



**NEBRASKA**

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION

# State Highway Needs Assessment

**2024**

**JIM PILLEN**  
Governor

**VICKI KRAMER**  
Director

# CONTENTS

## Executive Summary

## Summary of Needs

## Asset Preservation

- Highway Preservation
- Bridge Preservation

## Modernization & Operation

- Highway
- Bridge
- Rail Crossing and Rural Transit

## Capital Improvements

- Highway and Bridge Expansion
- Grade Separations

## Intersection Safety Improvements

In 1988, the Nebraska State Legislature assigned the task of annually reporting the needs of the state highway system to the Nebraska Department of Transportation (NDOT). Since that time, NDOT has made yearly progress identifying and addressing the dynamic needs of an evolving state highway system.

To address Nebraska's needs, each year NDOT determines how much of the construction program will be dedicated to [Asset Preservation, System Modernization & Operation](#) and [Capital Improvement](#). These decisions are made based on the condition of the existing system, project deliverability and revenue projections, and are reflected in the annual [Nebraska Surface Transportation Program \(STP\) book](#). The STP book holds revenue forecasts, the one-year construction program, the five-year planning program and a summary of changes made since the last book was published. The list of projects can be found in the STP book posted on the NDOT website at <https://dot.nebraska.gov/projects/publications/program-book-2025/>

Some projects may have aspects that fall into more than one category or all three; however, no costs were double counted in this report.



# LETTER FROM DIRECTOR KRAMER

The state highway system serves as the backbone of Nebraska's transportation system, carrying nearly 65 percent of the state's traffic and connecting our communities to key local and regional economic hubs. Each year, NDOT provides an annual assessment of the "health" of the state highway system, highlighting validated needs and its efforts to preserve, modernize and improve state managed transportation assets.

The assessment provides a look into how transportation investments translate into meeting the projected 20-year needs of Nebraska's 10,000 miles of highways and 3,500 bridges. Additionally, the State Highway Needs Assessment serves as a historical record, comparing year-by-year how costs have and are anticipated to evolve.

Over the next 20 years the highway system's calculated needs are \$16.9 billion in today's dollars, an increase of 1% from the 2023 Needs Assessment. When projected inflation is factored in, the estimated cost increases to \$24.3 billion by 2045.

In 2023, NDOT reported on a nearly two-billion-dollar increase in the projected cost of delivering the twenty-year needs of the state's transportation system, compared to the 2022 calculation. This was a result of factors affecting the state's buying power, including ongoing high rates of inflation, as well as a decision by NDOT to do a more exhaustive evaluation of the overall cost of construction and update costs per mile estimates used in forecasting future projects.

In 2024, we saw the rates of projected inflation soften, resulting in substantially smaller calculations than 2022-2023. However, this does not translate to the cost of designing and constructing the highway system decreasing. As part of our business practices, NDOT continually evaluates our baselines and estimates to ensure they reflect market cost. Our projections show that the increases in costs for materials and labor will continue to impact the number and scope of projects the Department will be able to deliver on a yearly basis going forward.

NDOT is committed to preserving and modernizing Nebraska's highway system for the safe and efficient movement of people and goods. As we continue efforts to emphasize practical design, project bundling, alternative delivery methods and other tools to control project cost estimates, we stay dedicated to exploring solutions to get the most value for taxpayers without delaying projects and impacting safety.



Sincerely,

A handwritten signature in black ink, appearing to read "Vicki Kramer". The signature is stylized with a long horizontal stroke at the end.

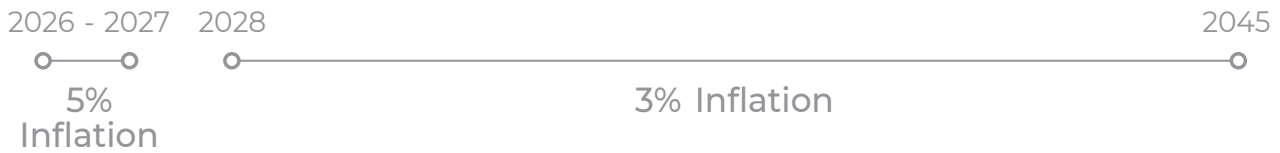
Vicki Kramer, NDOT Director

# EXECUTIVE SUMMARY

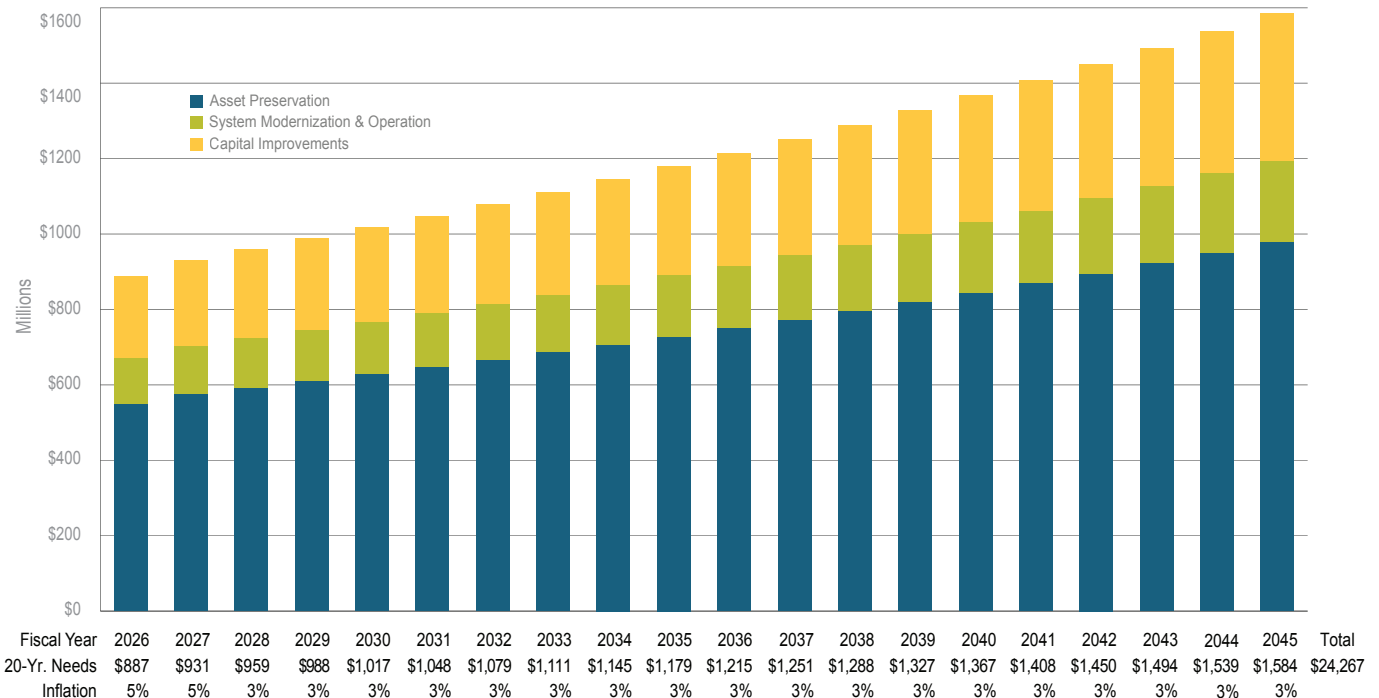
This report identifies the needs for the next 20 years at \$16.9 billion in today's dollars. With inflation applied at 5% for FY-2026, 5% for FY-2027 and 3% for the remaining 18 years, over the next 20 years the total cost of the 2024 needs is estimated at \$24.3 billion.

**\$16.9B**  
2026

**\$24.3B**  
2045



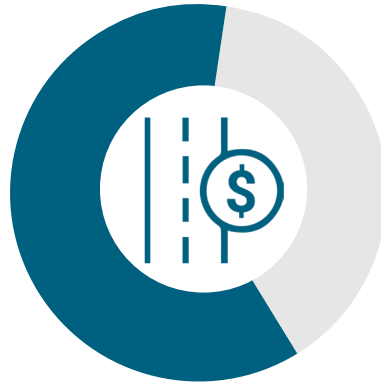
## 2024 State Highway System Inflated Needs in Millions



# SUMMARY OF NEEDS



ASSET  
PRESERVATION



Maintenance to improve  
and extend the life of  
existing assets

**\$10.4B**



SYSTEM  
MODERNIZATION  
& OPERATION



Safety, geometric, or  
mobility upgrades that  
do not add capacity

**\$2.3B**



CAPITAL  
IMPROVEMENTS



Add capacity or support  
economic growth

**\$4.2B**

# ASSET PRESERVATION

20-YEAR PROJECTED NEEDS

**\$10.4B**

Many factors affect pavement and bridge preservation needs, including previous work, environmental conditions, traffic volumes and loads and yearly maintenance. NDOT continues to explore new technology and materials that may lead to improved pavement and bridge performance and may also extend the life of pavements and bridges.

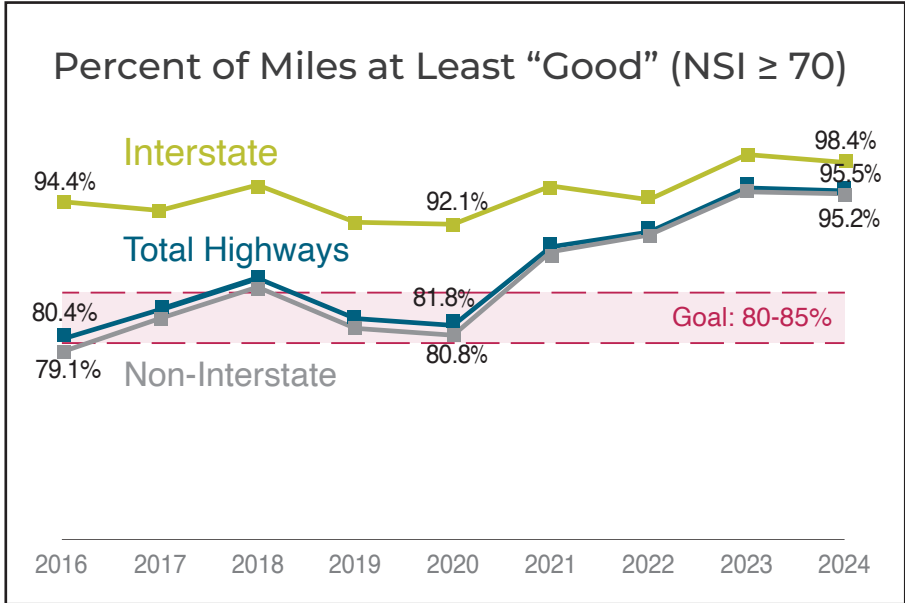


HIGHWAY PRESERVATION

**\$9.2B**

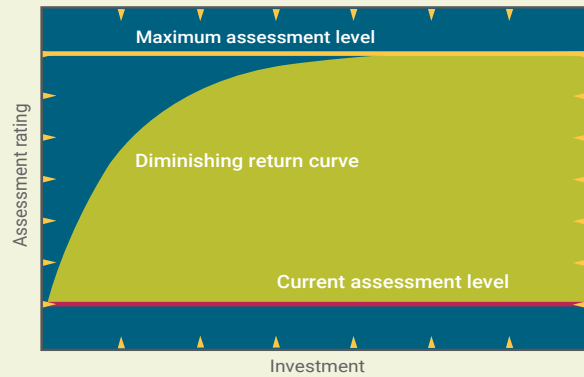
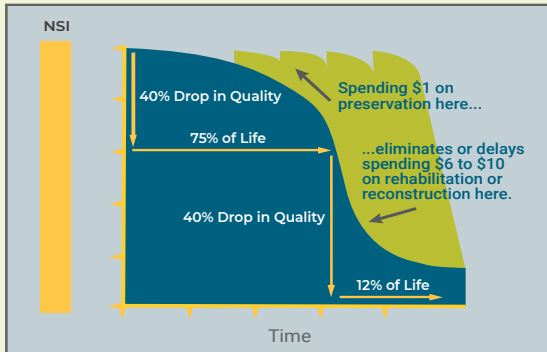
The entire State Highway System’s pavement condition is evaluated each year using the Nebraska Serviceability Index (NSI), which measures factors such as cracking, faulting, rutting and ride quality.

These factors are used in a formula that calculates the overall condition of the roadways for an NSI rating, which is then used in a benefit/cost analysis tool to identify the right preservation treatment at the right time.



**NSI Ratings**  
 0-30 – Very Poor | 30-50 – Poor | 50-70 – Fair  
 70-90 – Good | 90-100 – Very Good

Investing in pavements and bridges in the early stages of their life allows NDOT to use less costly treatments while providing a high level of service/condition. Additionally, NDOT realizes that there is a sweet spot maintaining our pavements and bridges to maximize the benefit.

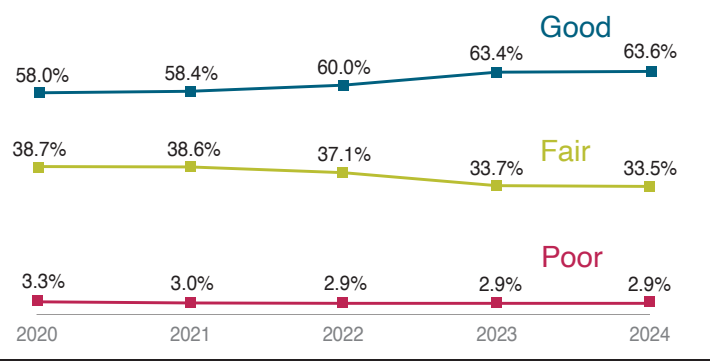


## BRIDGE PRESERVATION \$1.2B

Bridge preservation maximizes the investments and long-term service life of Nebraska’s state system structures. Every bridge is inspected by certified inspectors at regular intervals to provide information on its current condition. This information is used by NDOT’s Bridge Management System to identify optimal strategies and timing of preservation actions to keep bridges in service with acceptable and safe condition at the lowest practicable cost.

Some preservation actions are cyclical in nature and can be scheduled regularly, such as replacement of a bridge deck joint. Other actions are in response to an observed deterioration, which can be traced through historical inspection records and anticipated deterioration over time or damage resulting from an impact or incident. Rehabilitation applied to older bridges can require more significant repairs to ensure structural integrity of the bridge. Bridge preservation actions can include, but are not limited to concrete repair, painting, substructure repairs or deck replacements. When there is no longer a cost-effective repair or maintenance strategy, then bridge replacement is programmed. Replacement with a bridge of a similar size in the same location is also considered as part of the bridge preservation program.

Percent of State-Owned Bridges in Good, Fair or Poor Condition



### Bridge Inspection Considerations

Condition • Deterioration rate • Age • Traffic • Cost/benefit

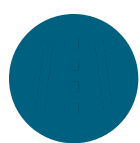
In recent years, significant investments have been made to improve bridge decks with materials that reduce the rate of deterioration and extend the time that bridge decks and other components remain in good condition. Strategies such as concrete overlays or asphalt overlays with waterproof membranes are proven to be cost efficient strategies to keep bridges in service at lower cost.

Each action is guided by the goal to ensure safety of the structure for the traveling public and extending bridge service-life, thereby optimizing bridge-related investments. When possible, bridge preservation occurs at the same time as adjacent roadway construction to reduce the impact on the travelling public.

# SYSTEM MODERNIZATION & OPERATION

20-YEAR  
PROJECTED NEEDS

**\$2.3B**



HIGHWAY  
MODERNIZATION  
**\$1.5B**

System modernization is associated with highway improvements that do not increase capacity. These needs are associated with deficiencies, such as pavement width, shoulder width, vertical curves and bridge width. Interstate roadway or bridge deficiencies, as defined by Nebraska’s minimum design standards, are included.

Highway modernization includes changes to existing roadways that correct certain deficiencies making them safer to travel. Sample improvements include widening lanes and shoulders, straightening curves and cutting down hills.

Highway modernization needs are compiled and updated annually by calculating the construction costs, including resurfacing and right-of-way costs.

Rural intersection modernization needs are determined by high-traffic volumes and documented crash histories.

The costs to bring these roadways up to current standards are based on annual construction costs to remove deficiencies and modernize systems such as cameras, message boards, and fiber optics, as well as lighting and traffic signal needs.

**Criteria to identify non-interstate roadway geometric deficiencies are grouped into six Average Daily Traffic (ADT) categories.**

<p><b>36,000 &amp; greater</b> (six or more lanes warranted)</p> <p><b>10,000 - 35,999</b> (four lanes warranted)</p> <ul style="list-style-type: none"> <li>• 12’ surfaced lane width</li> <li>• Outside shoulder 8’ of the 10’ shoulder paved</li> <li>• Inside shoulder 3’ of the 5’ shoulder paved</li> </ul>	<p><b>4,000 - 9,999</b></p> <ul style="list-style-type: none"> <li>• 12’ surfaced lane width</li> <li>• 8’ shoulder width w/6’ paved</li> </ul> <p><b>2,000 - 3,999</b></p> <ul style="list-style-type: none"> <li>• 12’ surfaced lane width</li> <li>• 6’ shoulder width w/2’ paved</li> </ul> <p>Stopping sight distance</p> <ul style="list-style-type: none"> <li>- No vertical crest curve &gt;20 mph below posted speed limit</li> <li>- No vertical sag curve &gt;25 mph below posted speed limit</li> </ul>	<p><b>750 - 1,999</b></p> <ul style="list-style-type: none"> <li>• 12’ surfaced lane width</li> <li>• 3’ shoulder width</li> </ul> <p><b>Under 750</b></p> <ul style="list-style-type: none"> <li>• 11’ surfaced lane width</li> <li>• 2’ shoulder width</li> </ul> <p>Stopping sight distance</p> <ul style="list-style-type: none"> <li>- No vertical crest curve &gt;20 mph below posted speed limit</li> <li>- Existing vertical sag curve condition allowed</li> </ul>
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## RAIL CROSSING AND RURAL TRANSIT MODERNIZATION

# \$621M

The at-grade rail crossing needs include all passive-warning device locations with an exposure factor of 3,000 or greater.

The Federal Transit Administration (FTA) defines a rural area as one with a population of less than 50,000 people that has not been designated in the most recent decennial census as an “urbanized area.”

The term “transit” refers to public transportation and specialized transportation for the elderly and disabled.

For the purposes of this needs estimate, only the transit needs for rural areas are considered except for proposed, scheduled Lincoln-Omaha intercity bus services and metro area vanpool subsidies.



## BRIDGE MODERNIZATION

# \$148M

Modernization needs for bridges are determined by the need to widen bridges and remodel bridge rails to meet current standards.

The costs associated with these needs are based on the bridge’s condition at the time of improvement and can include remodeling.

## RURAL TRANSIT MODERNIZATION NEEDS



**OPERATING ASSISTANCE** – Costs associated with direct operation of rural transit systems.



**VEHICLES** – Cost of expanding and replacing an aging fleet of transit vehicles. Costs associated with this task meet the FTA’s transit asset management requirements.



**CAPITAL FACILITY CONSTRUCTION** – Cost of constructing or remodeling transit-related facilities. NDOT is aware of three proposed facility improvements. Based on past projects, NDOT’s estimating a cost of \$1 million per project, per year.



**CONSULTANT SERVICES** – Costs associated with procuring technical assistance and added support to carry out the federal requirements of the program and support the needs of NDOT and rural subrecipients.



**TECHNOLOGY** – Costs associated with securing and maintaining hardware and software for scheduling, dispatching, ridesharing and data collection. This is now a requirement for all NDOT rural subrecipients to support improved reporting and oversight.



**RIDESHARE PROGRAMS** – Includes subsidized vanpool projects in the rural areas. Recent setbacks reduced the number of vanpools operating in Nebraska however, cost projection assumes the program will rebound in upcoming years.

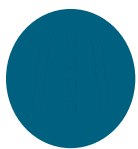


**INTERCITY BUS PROGRAM** – Cost of subsidizing existing intercity bus services. NDOT is required to spend at least 15% of our annual Section 5311(rural) apportionment on intercity bus service.

# CAPITAL IMPROVEMENTS

20-YEAR  
PROJECTED NEEDS

**\$4.2B**



HIGHWAY AND BRIDGE  
EXPANSION

**\$4.0B**

Highway and bridge expansion is a broad category, which includes costs for future bypasses, new roads, interchanges, additional lanes, upgrading freeways and the completion of the expressway system.

Needs are determined as follows:

- Costs for projects selected for planning, design and construction under Build Nebraska Act (BNA) and Transportation Innovation Act (TIA) are determined using historical material and project costs, planned length, and scope.
- Costs for expanding the interstate to six lanes between Pleasant Dale and Grand Island includes all pavement, interchanges, and bridge work. The six-lane interstate needs are determined by projecting when the traffic density will reach level-of-service (LOS) D, as defined in the Highway Capacity Manual.

Capital improvement needs are associated with those projects that add highway capacity and provide infrastructure for economic development.

- The Interstate and Highway expansion identified within the 2019 Metro Area Travel Improvement Study (MTIS) is projected to cost approximately \$700 million over the next 20 years. The first of the MTIS expansion projects is scheduled to begin construction in 2025.
- Costs for the widening or reconstruction of urban state highways are based on historical cost-per-mile values, which are then used to calculate the needs.
  - The urban capacity needs for cities with a population greater than 5,000 are determined by identifying roads with fair-to-poor pavement conditions and average daily traffic (ADT) that requires additional lanes.
  - The urban bridge needs are extracted from the bridge needs program output and are included in this category.
  - The costs for planning and research to investigate new strategies and to develop the projects mentioned above are also included.



GRADE  
SEPARATIONS  
**\$195M**

These needs include all on-system, at-grade railroad crossings that are warranted for a grade separation because of projected exposure factor of 75,000 or greater within the next 20 years.

# IMPROVING SAFETY ACROSS THE SYSTEM

The number of fatalities on Nebraska’s roadways have increased 15% since 2016. Stopping this rise in fatal crashes is one of NDOT’s highest priorities. This means continuously improving the transportation system following national standards and best practices.

Features like roundabouts and Restricted Crossing U-Turn (RCUT) Intersections are strategies NDOT is utilizing to engineer safety into projects. Whereas a traditional intersection has 32 conflict points, roundabouts have only 8—a decrease of 75%. Combining this decrease with angled entry of vehicles and lower speeds results in 82% fewer fatal and injury crashes compared to traditional intersections. Additionally, RCUT Intersections reduce vehicle conflict points by over 40% and allow drivers to navigate through one direction of highway traffic at a time, resulting in 54% fewer fatal and injury crashes as compared to traditional intersections.

Two new safety features being implemented on NDOT’s interstate systems are Variable Advisory Speed (VAS) Signs and Cable Median Barriers. Variable Advisory Speed signs use data from the weather or road surface conditions to determine appropriate speeds, which are then displayed to drivers. Being able to adjust speed limits based on current conditions reduces the rate of crashes at high speeds. Cable Median Barriers, made of steel cables mounted on weak steel posts, separate opposing traffic on interstates and freeways. The barriers absorb energy from the crash, capturing or redirecting the vehicle, which results in less occupant impact force. Since implementing this strategy, zero fatalities have occurred from crossover crashes on the roadways with cable median barrier.

NDOT will continue investing in and implementing safety strategies like those listed above, but engineering is only part of the solution. Drivers must buckle up and put their phones down; the best way to travel and arrive safely is to drive without distractions.

*RCUT Near North Bend*



*Cable Median Barrier on I-80*



*Roundabout on US-6 Near Ashland*



*VAS Sign Near Scottsbluff*



*Variable Advisory Speed Sign Near Scottsbluff*

