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.

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

- **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.

- **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 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.
Regional Strategy Packages

A range of potential Regional Strategy Packages were identified based on the needs identified in Phase 1 and the potential strategies reviewed in Phase 2. An initial set of six (6) working Strategy Packages was developed based on public and stakeholder input.

In general, the initial six strategy packages were intended to test the extremes of potential investment levels by putting high levels of investment in one or two areas, and neglecting other areas to see how these combinations affected the various performance measures.

The Strategy Packages were organized based on themes, with one strategy package representing the high-end of investment in most categories (Strategy Package 1) and one strategy package representing the low-end of investment in most categories (Strategy Package 5).

### SP 1: High Levels of Balanced Investment
High level of investments on freeway and arterial system addressing all operational needs. Significant transit investment and TDM implementation. Highest-benefit gaps. Parallel routes improved.

- **Arterial Operations**: 1
- **Freeway Operations**: 1
- **Transit**: 1
- **Demand Management**: 1
- **System Gaps**: 1
- **Safety**: 1
- **Bike & Pedestrian**: 1

### SP 2: Freeway-Focused Improvements
Focuses improvements on freeway system. Highest priority arterial system improvements only. Limited transit system expansion. No arterial gap investments.

- **Arterial Operations**: 1
- **Freeway Operations**: 3
- **Transit**: 1
- **Demand Management**: 1
- **System Gaps**: 1
- **Safety**: 1
- **Bike & Pedestrian**: 1

### SP 3: Arterial-Focused Improvements
Focuses improvements on arterial system. Enhance existing transit routes. Bottleneck only on freeway system. Highest-benefit parallel routes improved.

- **Arterial Operations**: 3
- **Freeway Operations**: 1
- **Transit**: 1
- **Demand Management**: 1
- **System Gaps**: 1
- **Safety**: 1
- **Bike & Pedestrian**: 1

### SP 4: System Management & Transit Focus
Targeted arterial and freeway investments only. Highest-level of transit investment. System management and TDM implementation.

- **Arterial Operations**: 3
- **Freeway Operations**: 3
- **Transit**: 3
- **Demand Management**: 3
- **System Gaps**: 3
- **Safety**: 3
- **Bike & Pedestrian**: 3

### SP 5: Limited Levels of Investment
Relatively low investment levels in arterial and freeway systems. No additional non-roadway investments.

- **Arterial Operations**: 5
- **Freeway Operations**: 5
- **Transit**: 5
- **Demand Management**: 5
- **System Gaps**: 5
- **Safety**: 5
- **Bike & Pedestrian**: 5

### SP 6: Geographic Distribution Scenario
Provide different strategies in “Central City” and “Suburban” parts of the metro area. Recognizes the different streetscape and development patterns typically present in the older and newer portions of the urban area.

- **Arterial Operations**: 5
- **Freeway Operations**: 5
- **Transit**: 5
- **Demand Management**: 5
- **System Gaps**: 5
- **Safety**: 5
- **Bike & Pedestrian**: 5

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**Legend:**
- **Suburban**
- **Central**
Preserving the Existing Transportation System

Maintaining our current transportation system and assets in a state-of-good-repair is a regional goal. This includes roads, bridges, and transit assets. To understand the resources required to maintain the transportation system, a potential system preservation investment program that meets regional goals was developed. The preservation program was based on current and forecasted asset conditions in the study area, and included identifying preservation costs associated with the potential maintenance program. The investment levels required between 2017 and 2040 to preserve the MTIS system for all strategy packages include:

- $816 million for pavement preservation ($141 million in Iowa, $675 million in Nebraska)
- $450 million for bridge preservation ($75 million in Iowa, $375 million in Nebraska)
- $1,071 million for transit system operations and maintenance
- $522 million for transit system capital replacement

Note that the bridge and pavement costs are only for the MTIS roadway system, which accounts for 46% of total arterial, collector, and freeway lane miles in the region. The financial requirements associated with the system preservation program are included in the overall investment needs of all strategy packages.

Strategy Package Assessment

Each strategy package was assessed based on:

- **Study Goals and Performance Measures**: Initially developed from the priorities identified in Phase 1, performance measures were used to assign a numerical value to how well each strategy package met regional goals.
- **Public Input**: At various public meetings held by MAPA in 2016 for the 2050 LRTP, individuals were encouraged to identify their preferred strategy package.
- **Stakeholder (Public Agency) Input**: At the July 2016 Stakeholder Committee meeting, public agency staff were polled on their strategy package preferences.

**RESULTS**

Based on the performance scoring results and the preferences provided by the public and stakeholders, the following three packages ranked the highest:

- **Strategy Package 1**: High Levels of Balanced Investment
- **Strategy Package 4**: System Management and Transit Focus
- **Strategy Package 6**: Geographic Distribution Scenario

Preferred Strategy Package

To develop the preferred regional strategy package, a set of guiding principles were developed based on the public and stakeholder preferences and input received on Strategy Packages 1 through 6.

**Guiding Principles**

- **Balanced Investments**
- **Significant Expansion**
- **Targeted Investments**
- **High Levels of Investment**
- **Expansion**
- **Moderate Levels of Travel Demand**
- **Application of Technology**
Preferred Strategy Package

MAPA held several series of public and stakeholder meetings to evaluate preferences for the first six scenarios. Based on the feedback from these meetings, Strategy Package 7 was developed. Strategy Package 7 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. Strategy Package 7 was selected as the preferred strategy package and represents an aggressive, yet attainable plan.
The performance of the Preferred Strategy Package, the preferred scenario, was compared to current conditions and Strategy Package 5 (current investment levels/status quo scenario). The performance comparisons are shown below.

### Preferred Package Performance

**DAILY VMT/HOUSEHOLD**

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2040 SP5</th>
<th>2040 SP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMT</td>
<td>62.8</td>
<td>69.6</td>
<td>70.2</td>
</tr>
</tbody>
</table>

**DAILY VHT/HOUSEHOLD**

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2040 SP5</th>
<th>2040 SP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>VHT</td>
<td>1.6</td>
<td>1.9</td>
<td>1.8</td>
</tr>
</tbody>
</table>

**DAILY MINUTES DELAY/HOUSEHOLD**

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2040 SP5</th>
<th>2040 SP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay</td>
<td>5.3</td>
<td>13.3</td>
<td>8.1</td>
</tr>
</tbody>
</table>

**DAILY TRANSIT RIDERSHIP**

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2040 SP5</th>
<th>2040 SP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riders</td>
<td>14,600</td>
<td>28,000</td>
<td>61,900</td>
</tr>
</tbody>
</table>

**PERCENTAGE JOBS WITHIN 15 MINUTE AUTO TRIP**

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2040 SP5</th>
<th>2040 SP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>43.9%</td>
<td>28.1%</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

**PERCENTAGE JOBS WITHIN 45 MINUTE TRANSIT TRIP**

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2040 SP5</th>
<th>2040 SP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>5.7%</td>
<td>6.1%</td>
<td>15.7%</td>
</tr>
</tbody>
</table>

In the Preferred Strategy Package, the distance traveled by residents is about the same as the distance traveled in the status quo scenario.

In the Preferred Strategy Package, residents will spend less time traveling compared to the status quo scenario.

In the Preferred Strategy Package, the average household will spend 5 minutes less each day stuck in traffic congestion than in the status quo scenario.

In the Preferred Strategy Package, the number of transit riders will more than double compared to the status quo scenario.

In the Preferred Strategy Package, significantly more jobs will be accessible within a 15 minute auto trip compared to the status quo scenario.

In the Preferred Strategy Package, nearly 3 times more jobs will be accessible within a 45 minute transit trip for the typical resident compared to the status quo scenario.
Regional Package Costs

The cost estimates (shown below) 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 YOE) is provided in the following table.

<table>
<thead>
<tr>
<th>STRATEGY CAPITAL COSTS</th>
<th>PAVEMENT &amp; BRIDGE SYSTEM PRESERVATION COSTS</th>
<th>TRANSIT O&amp;M COSTS</th>
<th>TOTAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4,323.60</td>
<td>$1,266.00</td>
<td>$1,832.80</td>
<td>$7,422.40</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ROADWAY WIDENING COSTS</th>
<th>FREWAY</th>
<th>ARTERIAL</th>
<th>SYSTEM GAPS</th>
<th>TRANSIT (FLEET &amp; CAPITAL)</th>
<th>TRAVEL DEMAND MANAGEMENT</th>
<th>SAFETY (FREeway)</th>
<th>SAFETY (ARTERIAL)</th>
<th>BIKE/PED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$833.10</td>
<td>$2,044.90</td>
<td>$185.20</td>
<td>$1,132.40</td>
<td>$32.00</td>
<td>$1.30</td>
<td>$69.00</td>
<td>$25.70</td>
</tr>
</tbody>
</table>

The Roadway Widening Costs were broken down into state (freeway and state arterial) and local percentages (right).
Regional Funding

Transportation funding levels for the Omaha-Council Bluffs metro area were projected through 2040, to identify the funding gap and to consider alternative funding and financing sources that may bridge that gap. The anticipated transportation revenues from traditional sources through 2040 do not cover the cost of the preferred strategy package. The Iowa portion of the MAPA region is expected to have a surplus of funding through 2040, but it is anticipated that the surplus will be used on projects not on the MTIS system and on the ongoing Council Bluffs Interstate Reconstruction project.

The Nebraska portion of the MAPA region is expected to have a transportation funding shortfall by 2040. The gap between costs and anticipated funding is significant. The region's transportation “funding capacity”, or the percentage of funding levels compared to plan costs, is 42%.

**Local Potential Funding**

To provide a practical perspective in regards to how much the Nebraska metro area’s nearly $4B ($2.75B in Today’s Dollars - which represents non-inflated prices) funding gap represents in terms of local revenues, the study team developed an illustration of how much local funding a sales and property increase in Douglas and Sarpy Counties could generate. This is an illustration, and not necessarily a recommendation of the study. This illustration includes:

- 1% retail sales tax increase – would yield approximately $2.86 billion
- 0.00025% property tax increase – would yield approximately $358 million

**Innovative Funding**

The study evaluated innovative funding approaches including State Infrastructure Banks, Loans and Credit Programs and Public-Private Partnerships. The evaluation found, based on an assessment of the Preferred Strategy Package by NDOT, there are no clear project candidates for an innovative funding or financing approach. An immediate next step for the region might be to explore the local political appetite for incremental retail sales and property tax levies.
High Priority Corridor Highlights

Several of the projects in the preferred package were identified as the highest tier of priorities. The prioritization was based on the performance measures developed to evaluate how well each project might reflect and promote regional goals. The figures on the following pages illustrate four of the highest priority corridors in terms of issues, project recommendations and benefits.

### 84TH STREET: L ST TO I-80

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- Low travel reliability
- High freight usage
- Current Express Bus Route

**PROJECT:** ITS, Innovative Intersections, Access Control

**BENEFITS:**
- Congestion Reduction
- High job accessibility improvements
- High freight improvements

**COST:** $5M (2017$)

### 72ND STREET: I-80 TO L ST

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- High freight usage
- Future Bus Rapid Transit Corridor

**PROJECT:** Widen to 6 Lanes

**BENEFITS:**
- Congestion Reduction
- High job accessibility improvements
- High freight improvements

**COST:** $11 M (2017$)

### 84TH STREET: HARRISON ST TO L ST

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- Low travel reliability
- High freight usage
- Current Express Bus Route

**PROJECT:** Widen to 6 Lanes

**BENEFITS:**
- Congestion Reduction
- High job accessibility improvements
- High freight improvements

**COST:** $22M (2017$)

### 72ND STREET: HARRISON ST TO L ST

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- Future Bus Rapid Transit Corridor

**PROJECT:** Widen to 6 Lanes

**BENEFITS:**
- Congestion Reduction
- High job accessibility improvements

**COST:** $22 M (2017$)

72nd and 84th Street Corridors
WEST CENTER RD: 180TH ST TO INDUSTRIAL RD

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- Low travel reliability
- Moderate freight usage
- Future Bus Rapid Transit Corridor

**PROJECT:**
- Widen to 6 Lanes
- Innovative Intersections

**BENEFITS:**
- Congestion Reduction
- High job accessibility improvements

**COST:** $36 M (2017$)

WEST CENTER RD: INDUSTRIAL RD TO I-680

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Travel delays and congestion
- Future Bus Rapid Transit Corridor

**PROJECT:**
- ITS
- Innovative Intersections

**BENEFITS:**
- Congestion Reduction

**COST:** $10 M (2017$)

INDUSTRIAL RD: WEST CENTER RD TO 132ND ST

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Travel delays and congestion

**PROJECT:**
- Widen to 6 Lanes
- Innovative Intersections

**BENEFITS:**
- Congestion Reduction

**COST:** $30 M (2017$)

L STREET: 132ND ST TO 108TH ST

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- High freight usage

**PROJECT:**
- Widen to 8 Lanes
- Innovative Intersections

**BENEFITS:**
- Congestion Reduction
- High job accessibility improvements
- High freight improvements

**COST:** $41 M (2017$)
**HIGHWAY 370: 180TH ST TO 144TH ST**

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- Moderate freight usage
- Future Express Bus Corridor

**PROJECT:**
- Widen to 6 Lanes
- Innovative Intersections

**BENEFITS:**
- High Congestion Reduction
- High job accessibility improvements

**COST:** $38 M (2017$)

**HIGHWAY 370: 84TH ST TO US 75**

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- Moderate freight usage
- Future Express Bus Corridor

**PROJECT:**
- Widen to 6 Lanes
- Innovative Intersections

**BENEFITS:**
- High Congestion Reduction
- High job accessibility improvements

**COST:** $71 M (2017$)

**HIGHWAY 370: US 6 TO 180TH ST**

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Moderate travel delays and congestion
- High freight usage
- Low travel reliability
- Future Express Bus Corridor

**PROJECT:**
- Widen to 6 Lanes
- Innovative Intersections

**BENEFITS:**
- Congestion Reduction
- Freight Improvements

**COST:** $29 M (2017$)

**HIGHWAY 370: 144TH ST TO 84TH ST**

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- Moderate freight usage
- Future Express Bus Corridor

**PROJECT:**
- Widen to 6 Lanes
- Innovative Intersections

**BENEFITS:**
- High Congestion Reduction
- High job accessibility improvements

**COST:** $66 M (2017$)
**West Dodge Road Corridor**

**WEST DODGE RD: US 6/204th ST TO I-680**

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Travel Delays
- High Congestion between 156th and 120th
- Reliability Issues
- Current Express Bus Route
- Planned Future Enhanced Bus Route

**PROJECT:**
- Widen to 8 lanes (plus Auxiliary Lanes between interchanges as needed)
- Reconfigure 192nd St Interchange
- Potential Ramp Metering

**BENEFITS:**
- Congestion Reduction
- Reliability Improvements

**COST:** $72 M (2017$)

**WEST DODGE RD: I-680 TO 72ND ST**

**CORRIDOR ISSUES/CHARACTERISTICS:**
- Highest tier of travel delays and congestion
- High freight usage
- Current Bus / Planned BRT Corridor

**PROJECT:**
- Innovative Intersection at 90th St
- Widen to 8 lanes 84th to 72nd St

**BENEFITS:**
- Congestion Reduction
- Freight Improvements
- Reliability Improvements

**COST:** $34 M (2017$)
Focused Freeway Assessment

PHASE 2

Phase 2 of MTIS focused on developing a set of alternatives for the freeway corridors highlighted in the figure to the right. These alternatives include a combination of improvements to:

- Remove bottlenecks
- Improve safety and reliability
- Provide additional capacity to accommodate future traffic growth

PHASE 3

Phase 3 of MTIS will focus on answering the following questions related to the preferred freeway master plan:

- Which alternative is the best solution for each corridor?
- How much will the preferred alternatives cost?
- How do improvements in one corridor effect another corridor?

Phase 3 will also address the following strategy questions:

- What areas / issues should we focus on improving first?
- Will we be able to afford it? Where will the funding come from?
- How will we construct the ultimate plan?