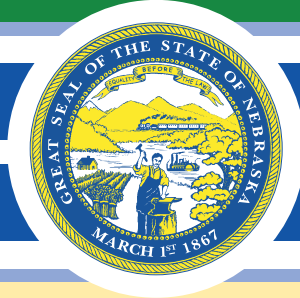


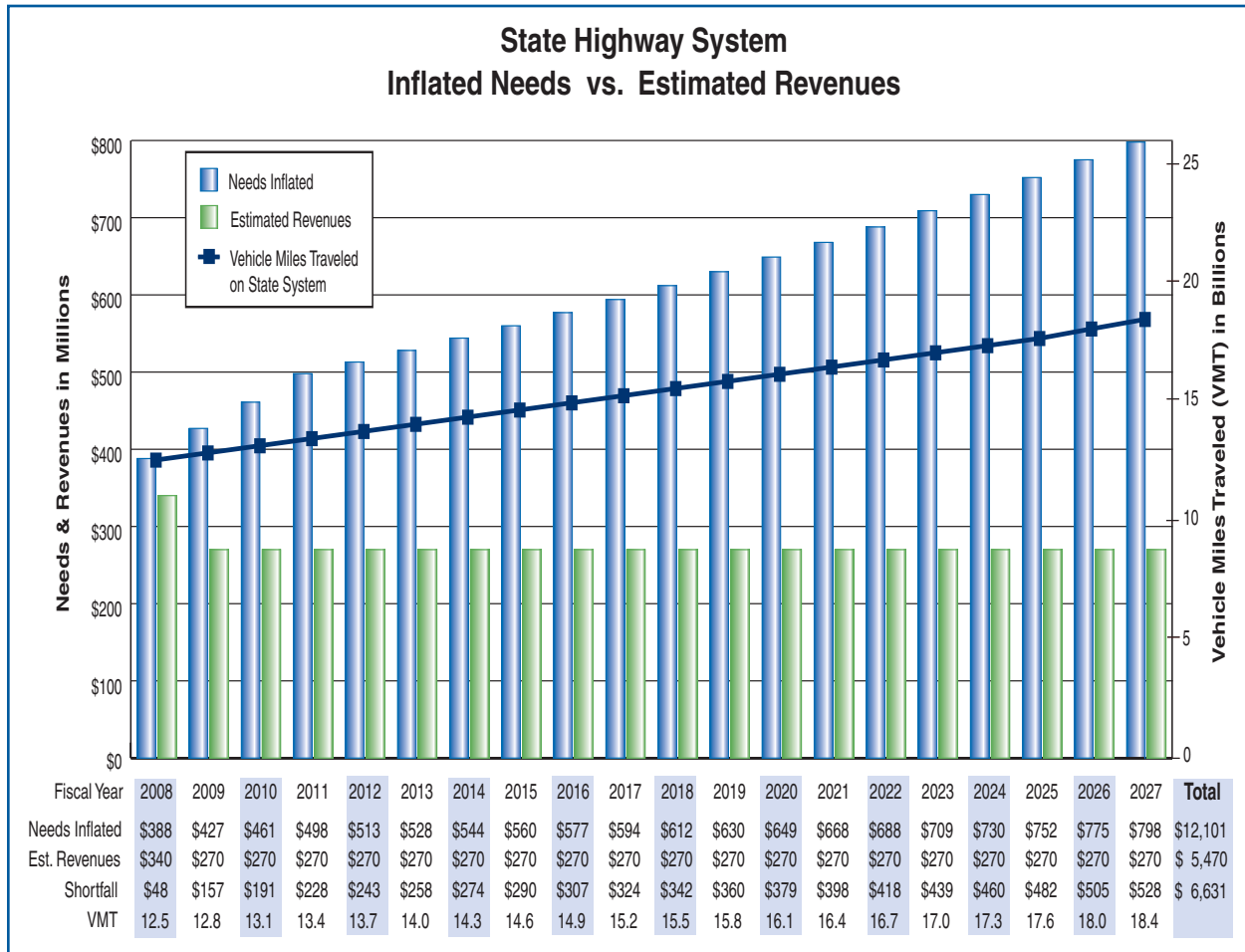
2007 State Highway Needs Assessment



Dave Heineman
Governor

John Craig
Director

Executive Summary



In 2007, the Nebraska Department of Roads reviewed the design criteria we used in determining geometric needs. As a result of this review, we adjusted the needs criteria to be more in line with the American Association of State Highway and Transportation Officials (AASHTO) guidelines.

The “2007 State Highway System Needs Assessment” report identifies current needs at \$7.8 billion in today’s dollars and is based on the revised needs criteria. With inflation applied over the next 20 years, the total cost of the 2007 needs would be \$12.1 billion. Current projections for the federal Highway Trust Fund indicate a \$4.3 billion cash deficit that would result in a zero cash balance in fiscal year 2009. If Congress doesn’t address this issue and state funds remain stable, total revenues available over the next 20 years would approximate \$5.5 billion. Based on the preceding assumptions, currently identified State Highway System needs could not be achieved as the revenues necessary to accomplish these needs would fall short by \$6.6 billion, or an average shortfall of \$330 million per year.

On September 26, 2007, the Office of Inspector General released a report titled, "Growth in Highway Construction and Maintenance Costs." They reported that highway construction and maintenance costs nationwide grew approximately three times faster from 2003 through 2006 than during any 3-year period between 1990 and 2003, substantially reducing the purchasing power of highway funds. These increases are largely the result of escalation in the costs of commodities used in highway projects, such as steel, asphalt, cement, and petroleum-related commodities and services. Consequently, they expect these commodity costs to remain elevated, and possibly continue expanding, in the near term.

Significantly higher than usual inflation and stable-to-diminished revenues will continue to lead to smaller highway construction programs. We are rapidly moving to highway programs with the primary emphasis placed on preservation and maintenance of the existing infrastructure.

Introduction

In 1988, by virtue of State Statute 39-1365.02, the Nebraska State Legislature first assigned the Nebraska Department of Roads the task of reporting on the needs of the State Highway System. Since that time, Nebraska has made steady progress towards addressing the dynamic needs of the State Highway System.

The needs of the State Highway System are divided into six categories.

- Rural Geometrics
- Resurfacing
- Urban
- Missouri River Bridges
- Railroad Crossings
- Miscellaneous

Following is a brief description on how the needs assessment is compiled.

Rural Geometrics

The non-interstate rural geometrics needs are defined using the criteria shown on page 5. These needs criteria are developed around the new design standards adopted by the Department in 2007. Staff from the Materials & Research Division compiles the rural geometric needs. Geometric needs include deficiencies such as pavement width, shoulder width, number of lanes, and vertical curves. All contract and as-built plans are reviewed to ensure that the Department's database contains



the most current geometric information. The geometric needs are compiled by calculating the construction costs, including resurfacing costs, required to correct the geometric deficiency. These costs are updated annually. The bridge needs of the state are also part of the geometric needs. The Bridge Division has developed and maintains a Bridge Management System, which is used to identify the bridge needs. Each bridge is inspected every two years.

The costs associated with the geometric needs on the Interstate include all the six-lane work from Omaha to Minden, interchanges, and bridge needs. The six-lane needs are determined by projecting when the traffic density will reach level-of-service (LOS) D, as defined in the current version of the Highway Capacity Manual.

Resurfacing

Staff from the Materials & Research Division also compiles the resurfacing needs. The entire State Highway System is rated each year in order to evaluate its overall condition. Factors such as the extent of pavement cracking, severity of pavement cracking, and ride quality are used to complete this evaluation. With the information supplied by these annual ratings, formulas have been developed to predict the most cost-effective year for resurfacing a road. Costs for resurfacing strategies are assigned and calculated for each highway segment. Highway segments will be assigned a second resurfacing cost when the initial resurfacing falls within the first five to eight years of the needs analysis period. If a highway segment has a geometric need attached to it, the first resurfacing need will be included as a part of the geometric costs.

Resurfacing needs are not constant from one year to the next. There are many different

factors that affect the number of miles in need of resurfacing, some of which are: previous year's resurfacing; extreme environmental conditions; traffic volumes and loads; and yearly maintenance. Approximately 13,144 miles of resurfacing needs will accrue over the next 20 years, including 1,151 backlog miles, which have reached or passed the optimum time for resurfacing. Backlog miles accrue as a result of not being able to resurface roads at the optimum time.

Urban

The District Engineers annually review and update the urban needs. Urban needs are associated with minor widening, major widening, or reconstruction of state highways through urban areas. The urban bridge needs are extracted from the Bridge Management System and are included in this category.

Missouri River Bridges

Staff from the Bridge Division and the Planning & Project Development Division annually review the information for Missouri River bridges and submit any updates to the Materials & Research Division. Only Nebraska's costs are reflected in this report.

Railroad Crossings

The railroad crossing needs are annually reviewed and updated by staff from the Rail & Public Transportation Division. The grade separation and rail crossing/hazard elimination needs for the State Highway System are included in this category.

Miscellaneous

The miscellaneous category includes planning and research, lighting, traffic signals, and pavement maintenance. Staff from the Controller Division provides the costs for the planning and research. Staff from the Materials & Research Division extracts the lighting and traffic signal data from the program management system and the pavement maintenance data from the pavement management system.

Needs Assessment Criteria

The needs assessment criteria to identify roadway geometric deficiencies are grouped into five Average Daily Traffic (ADT) categories as listed below:

Future ADT

10,000 & greater (four lanes warranted)

- 12' surfaced lane width
- Outside shoulder
 - 8' of the 10' shoulder will be paved
- Inside shoulder
 - 3' of the 5' shoulder will be paved

4,000 - 9,999

- 12' surfaced lane width
- 8' shoulder width w/6' paved shoulder
- Stopping sight distance
 - No vertical crest curve \neq <50 mph

2,000 - 3,999

- 12' surfaced lane width
- 6' shoulder width w/2' paved shoulder
- Stopping sight distance
 - No vertical crest curve \neq <50 mph

750 - 1,999

- 12' surfaced lane width
- 3' shoulder width
 - When segment is in the Sandhills, 2' will be paved
- Stopping sight distance
 - No vertical crest curve \neq <40 mph

Under 750

- 11' surfaced lane width
- 2' shoulder width
 - When segment is in the Sandhills, a 3' shoulder width w/2' paved shoulder will be used.
- Stopping sight distance
 - No vertical crest curve \neq <40 mph

Note: The District Engineers annually review and update the urban and municipal needs. These needs are associated with minor widening, major widening, or reconstruction of state highways through urban and municipal areas.

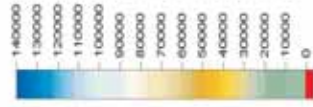


Structures

Bridge needs are identified using the current and projected bridge rating data available in the Nebraska Bridge Inventory System. Scour, substructure, and superstructure ratings are examples of the data used to identify bridge deficiencies. Bridges may be used in place if they meet the widths shown below and are structurally sound. Such bridges are identified using the Bridge Management System.

Future ADT	Minimum Roadway Width
10,000 & greater	32' wide
4,000 - 9,999	32' wide
2,000 - 3,999	28' wide
750 - 1,999	28' wide
Under 750	26' wide

Historical and Projected Changes in Population and Highway Travel



Historical Changes in Population
1984-2004



Projected Changes in Population
2004-2024



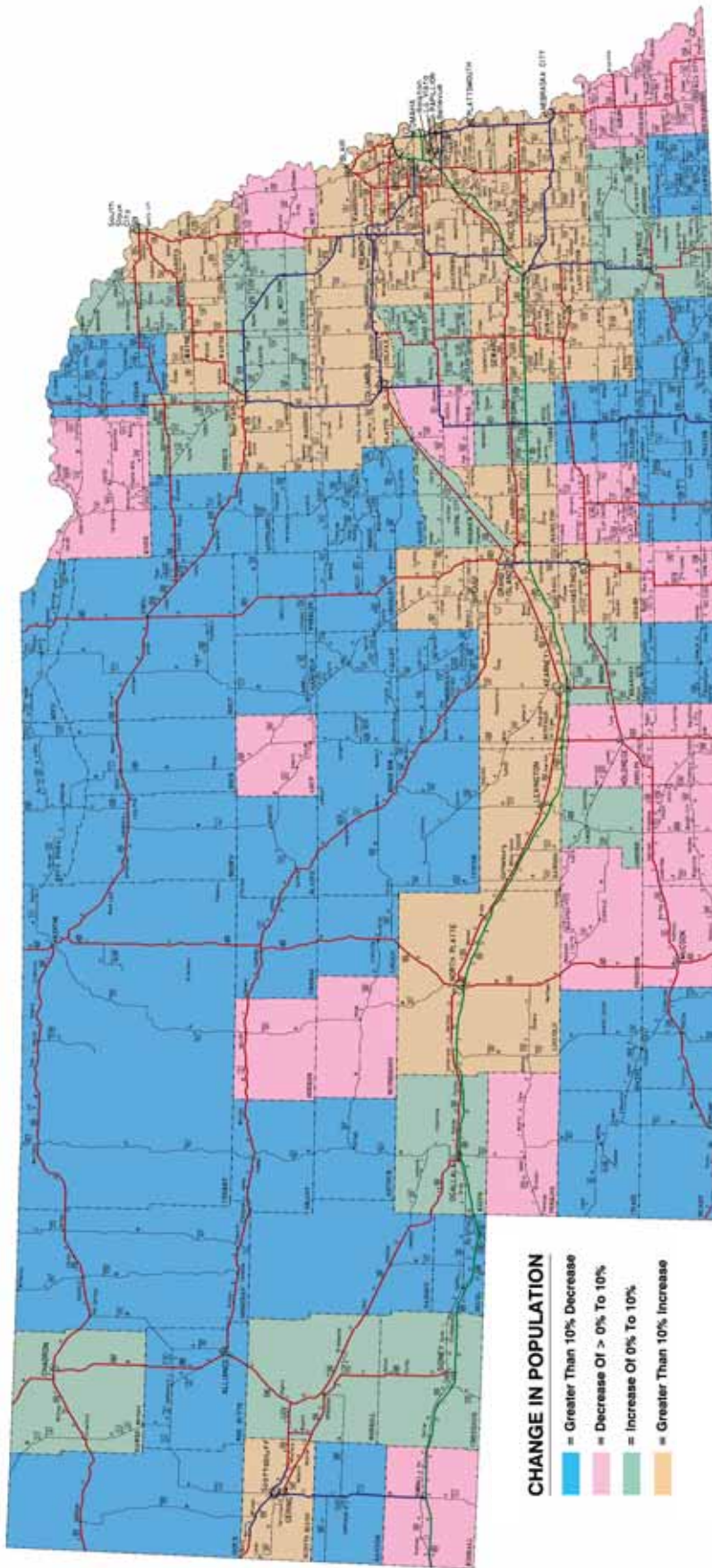
Historical Changes in Highway Travel
1984-2004

(Expressed in Millions of Annual Vehicle Miles)



Forecast Changes in Highway Travel
2004-2024

(Expressed in Millions of Annual Vehicle Miles)



Changing Population

As the population of Nebraska grows, the Department of Roads has been carefully monitoring those areas of the State that are growing the fastest. Given the important roles that transportation plays in promoting and assisting economic development, the Department wishes to ensure that these areas are adequately served now and in the future. Above is a map that shows the projected change in population from 2000 to 2020 for the counties throughout the State.

Summary of Highway Needs by Category

The following is a summary of the estimated costs (in 2007 dollars), identified for each category of needs.

Resurfacing

The projected 20-year resurfacing needs for this assessment are listed at \$4,252,230,000. These resurfacing needs will never be completely eliminated simply because of the annual deterioration of our pavements. The Department continues to explore new technology and materials, which may lead to improved pavement performance and extend pavement life.



Rural Geometrics

The projected 20-year geometric needs for rural highways are \$2,620,419,000.

The geometric needs for rural and municipal highways include \$380,728,000 for bridge needs. Bridge needs include the cost to rehabilitate or replace bridges, approach slabs and guard rail; culvert needs; and bridge maintenance needs.



Miscellaneous

The total needs estimated for the Miscellaneous category is \$441,618,000. The planning and research projects are based on federal allocations for each item along with additional state funds. The projected 20-year need for planning and research is \$290,000,000. The projected 20-year need for preventive pavement maintenance and other miscellaneous work such as guardrail updating, traffic signals, etc., is \$151,618,000.



Urban (population > 5,000)

The 2007 urban needs total is \$207,063,000. These urban needs include \$47,301,000 for deficient bridges.



Railroad Crossings

The needs in this category are comprised of grade separation needs and rail crossing/hazard elimination needs, which total \$157,800,000. This 20-year total includes \$145,000,000 for 29 grade separations and \$12,800,000 for signals.

As train and vehicle volumes fluctuate, exposure factors and grade separation needs change. Currently, there are 67 locations where grade separations may be needed in the State of Nebraska. Of the 67 locations, 29 are on the State Highway System. These 29 locations would cost \$145,000,000 to upgrade.

The remaining 38 grade separations are off the State Highway System. These locations would cost \$190,000,000 to upgrade. These costs are not included in the needs assessment. Each of the identified crossings will be reviewed to determine the appropriate corrective strategy. These off-system needs are provided for information purposes only.

The Long-Range Transportation Plan established a goal of upgrading existing signals or adding new signals at 240 rail/highway crossings throughout the state, both on and off the State Highway System. Currently, there are 32 of these crossings on the state system in need of upgrading. The cost to upgrade these crossings is \$12,800,000.



Missouri River Bridges

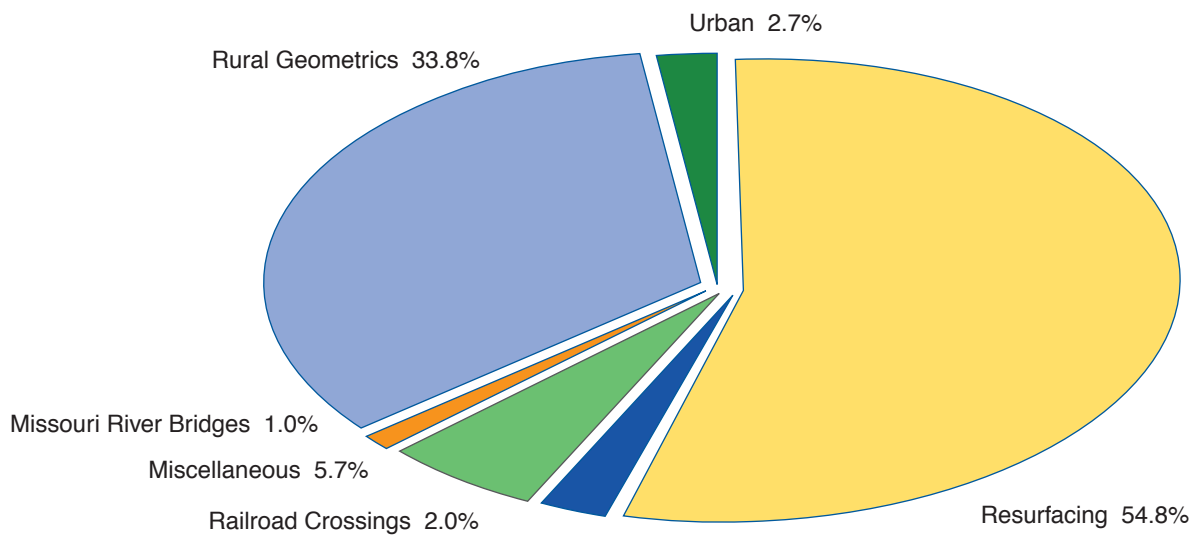
Missouri River bridges under state jurisdiction that require rehabilitation or replacement are listed in our 20-year needs assessment. Nebraska's share of the current total cost for these bridges is \$73,687,000 as compared to last year's cost of \$120,274,000.



Summary of Needs

	2006	2007
Resurfacing	\$3,466,535,000	\$4,252,230,000
Rural Geometrics	4,737,180,000 *	2,620,419,000 *
Miscellaneous	496,383,000	441,618,000
Urban	165,729,000	207,063,000
Railroad Crossings	233,000,000	157,800,000
Missouri River Bridges	120,274,000	73,687,000
Grand Total	\$9,219,101,000	\$7,752,817,000

* Includes costs for right-of-way, bridge, and municipal work.



State Maintenance and Other Needs

Although state maintenance and other needs are not included as a part of the total 20-year needs reporting, it may be of interest to the reader to know the costs of these support programs and functions.

Routine maintenance (system preservation, winter operations, traffic control, disaster operations, etc.) requirements over the 20-year period are \$2,170,000,000.

Administration, services and support, and capital facilities costs total \$636,000,000 for 20 years.

Three other areas are: construction overhead, public transportation assistance/rail planning, and the Carrier Enforcement Program (administered by the State Patrol, but funded by the Department of Roads). The cost of these functions total \$515,000,000.

All these support programs and functions add up to a total of \$3,321,000,000 over a 20-year period.

MISSION STATEMENT

We provide and maintain, in cooperation with public and private organizations, a safe, reliable, affordable, environmentally compatible and coordinated statewide transportation system for the movement of people and goods.