

# **SEAT BELT USE ON NORTH DAKOTA RURAL ROADS: 2009**

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# OVERVIEW

- Seat belt use in the United States
- Seat belt use in North Dakota
- Current seat belt survey methodology in ND
- Pilot study on rural seat belt use methodology



# A LITTLE BIT ABOUT SEAT BELT USE IN THE UNITED STATES....



# SEAT BELTS...

- First appeared in the early 1900's...
  - 1940's-1960's – Ramp up for legislation requiring seat belts in cars
  - 1970's – seat belts required in all cars
  - New York was the first state with a primary seat belt law



Safety Belt Devised For Car



**D**ESIGNED to hold passengers firmly in their seats in event of a crash so that they will not be thrown violently against the car interior, a newly developed safety belt for automobiles may eliminate injuries attributed to this cause.

# SEAT BELTS...

- ...are estimated to reduce risk of fatal injury by half when used properly
- ...are a low-cost, easy to use way to prevent injuries and fatalities
- ...are mandatory in 30 states, which currently have primary seat belt laws, 19 have secondary offense laws (including ND)



- New Hampshire is the only state without a seat belt law for adults (primary or secondary).

**LIVE FREE OR DIE!!**



Why is this  
important?





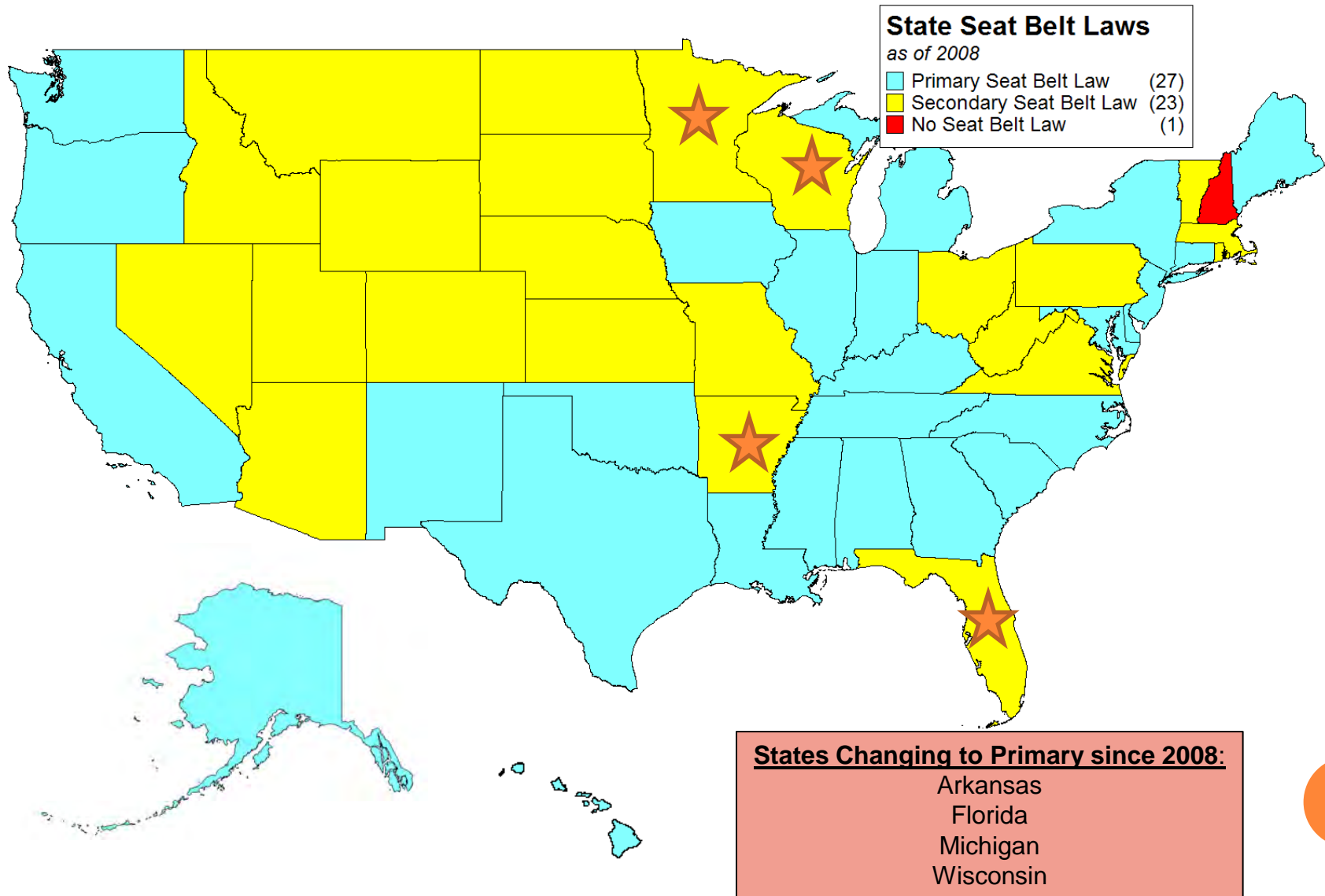
# Top 10 Leading Causes of Death in the United States for 2006, by Age Group<sup>1</sup>

National Highway Traffic Safety Administration's National Center for Statistics and Analysis

RANK	Cause and Number of Deaths											Years of Life Lost <sup>2</sup>
	Infants Under 1	Toddlers 1-3	Young Children 4-7	Children 8-15	Youth 16-20	Young Adults 21-24	Other Adults			Older Adults 65+	All Ages	
							25-34	35-44	45-64			
1	Perinatal Period 14,321	Congenital Anomalies 462	<b>MV Traffic Crashes 449</b>	<b>MV Traffic Crashes 1,272</b>	<b>MV Traffic Crashes 5,689</b>	<b>MV Traffic Crashes 4,667</b>	<b>MV Traffic Crashes 7,162</b>	Malignant Neoplasms 13,917	Malignant Neoplasms 151,788	Heart Disease 510,542	Heart Disease 631,636	Malignant Neoplasms 23% (8,908,211)
2	Congenital Anomalies 5,819	Accidental Drowning 395	Malignant Neoplasms 392	Malignant Neoplasms 723	Homicide 2,794	Homicide 2,749	Accidental Poisoning 5,267	Heart Disease 12,339	Heart Disease 103,572	Malignant Neoplasms 387,515	Malignant Neoplasms 559,888	Heart Disease 20% (7,685,448)
3	Heart Disease 346	<b>MV Traffic Crashes 351</b>	Congenital Anomalies 183	Homicide 472	Suicide 1,836	Suicide 2,162	Suicide 4,985	Accidental Poisoning 7,542	Diabetes 17,124	Stroke 117,010	Stroke 137,119	<b>MV Traffic Crashes 5% (1,760,796)</b>
4	Homicide 336	Homicide 317	Accidental Drowning 163	Suicide 410	Accidental Poisoning 1,086	Accidental Poisoning 1,821	Homicide 4,725	Suicide 6,591	Stroke 16,859	Chronic Lwr. Resp. Dis. 106,845	Chronic Lwr. Resp. Dis. 124,583	Stroke 4% (1,536,877)
5	Septicemia 269	Malignant Neoplasms 277	Homicide 141	Congenital Anomalies 256	Malignant Neoplasms 724	Malignant Neoplasms 812	Malignant Neoplasms 3,656	<b>MV Traffic Crashes 6,470</b>	Chronic Lwr. Resp. Dis. 16,299	Alzheimer's 71,660	Diabetes 72,449	Chronic Lwr. Resp. Dis. 4% (1,503,483)
6	Influenza/Pneumonia 263	Exposure to Smoke/Fire 158	Exposure to Smoke/Fire 121	Heart Disease 249	Heart Disease 425	Heart Disease 598	Heart Disease 3,307	HIV 4,010	Chronic Liver Disease 14,929	Diabetes 52,351	Alzheimer's 72,432	Suicide 3% (1,176,020)
7	Nephritis/Nephrosis 162	Heart Disease 144	Heart Disease 74	Accidental Drowning 198	Accidental Drowning 335	Accidental Drowning 239	HIV 1,182	Homicide 3,020	Suicide 12,009	Influenza/Pneumonia 49,346	Influenza/Pneumonia 56,236	Perinatal Period 3% (1,122,740)
8	Stroke 142	Influenza/Pneumonia 111	<b>MV Nontraffic Crashes<sup>3</sup> 50</b>	Exposure to Smoke/Fire 113	Congenital Anomalies 230	Congenital Anomalies 188	Diabetes 673	Chronic Liver Disease 2,551	<b>MV Traffic Crashes 10,713</b>	Nephritis/Nephrosis 37,377	Nephritis/Nephrosis 45,344	Diabetes 3% (1,084,880)
9	<b>MV Traffic Crashes 139</b>	<b>MV Nontraffic Crashes<sup>4</sup> 107</b>	Benign Neoplasms 41	Chronic Lwr. Resp. Dis. 104	<b>MV Nontraffic Crashes<sup>4</sup> 135</b>	HIV 153	Stroke 527	Stroke 2,221	Accidental Poisoning 10,649	Septicemia 26,201	<b>MV Traffic Crashes 43,664</b>	Accidental Poisoning 3% (1,071,895)
10	Malignant Neoplasms 76	Septicemia 78	Influenza/Pneumonia 37	<b>MV Nontraffic Crashes<sup>4</sup> 100</b>	Accidental Falls 116	Pregnancy Childbirth 124	Congenital Anomalies 437	Diabetes 2,094	Nephritis/Nephrosis 6,613	Hypertension Renal Dis. 19,852	Septicemia 34,234	Homicide 2% (878,954)
<b>ALL<sup>3</sup></b>	28,527	3,923	2,447	5,824	16,330	17,143	42,952	83,043	466,432	1,759,423	2,426,264	All Causes 100% (38,315,767)

<sup>1</sup>When ranked by specific ages, motor vehicle crashes are the leading cause of death for each age 3 through 34.  
<sup>2</sup>Number of years calculated based on remaining life expectancy (2006 data from CDC) at time of death; percents calculated as a proportion of total years of life lost due to all causes of death.  
<sup>3</sup>Not a total of top 10 causes of death.  
<sup>4</sup>A motor vehicle nontraffic crash is any vehicle crash that occurs entirely in any place other than a public highway.  
 Source: National Center for Health Statistics (NCHS) CDC, Mortality Data 2006.  
 Note: The cause of death classification is based on the National Center for Statistics and Analysis (NCSA) Revised 68 Cause of Death Listing. This listing differs from the one used by the NCHS for its reports on leading causes of death by separating out unintentional injuries into separate causes of death, i.e., motor vehicle traffic crashes, accidental falls, motor vehicle nontraffic crashes, etc. Accordingly, the rank of some causes of death will differ from those reported by the NCHS. This difference will mostly be observed for minor causes of death in smaller age groupings.

# SEAT BELT LAWS IN THE UNITED STATES: CIRCA 2008







# SEAT BELT USE BY STATE: 2008

Average Seat Belt Use Rate in SECONDARY Enforcement States:

79%

Average Seat Belt Use Rate in PRIMARY Enforcement States:

88%

## Seat Belt Use by State

2008

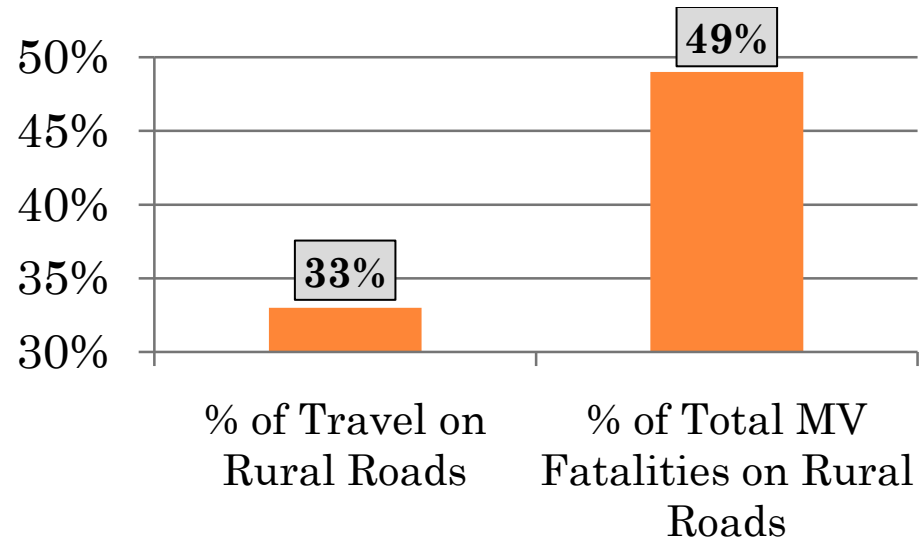
95% to 100%	(5)
90% to 94.9%	(9)
85% to 89.9%	(10)
80% to 84.9%	(9)
79% or less	(16)

A scenic view of a winding asphalt road through a rural landscape. The road curves through rolling hills and fields under a bright blue sky with wispy clouds. The text "RURAL ROADS AND TRAFFIC SAFETY...." is overlaid in the center of the image.

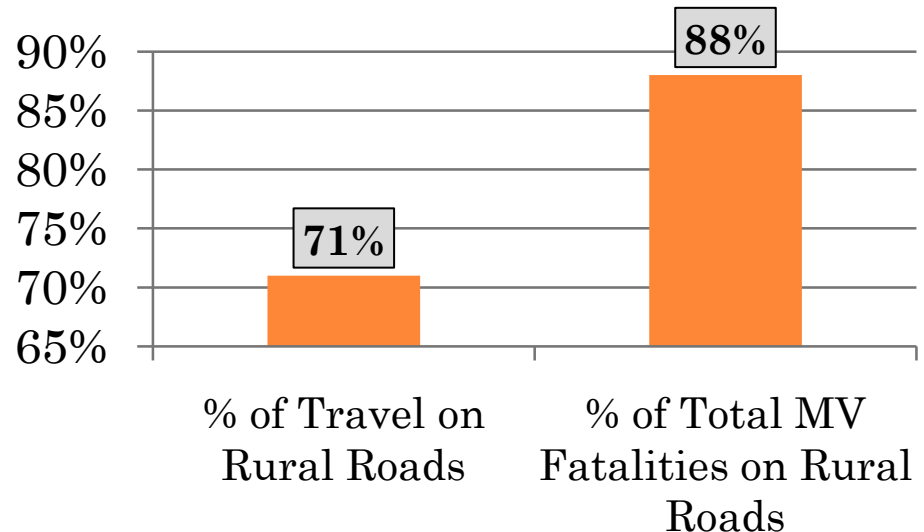
# **RURAL ROADS AND TRAFFIC SAFETY....**

# RURAL ROAD ISSUES

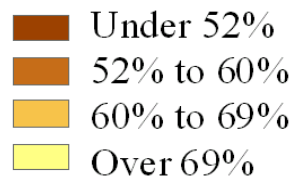
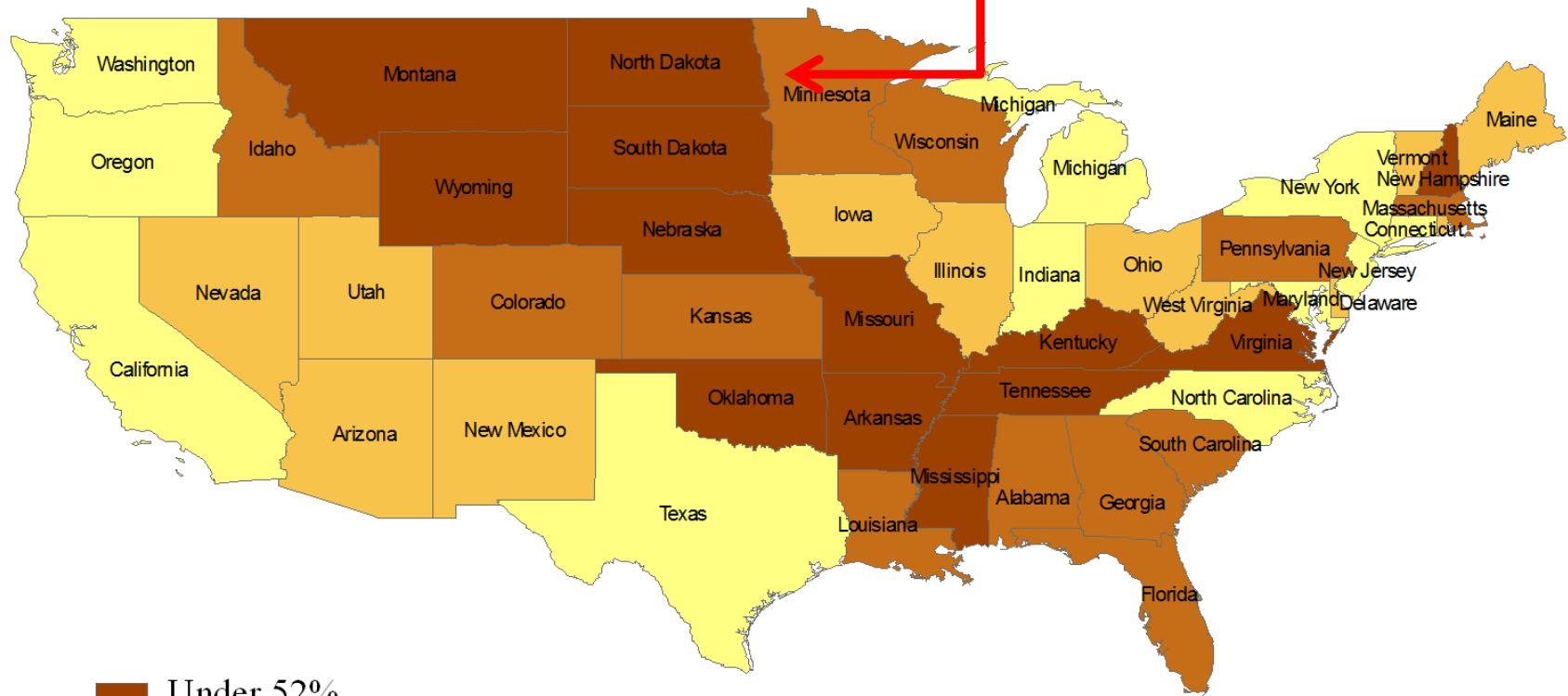
- In the **United States**, about one-third of travel takes place on rural roads, but nearly half of all traffic deaths occurred on rural roads between 2003 and 2007



- In **North Dakota**, nearly three-fourths of travel takes place on rural roads, but nearly 90% of all traffic deaths occurred on rural roads between 2003 and 2007

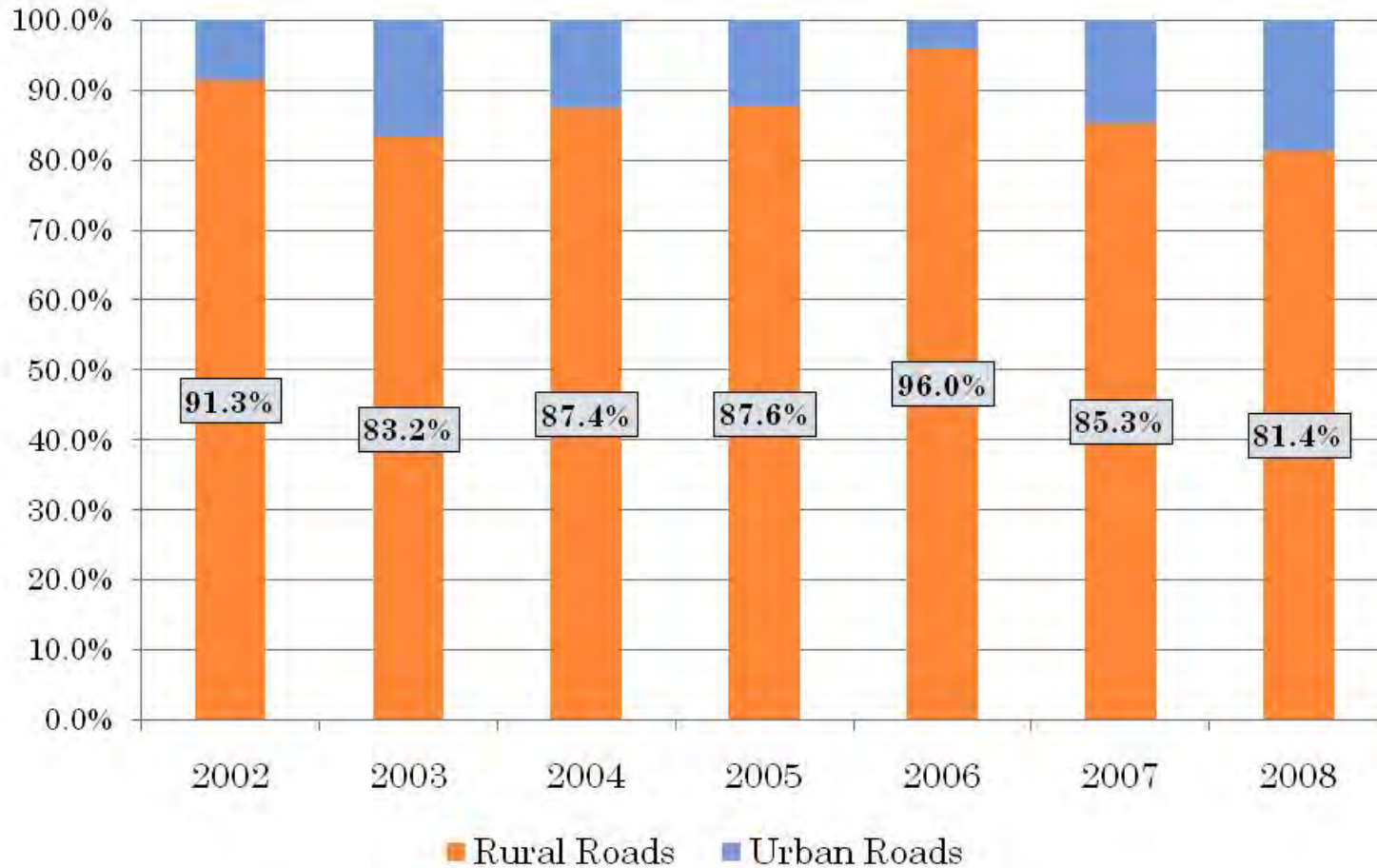


- ND had the lowest reported seat belt use rate of all states in fatal crashes on rural roads from 2002-2007
  - 36% in ND compared to 60% average among the 48 contiguous states





# % OF TOTAL ND FATAL CRASHES BY ROADWAY TYPE: 2002-2008



# **MEASURING SEAT BELT USE IN NORTH DAKOTA**



# CURRENT STATEWIDE SEAT BELT SURVEY METHODOLOGY (NOPUS)

- National Occupant Protection Use Survey (NOPUS) effort is supported by the National Highway Traffic Safety Administration (NHTSA) – which approves the sample design and survey method for each state.
- NOPUS requires that each state's seat belt survey must:
  - Be an observational survey
  - Use a probability sample of observation sites
  - Observe a standard set of passenger vehicles
  - Observe drivers and right-front-seat passengers
  - Meet a specified level of statistical precision
  - Provide a statewide estimate with a known margin of error.





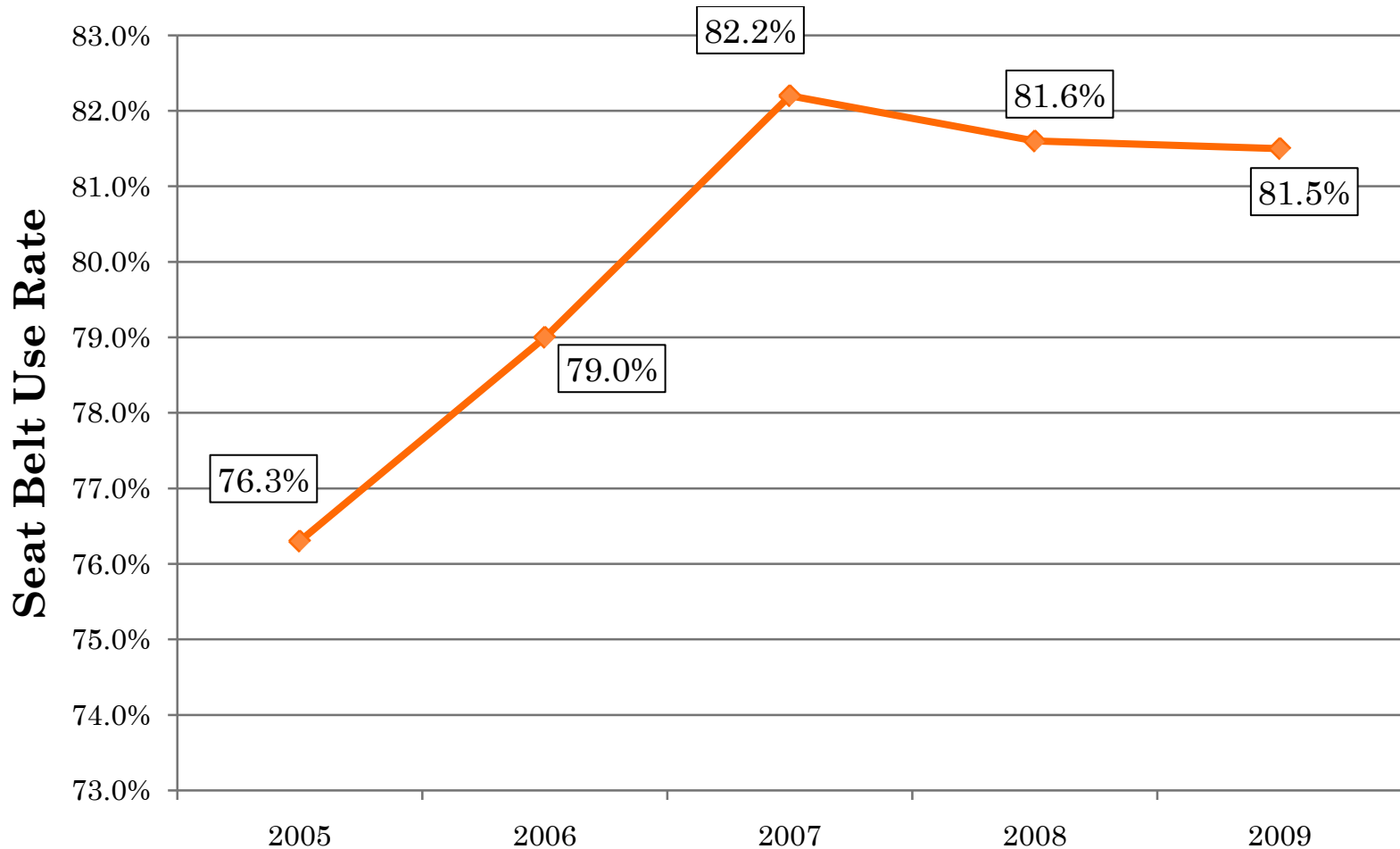
# ISSUES ARISING FROM CURRENT SEAT BELT METHODOLOGY

- Only 3 of the 16 counties included in survey sample had seat belt use rates above statewide average (Cass, Burleigh, and Nelson)
  - Cass and Burleigh dominated by urban travel (60% of state's urban travel, 11% of state's rural travel)
  - Encompass more than a third of state's population, more than a quarter of state vehicle miles traveled, less than 10% of geography
- NOPUS survey does not include observation sites on rural local roads





# RECENT SEAT BELT USE IN NORTH DAKOTA



Source: *Seat Belt Use in North Dakota, June 2009*



# STUDY OBJECTIVES

- Establish rural seat belt survey protocol
- Establish partnerships with state and local associates to conduct seat belt observations
- Provide traffic safety offices and local officials with a 'measure' they can use in understanding and managing this public health issue
- Measure effects of new rural high visibility enforcement (HVE) activities



# PILOT RURAL ROADS METHODOLOGY: 2009

- Traditional observation survey method
- Included a minimum of one visit, two suggested visits – once in April, once in June or July
  - Twice to measure High Visibility Enforcement affects in respective counties
- Site selection:
  - One site in each town – max of 4 towns per county
  - 2-4 sites beyond town
  - Minimum 30 minutes up to one hour to meet 30 minimum observations
- Main focus on driver seat belt use, also collected passenger belt use when possible





# RESULTS

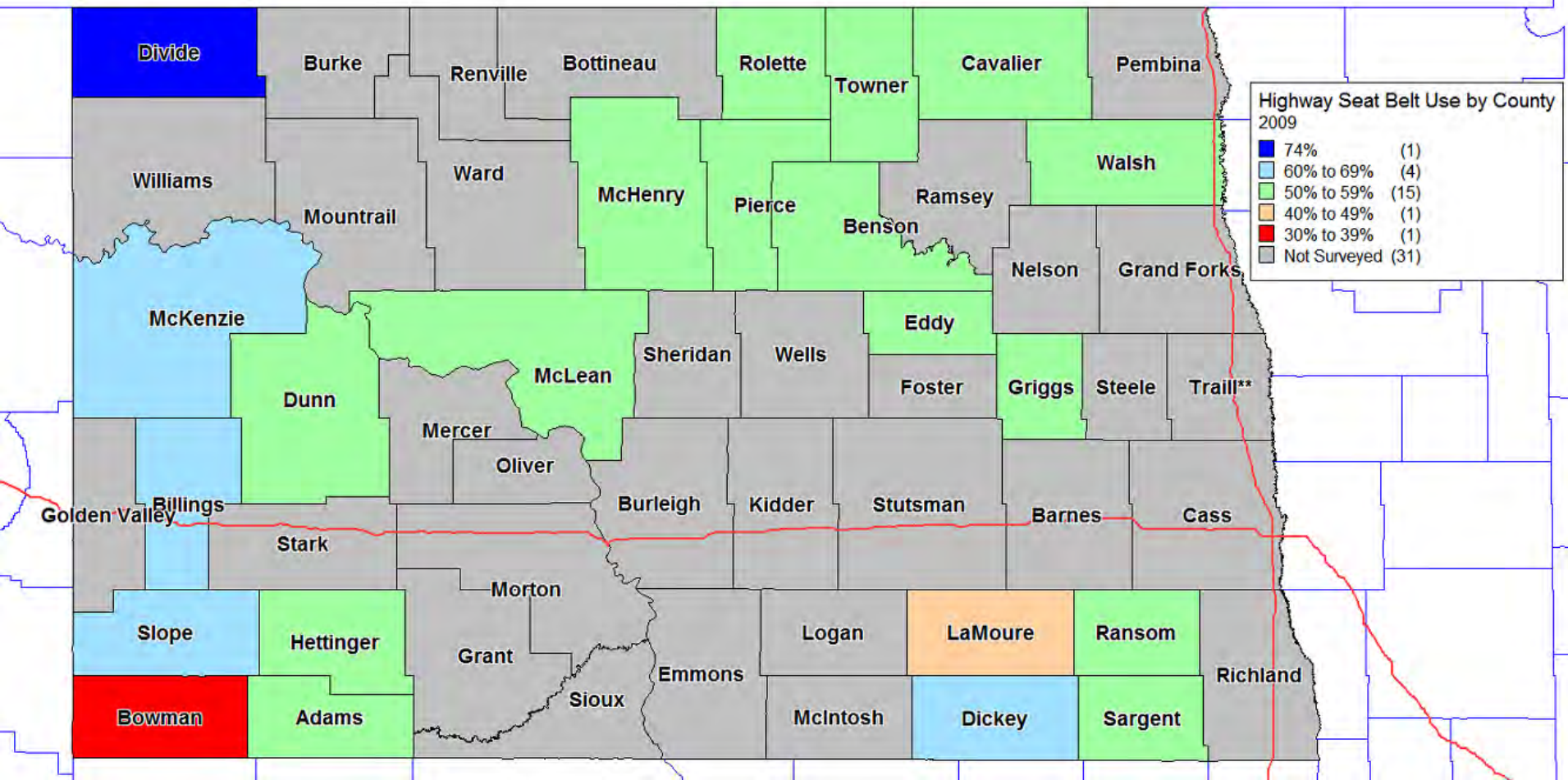




# OVERVIEW

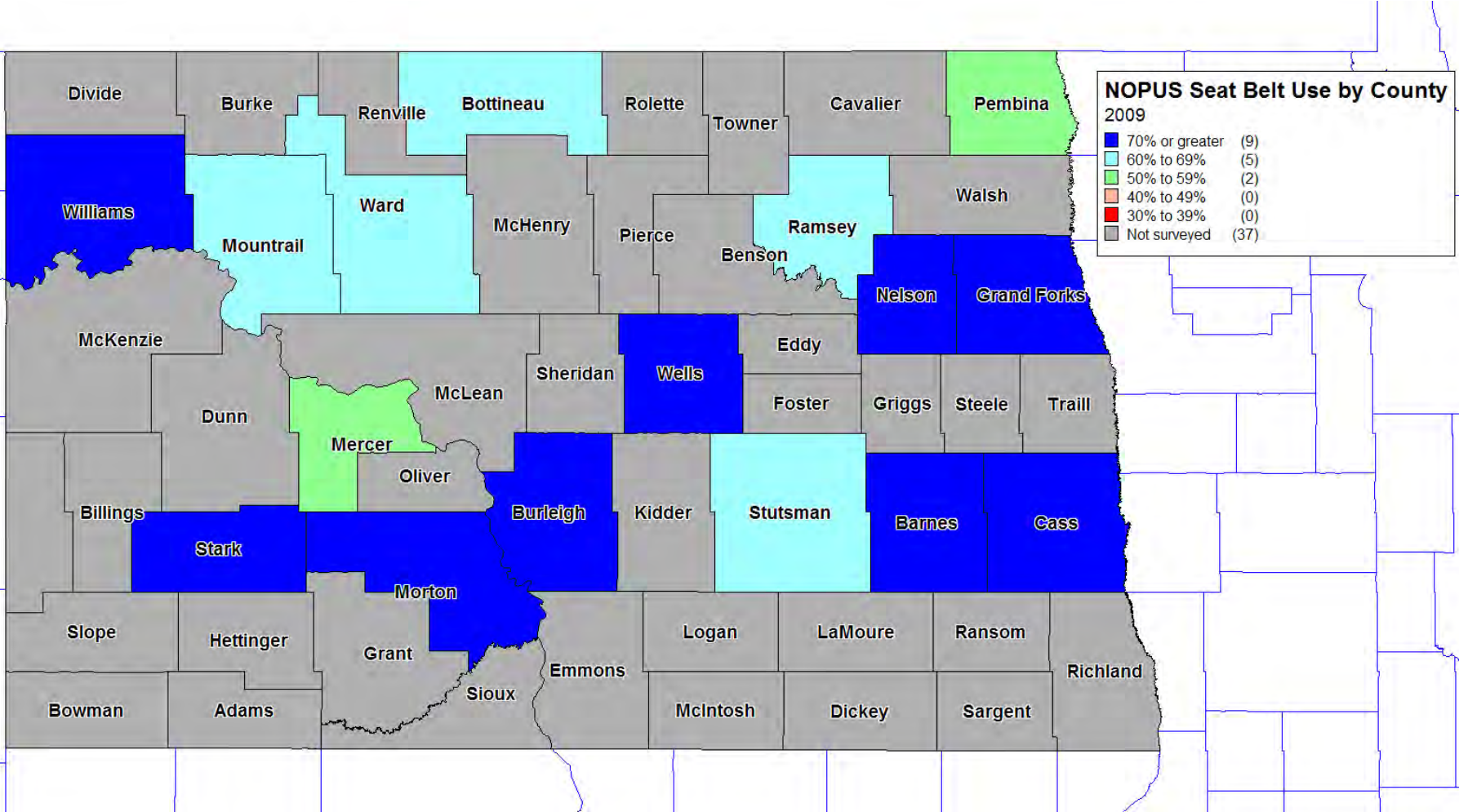
- 6,919 observations of driver seat belt use
- 1,051 observations of passenger seat belt use
- 149 sites/23 counties
- Sites included rural towns and rural highways located at least 20 miles from interstate highways
- Collected between March and August 2009

# HIGHWAY SEAT BELT USE RATE IN SURVEYED RURAL COUNTIES

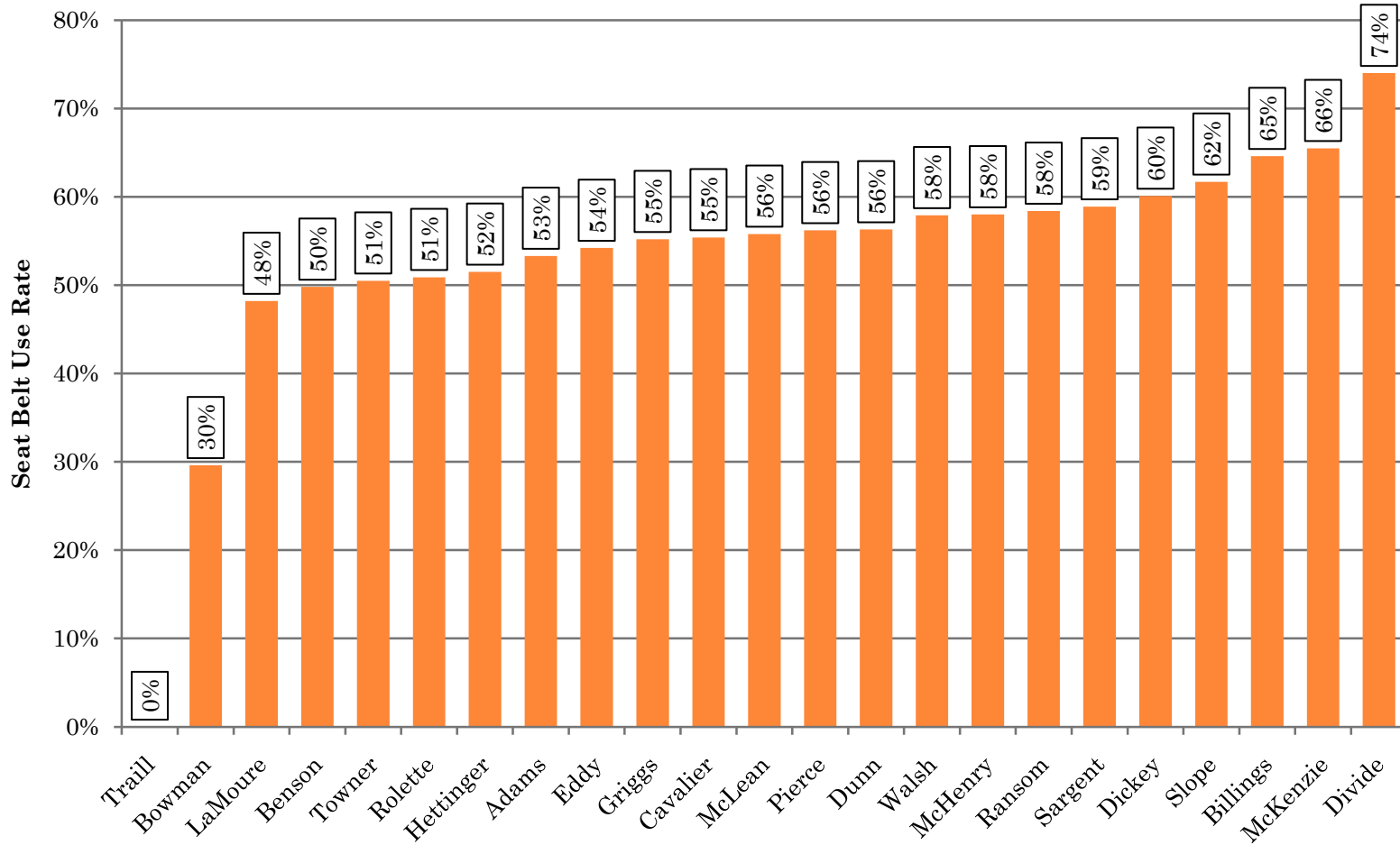


*\*\*Note: No highway observations were conducted in Traill County.*

# NOPUS SEAT BELT USE RATE



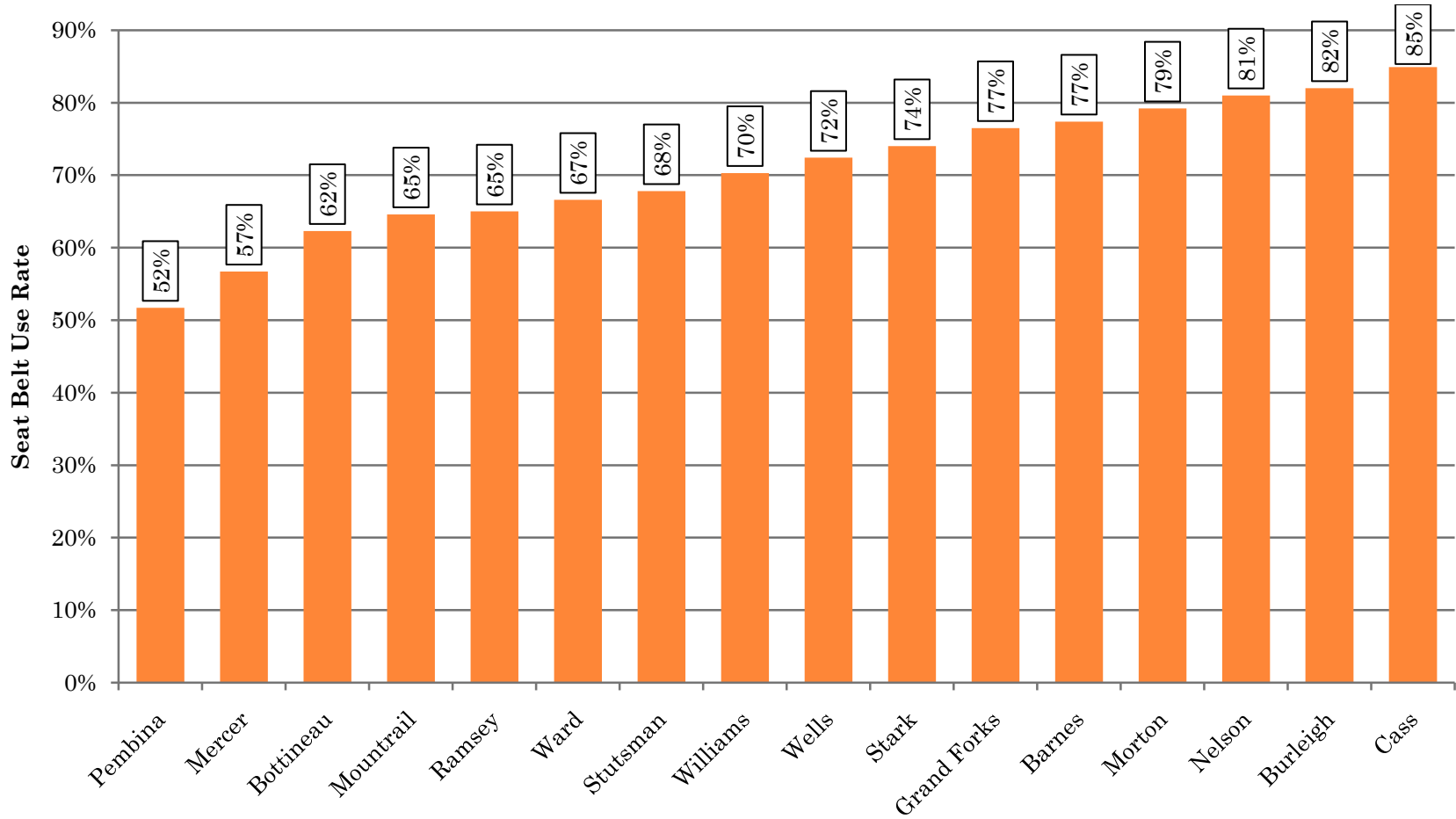
# HIGHWAY SEAT BELT USE RATE



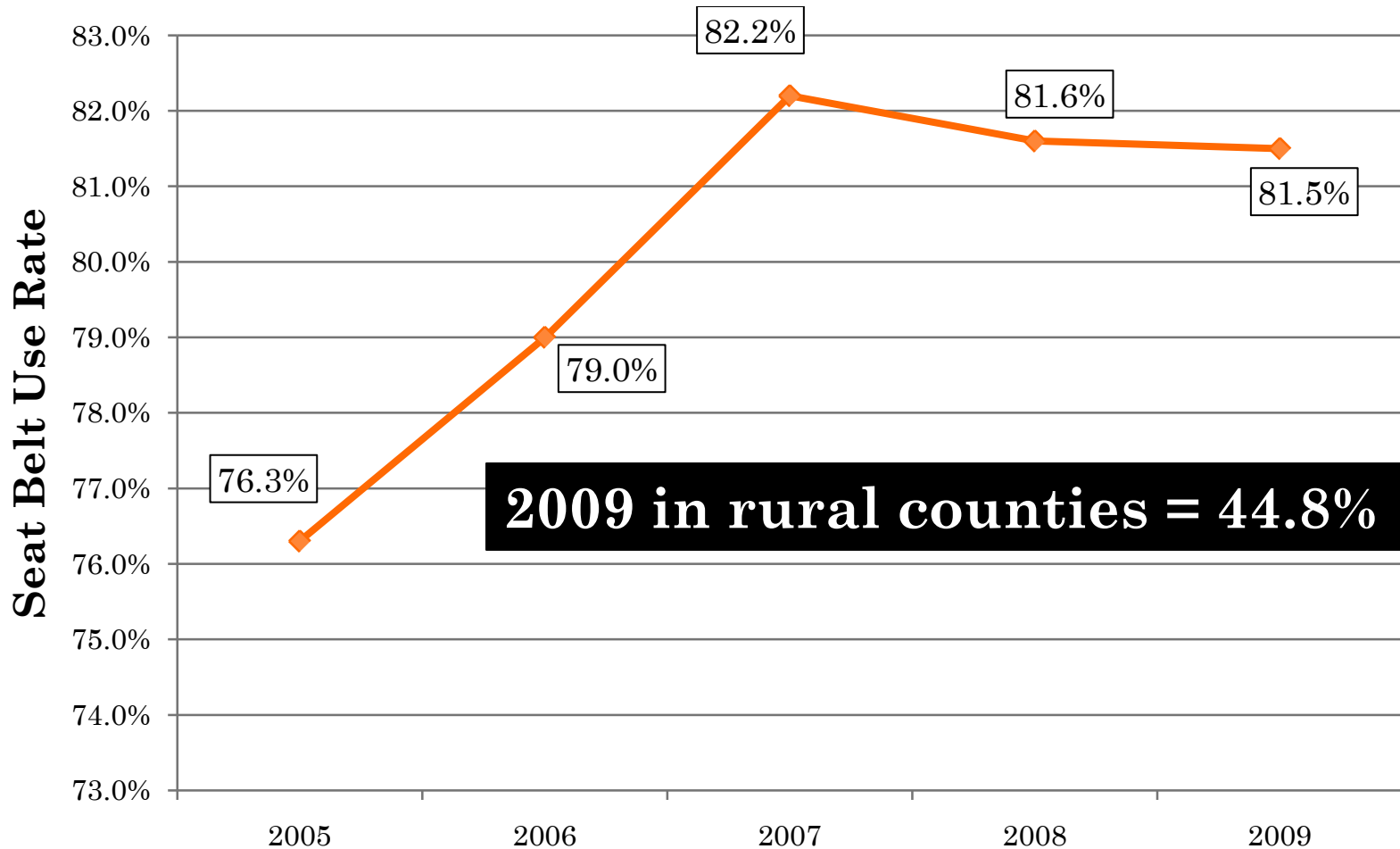
*\*\*Note: No highway observations were conducted in Traill County.*



# NOPUS SEAT BELT USE RATE



# RECENT SEAT BELT USE IN NORTH DAKOTA



Source: *Seat Belt Use in North Dakota, June 2009*



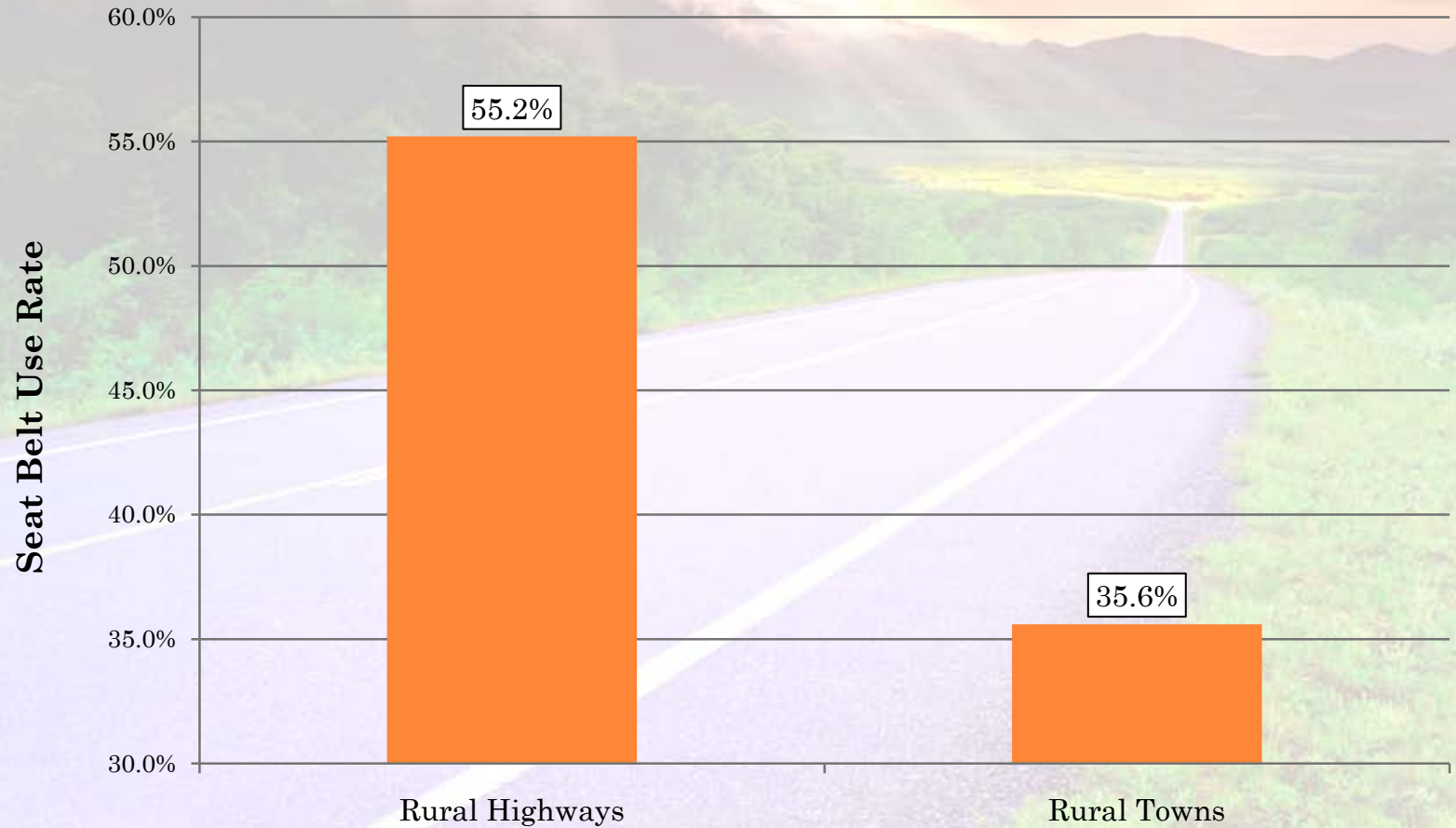




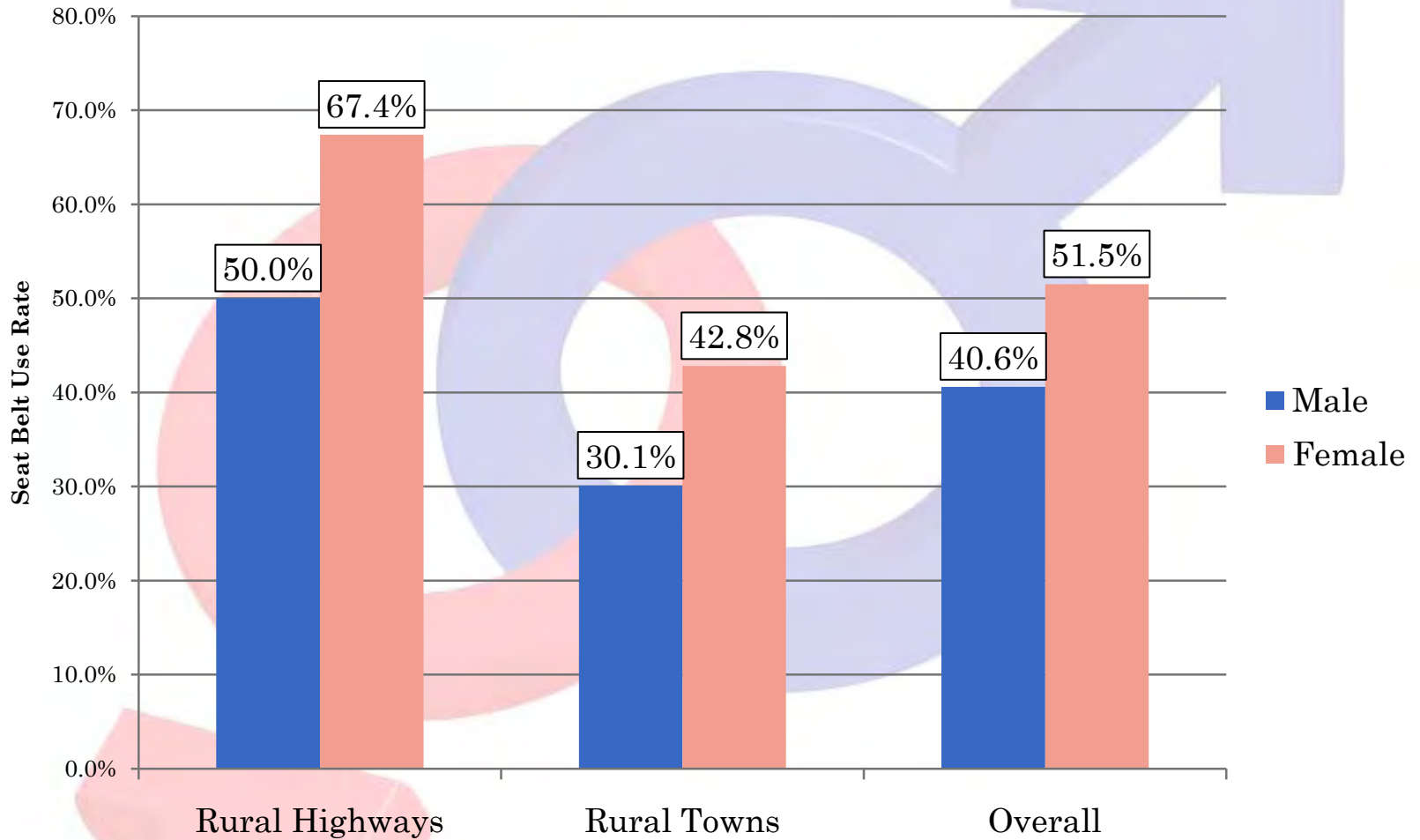
# ADDITIONAL RESULTS OF RURAL ROADS PILOT STUDY



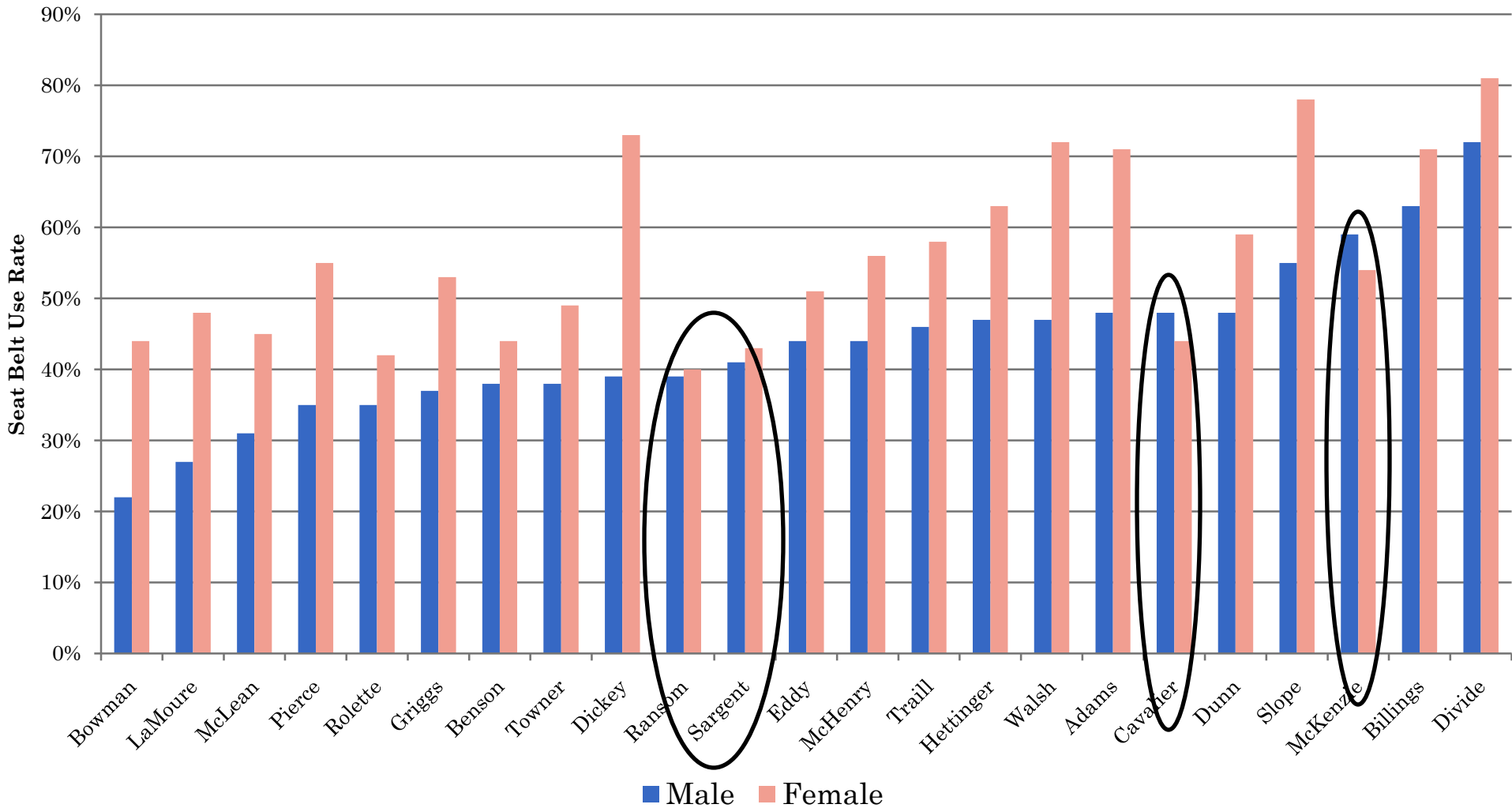
# SEAT BELT USE BY ROAD TYPE



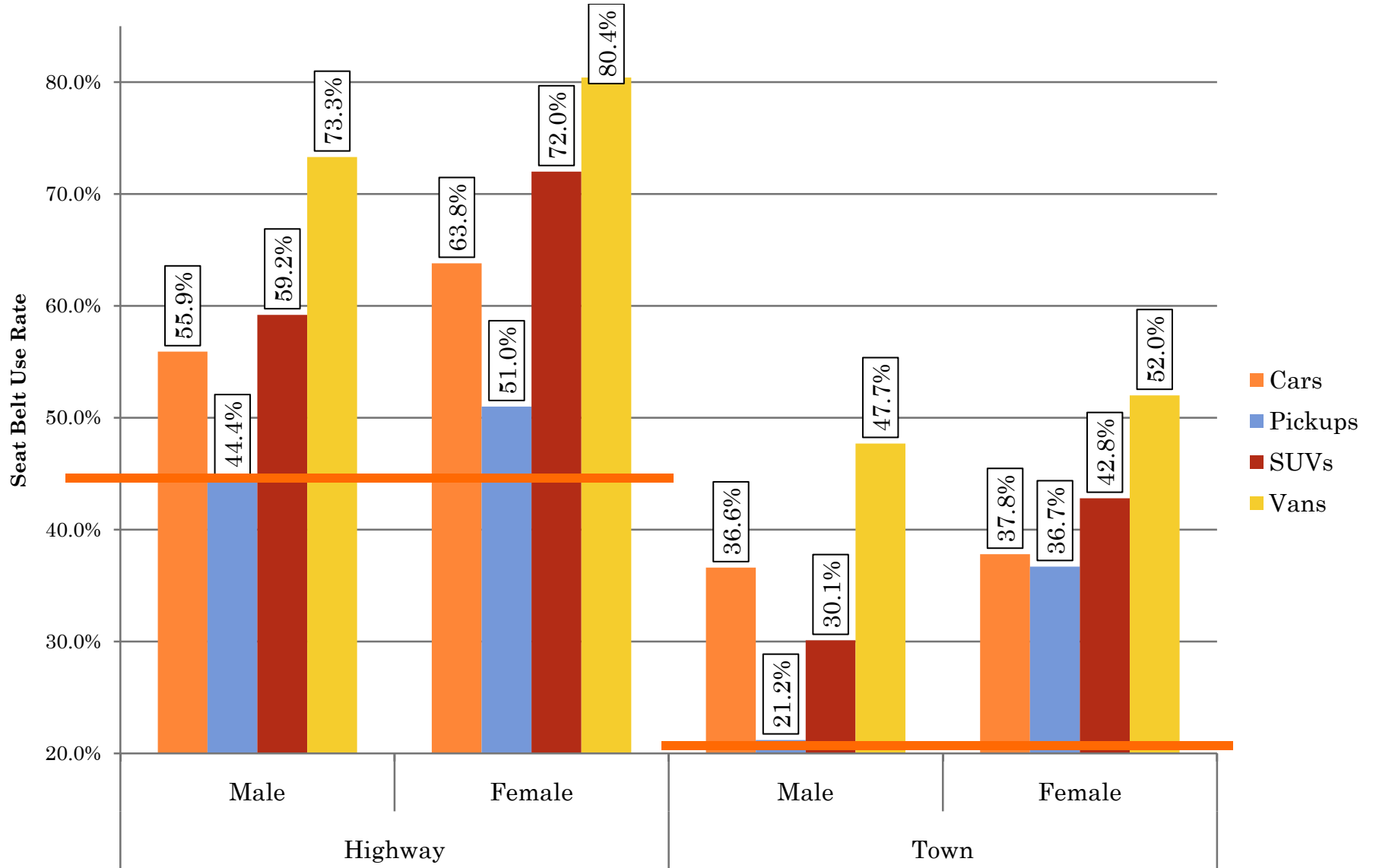
# DRIVER GENDER



# COUNTY SEAT BELT USE BY GENDER



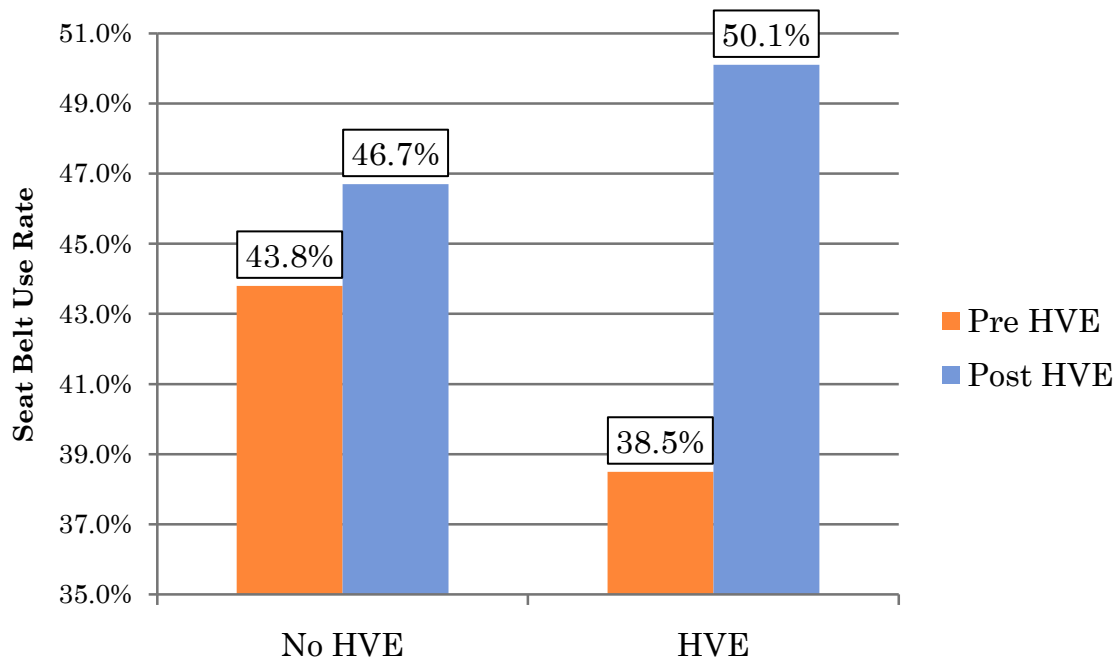
# VEHICLE TYPE BY GENDER AND ROAD TYPE



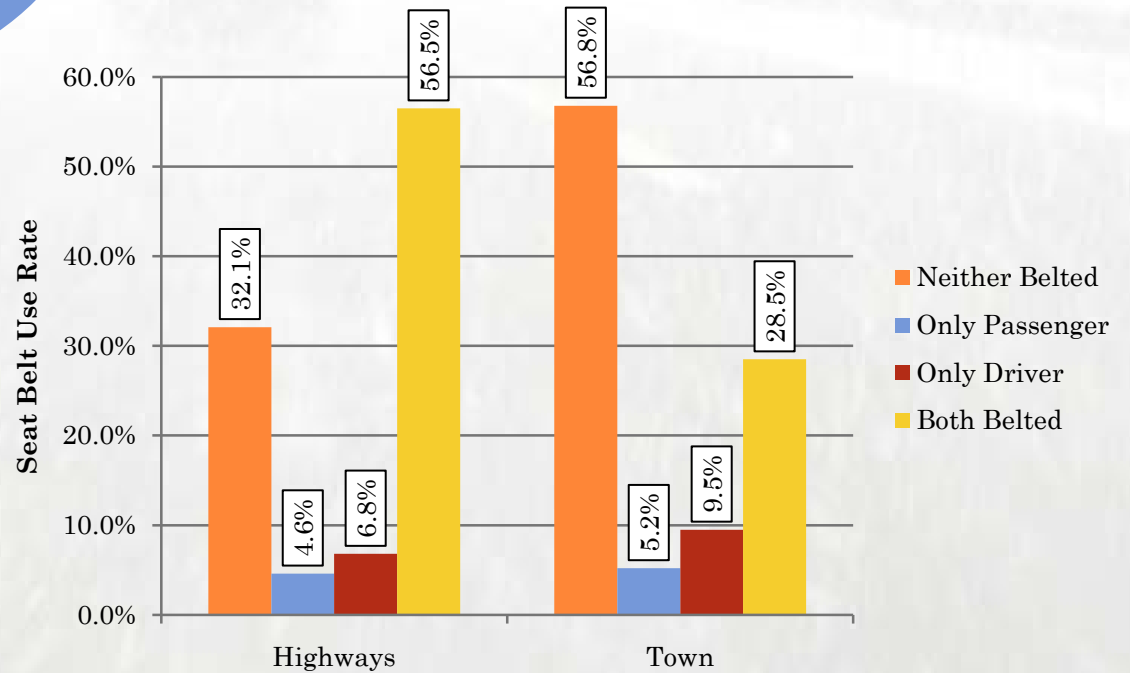
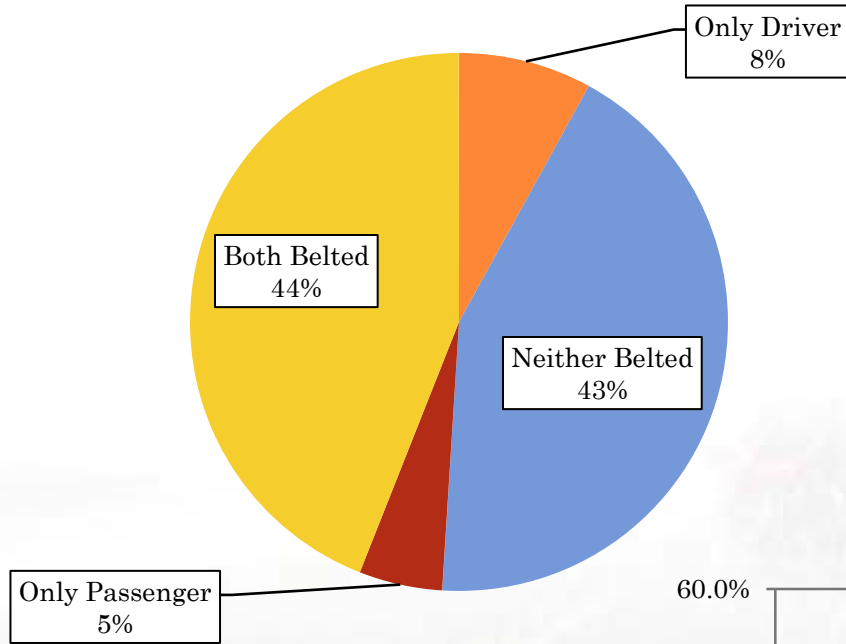


# HIGH VISIBILITY ENFORCEMENT

- Significant differences were found pre HVE versus post HVE in counties participating in HVE
- Take away: HVE does have an affect on seat belt use



# PASSENGER SEAT BELT USE



# CONCLUSIONS

- Overall take-away:
  - Current NHTSA-approved statewide seat belt methodology is limited in allowing for specificity in measuring seat belt use on rural roads
- Marked differences exist in seat belt use on rural highways versus within rural towns
- High visibility enforcement (HVE) efforts can increase seat belt use, at least in the short term



*May your paths  
always lead in the  
right direction, and  
may your seat belts  
always be buckled...*

**Thank you!**

