 1,000,000 = **0.091** million vehicles per year (MV/yr.)

3) Determine Economic Cost before Safety Work for each mitigated crash Slide 198

Example: Rural location, mitigating side swipe (opposite direction) crashes, using **10** years of crash data

Societal Cost per Crash (refer to table on Page 1 of this handout): = **$280,800** side swipe (opposite direction)

Total Societal Cost = 2 Crashes **X** $ 280,800 = **$561,600**

4) Determine average cost per mitigated (m) crash Slide 198

$$\frac{\text{total m crash cost}}{\text{total m crashes}} = \frac{\$561,600}{2} = \$280,800 \text{ per m crash}$$

5) Determine mitigated (m) crash rate per million vehicles Slide 199

$$\frac{\text{total mitigated crashes}}{\text{years of crash data}} = \frac{2}{10} = 0.20 \text{ mitigated crashes per year}$$

$$\frac{\text{mitigated crashes per yr.}}{\text{MV per yr.}} = \frac{0.20}{0.091} = 2.192 \text{ mitigated crashes per MV}$$

CMF / CRF Details

CMF ID: 721

Flatten crest vertical curve

Description:

Prior Condition: No Prior Condition(s)

Category: Alignment

Study: Development of Crash Reduction Factors, Hovey and Chowdhury, 2005

Star Quality Rating: ★★★☆☆ [View score details]

Crash Modification Factor (CMF)

Value: 0.49

Adjusted Standard Error:

Unadjusted Standard Error: 0.19

6) Determine savings from safety work Slide 199

mitigated crashes/MV	X	MV/yr.	X	work life, years	X	$/mitigated crash	X	cmf	
2.192 from Step 5	X	0.091 from Step 2	X	12	X	$280,800 from Step 4	X	0.49	= **$330,221** Benefits of Safety Work

7) Determine Benefit/Cost for safety work Slide 200

$$\frac{\text{benefits of safety work}}{\text{work cost}} = \frac{\$330,221}{\$350,000} = \boxed{0.94} \text{ B/C (Benefit to Cost)}$$

▼ Countermeasure: Flatten crest vertical curve

CMF	CRF(%)	Quality	Crash Type	Crash Severity	Area Type	Reference	Comments
0.49	51	★★★☆☆	All	Fatal,Serious injury,Minor injury	All	Hovey and Chowdhury, 2005	
0.8	20	★★☆☆☆	All	All	All	Hovey and Chowdhury, 2005	

ISSUES CONCERNING AN EFFECTIVE COUNTY ROADSIDE TREE AND BRUSH POLICY
(This list is not exhaustive)

Check with your County Attorney (also: County Attorneys Association & NACO legal staff)?
Court cases and Attorney General's Opinions?

Federal Aid projects - County agrees to maintain (signed agreement).

ROW ownership – Prescriptive easement on private land, County title, or NDOR title (on relinquished roads, e.g. Old Hwy 2)?

Controlled Access and/or ROW use or entry policy (incl. notification requirement and/or permits system)?

Municipalities - Within corporate limits (controlled by law and city ordinances)?
- Within zoning area of municipality?

County Zoning - No new planting within "X" feet of road?

Functional Classification – Are policies aligned with (a) uses of Other Arterial, Collector, Local, and Minimum Maintenance Roads, and (b) traffic count and mix – 428 NAC 1 § 001?

County Duties & Responsibilities – Minimum Standards (in effect since 1969 [statutes] & early 1970s [regulations]), under general supervision of Board of Public Roads Classifications and Standards) -
Jurisdictional responsibility for roadway – Neb. Rev. Stat. 39-2105.
Minimum Design Standards (fixed obstacle clearance) – Neb. Rev. Stat. 39-2113; 428 NAC 2 § 001.16.
Minimum Maintenance Standards (minimum standards for maintenance) – Neb. Rev. Stat. 39-2113; 428 NAC 2 § 003.
Maintenance Standards for Minimum Maintenance Roads – Neb. Rev. Stat. 39-2113; 428 NAC 2 § 006.

Landowner Rights & Obligations (All citations from Neb. Rev. Stat.; some date back to 1957 & older, i.e. "pre-Standards") -
39-308 – Trees obstructing view of driver.
39-309 – Planting trees in ROW.
39-310 – Disposal of materials in ROW.
39-1802 – Road drainage & erosion protection.
39-1811 – Weed mowing.
39-1812 & 39-1813 – Hedge and tree trimming.

Related Issues -
Compensation for taking of property and for damages.
Signing – compliance with Manual on Uniform Traffic Control Devices (MUTCD) within area of maintenance responsibility.
Delineation and/or shielding of obstacles – compliance with AASHTO *A Policy on Geometric Design* (the so-called Green Book) and (for higher volume roads) AASHTO *Roadside Design Guide*, pursuant to 428 NAC 2 § 001.16, footnote (1), when either removing the obstacle or redesigning the roadway away from the obstacle are not suitable options.
Liability (including exposure from a non-County employee doing work in ROW).

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