

Metro Area Travel Improvement Study



Executive Summary

December 2017



NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION



**SYSTEM
PRESERVATION**



**CONGESTION
REDUCTION**



**MOBILITY &
ACCESSIBILITY**



**STEWARDSHIP &
ENVIRONMENT**



SAFETY



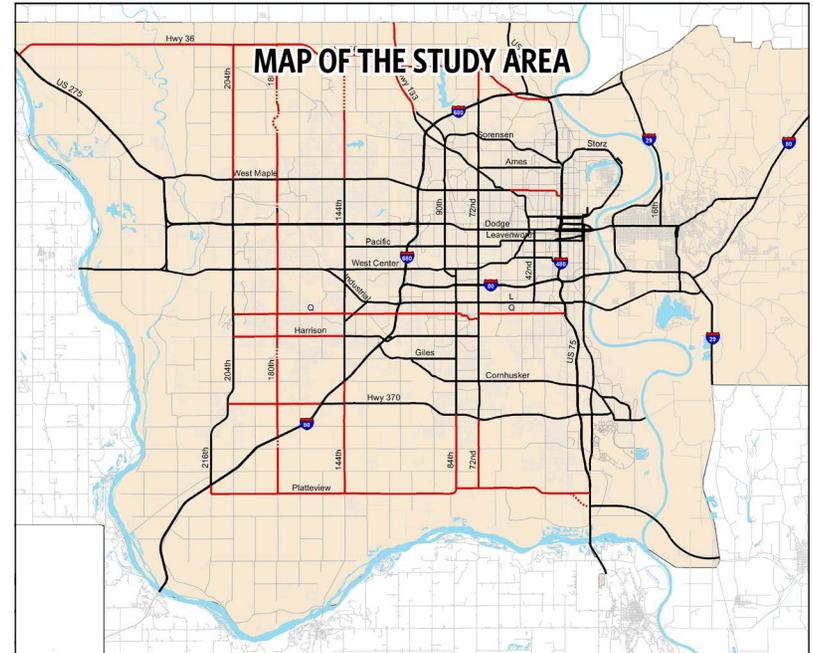
Overview

The Metro Area Travel Improvement Study (MTIS) is a collaborative effort between the Nebraska Department of Transportation (NDOT) and the Omaha-Council Bluffs Metropolitan Area Planning Agency (MAPA). MTIS is a comprehensive transportation study that recognizes future interstate and freeway system needs are intrinsically linked with arterial, local roads and transit system needs and investment decisions in the MAPA region. This approach will help identify the transportation network that will best meet the long-term needs of the community and will take advantage of innovative strategies to guide decisions about funding. MTIS is being conducted in coordination and collaboration with other regional planning studies and projects.

The purpose of MTIS is to:

- Develop a comprehensive, multi-modal plan for the interstate and major roadways in the region
- Prioritize projects for short-term, mid-term, and long-term
- Consider shortfalls in existing sources of local, state, and federal funding

The study area boundary and study area roadways are shown to the right. The study area boundary is based on MAPA’s designated Transportation Management Area. Study area roadways include all National Highway System (NHS) routes (shown in black) and non-NHS routes that were considered priority corridors by NDOT and MAPA (shown in red). The study area includes 83 miles of interstate freeway, 39 miles of other freeways/expressways, 180 miles of state highways and 176 miles of local roads.



Study Goals and Performance Measures



SYSTEM PRESERVATION

Achieve state-of-good-repair by effectively maximizing the life span of existing infrastructure.



MOBILITY & ACCESSIBILITY

Reduce the growth of peak-period travel times for all modes and increase transit access and ridership.



SAFETY

Reduce fatalities and serious injuries.



CONGESTION REDUCTION

Reduce the growth of peak-period delay on freeways and improve system reliability and overall performance.



STEWARDSHIP & ENVIRONMENT

Address air quality concerns, consider land use in all improvements and incorporate economic, social and environmental criteria in project selection and programming decisions.



Study Approach

The study is being conducted in phases:

- **Phase 1:** Existing/Future No-Build Conditions Review *(Complete - Fall 2015)*
 - Identify needs and issues
- **Phase 2:** Strategy/Alternative Development and Evaluation *(Complete - Summer 2017)*
 - Develop potential solutions and strategies
 - Screen potential strategies
 - Test packages of strategies
 - Develop preferred strategy package
 - Prioritize projects within preferred strategy package
- **Phase 3:** Freeway Alternative Design and Implementation Plan
 - Develop detailed freeway plan

MAPA is in the process of updating its 2040 Long Range Transportation Plan (LRTP). The technical analyses completed as part of MTIS will help drive the next LRTP. The 2050 LRTP will align with the horizon year of MAPA's Heartland 2050 Plan, a community-driven process that developed future land use scenarios for the metropolitan area.

MTIS will also assist NDOT in developing its long term vision for the Omaha area freeway system. NDOT's last freeway master plan was completed in 1985 and was fully constructed over the following two decades. Although NDOT has continued to make improvements to address localized bottlenecks on the freeway system, the time is now for a new system-wide vision to guide improvements in the decades to come.

Identified Needs

The issues identified in Phase 1 required a comprehensive and performance-based set of solutions. Issues and potential strategies were evaluated at the corridor level. Thus, "menus" of potential strategies were investigated for each corridor or issue area. The needs that were further addressed for potential solutions in Phase 2, focused on these areas:

- Pavement & Bridge System Preservation
- Traffic Congestion
- Gaps in the System
- Traffic Safety
- Transit Service
- Bicycle Facilities
- Pedestrian Facilities

Menu of Options

The following multimodal strategies were developed and assessed to determine their potential impact on the existing and planned transportation system and regional performance measures:

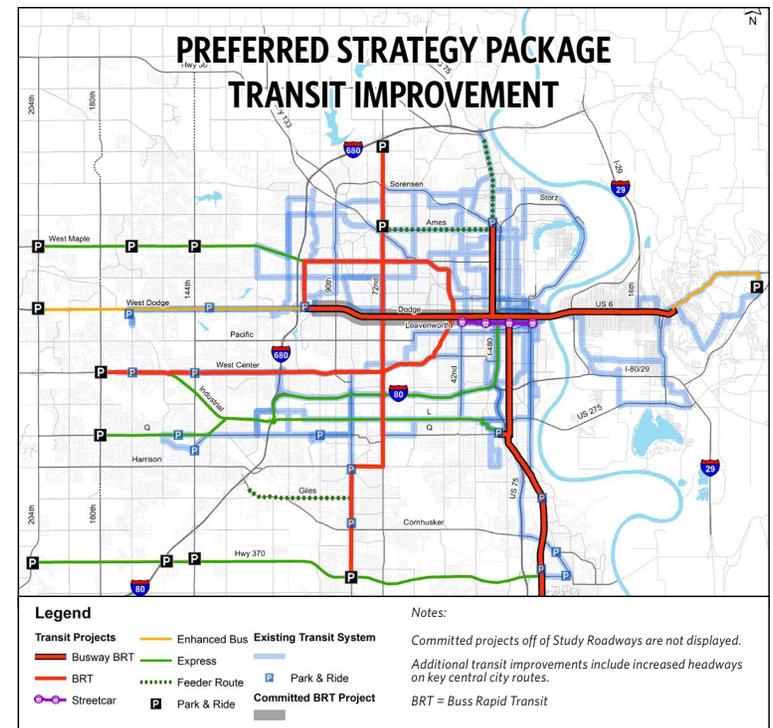
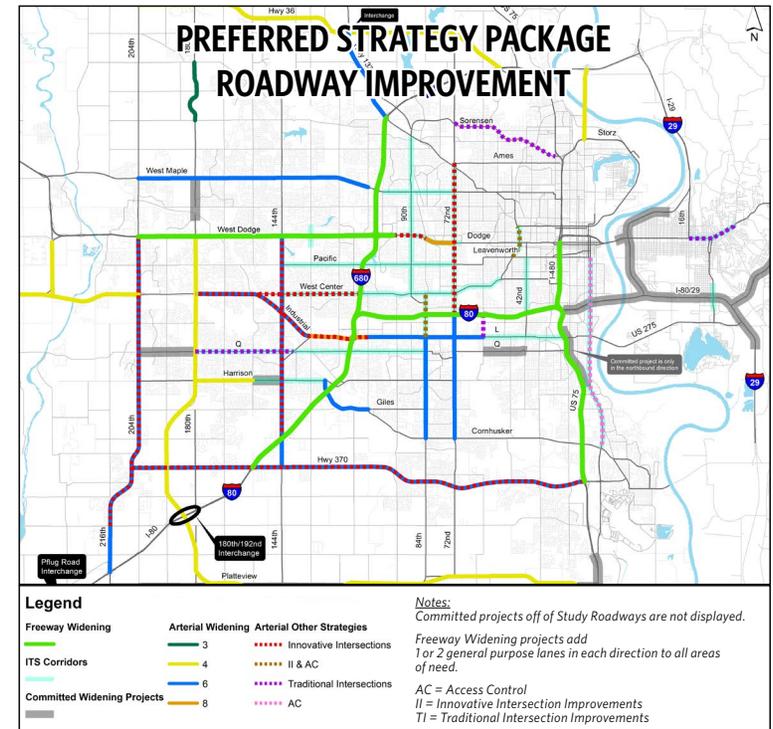
- **FREEWAY CAPACITY IMPROVEMENTS**
A comprehensive program to add capacity to an entire freeway corridor.
- **ARTERIAL/NON-FREEWAY CAPACITY IMPROVEMENTS**
A set of roadway improvements to add capacity to an arterial corridor.
- **MANAGED LANE CONCEPTS**
Strategies that maximize throughput of highway facilities or defined lanes by giving incentives for travelers to use the roadway more efficiently.
- **TRAFFIC SIGNAL IMPROVEMENTS**
More effective signal timings, coordination, and new technologies to decrease intersection delay.
- **RAMP METERING**
Managing or regulating traffic entering the freeway system via ramps during peak periods with the objective of improving mainline freeway operations and safety.
- **INTELLIGENT TRANSPORTATION SYSTEMS STRATEGIES**
Use of technology and traffic management to improve traffic conditions, minimize delay, and improve safety.
- **TRANSPORTATION DEMAND MANAGEMENT STRATEGIES**
Strategies that aim to manage how and when people travel in order to use the transportation system more efficiently.
- **TRANSIT IMPROVEMENT STRATEGIES**
A range of potential improvements to bus and rail transit, including more frequent service and new transit technologies.
- **SAFETY IMPROVEMENT STRATEGIES**
Enforcement, pavement treatment and marking options, roadway geometry improvements, and technology options.
- **SYSTEM PRESERVATION STRATEGIES**
Achieve a state-of-good-repair by prioritizing projects that address timely and cost-beneficial asset rehabilitation.
- **PEDESTRIAN & BICYCLE STRATEGIES**
A range of options from pavement markings to new bicycle and pedestrian-dedicated facilities that aim to improve the safety and efficiency of bicycle and pedestrian travel.

Preferred Strategy Package

MAPA held several series of public and stakeholder meetings to evaluate preferences for the level of investment for the multimodal “menu of options”. Based on the feedback from these meetings, a preferred strategy package was developed. The preferred strategy package is sensitive to different types of regional land use, balances investments across modes, invests in system preservation and management, and was developed based on the guiding principles and an assessment of the individual projects and strategies. It includes a robust investment in transit that includes Bus Rapid Transit (BRT) corridors to provide more connections to employment centers and other destinations. The preferred strategy package represents an aggressive, yet attainable plan.

Guiding Principles for the Preferred Strategy Package

- **BALANCED INVESTMENTS** across modes and systems.
- **TARGETED INVESTMENTS** on the arterial system to address the highest arterial congestion issues.
- **EXPANSION** of the freeway system to meet wider regional mobility and freight service needs.
- **APPLICATION OF TECHNOLOGY** and system management approaches to get more out of the current system.
- **SIGNIFICANT EXPANSION** of the transit system.
- **HIGH LEVELS OF INVESTMENT** in system safety needs.
- **MODERATE LEVELS OF TRAVEL DEMAND** management expansion.



Regional Package Costs

The cost estimates (shown below) for the preferred strategy package were developed based on the range of projects in each strategy package. Note that costs are provided in "Year of Expenditure" dollars, indicating that they have been inflated to future-estimated prices.

The pie chart (right) provides a detailed breakdown of the types of project costs anticipated with the Preferred Strategy Package.

The Preferred Strategy Package Cost (\$ Millions YOY) is provided in the following table.

STRATEGY CAPITAL COSTS	PAVEMENT AND BRIDGE SYSTEM PRESERVATION COSTS	TRANSIT O&M COSTS	TOTAL COST
\$4,323.60	\$1,266.00	\$1,832.80	\$7,422.40

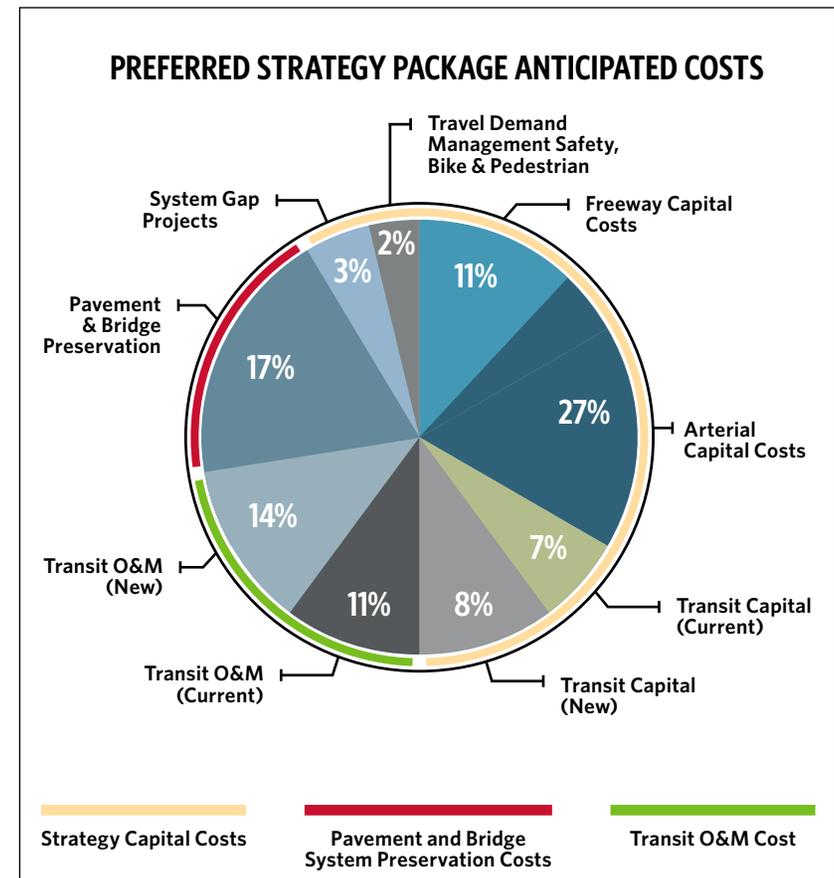
A breakdown of the Preferred **Strategy Capital Costs** (\$4,323.6 Millions YOY) is provided in the following table.

ROADWAY WIDENING COSTS			TRANSIT (FLEET & CAPITAL)	TRAVEL DEMAND MANAGEMENT	SAFETY (FREEWAY)	SAFETY (ARTERIAL)	BIKE/PED
FREEWAY	ARTERIAL	SYSTEM GAPS					
\$833.10	\$2,044.90	\$185.20	\$1,132.40	\$32.00	\$1.30	\$69.00	\$25.70

The **Roadway Widening Costs** highlighted in the previous table (Freeway, Arterial, and System Gaps) were broken down into state (freeway and state arterial) and local dollars.

YEAR	FREEWAY	STATE ARTERIAL	LOCAL ARTERIAL (INCLUDES ALL SYSTEM GAPS PROJECTS)
Year of Expenditure	\$833	\$1,345	\$885
Today's Dollars	\$571 *	\$922 *	\$607

***The freeway and state arterial costs (\$1.5 Billion in Today's Dollars) were provided to NDOT for their 2017 State Highway Needs Assessment.**



Public Input

Public outreach has been provided in Phase 2 of MTIS through MAPA led LRTP public meetings. Public Meetings for the Freeway Alternatives and Implementation Plan will be conducted in 2018.