

# ***Northwest Wichita Major Investment Study***

## **Executive Summary**



*Prepared for:*

**Kansas Department of  
Transportation**

*Prepared by:*

**BUCHER, WILLIS & RATLIFF  
CORPORATION**

*In association with:*  
**Earth Tech Inc.**

# EXECUTIVE SUMMARY

## ***Introduction***

This Northwest Wichita Major Investment Study (NWW MIS) was completed to identify and evaluate potential transportation improvements in the northwest portion of the Wichita metropolitan area and to determine the need for and feasibility of a new transportation corridor between US-54 and K-96. This executive summary presents the results of the NWW MIS.

## ***Background***

The 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) and the subsequent Transportation Efficiency Act (TEA-21) established a new vision for the nation's surface transportation programs. It was a policy declaration for rebuilding the transportation infrastructure, promoting safe and efficient mobility, fostering a strong and competitive economy, and protecting environmental resources. To meet these policy mandates, ISTEA and TEA-21 require an integrated process for long-term land use and transportation planning. As part of this planning approach, state and local transportation organizations are encouraged to begin studies of proposed major investments in advance of traditional engineering and environmental timelines. One such study is known as a major investment study (MIS).

In December 1994, the Wichita-Sedgwick County Metropolitan Area Planning Department (MAPD), the agency designated as the Metropolitan Planning Organization (MPO), completed a long range transportation plan (LRTP) for the Wichita metropolitan area that included a general examination of a potential freeway or expressway connection between US-54 and K-96. At the time of its adoption, the long range plan did not include a recommendation to construct a new transportation corridor between US-54 and K-96. Since that time, significant growth has occurred in the northwest metropolitan area. MAPD is currently updating the 1994 plan. The updated social, economic and project-related information was utilized in the development of this study.

The Kansas Department of Transportation (KDOT) initiated the NWW MIS in 1997. This study was conducted at the request of officials of Sedgwick County, the City of Wichita and KDOT who recognized the recent and potential growth occurring in the northwest portion of Wichita and the need to determine whether right-of-way should be preserved for a new transportation corridor. The consulting firm of Bucher, Willis & Ratliff Corporation (BWR) was selected to conduct the NWW MIS.

This NWW MIS provides an assessment of the need for a connection between US-54 and K-96 in more detail than provided in the LRTP and utilizes recent population and employment forecasts for the area. The outcome of this study is the identification and recommendation of a "Preferred Strategy" that addresses the identified transportation needs and establishes priorities for potential future projects in the study area.

## ***Study Area***

The NWW MIS study area boundaries are K-96 and 53rd St. N. on the north, I-235 on the east, Pawnee St. on the south, and 215<sup>th</sup> St. W. on the west. The study area is shown in Figure ES-1 and includes portions of four communities as well as unincorporated areas within Sedgwick County. The incorporated communities include Wichita, Maize, Colwich, and Goddard, Kansas. Typical of traditional land use patterns in major urban centers, the density of development is highest near downtown Wichita and decreases with distance from this center. In general, land use within the study area can be described as urban and suburban in the eastern quarter of the study area. Land uses are rural or sparsely developed in

# Legend

..... Wichita City Limits



Figure ES-1. NWW MIS general Study Area

the western and northwestern portions of the study area.

The study area includes an area of transition along the suburban fringe. This transitional area continues to move westward as previously rural areas become developed. Within the study area, many types of land use are represented including low and medium-density residential, commercial, industrial, parks, regional shopping malls and recreation/entertainment.

## **Public Involvement**

Public involvement is a key component in MIS projects. Early, proactive participation by the public is essential to the overall ability to make reasonable decisions about the preferred transportation alternative. In the NWW MIS, the public was involved in a variety of ways.

- A Project Steering Committee (PSC) was formed to provide input and guidance at key points along the way. Members of the PSC represented residents, organizations and businesses within the study area.
- A Technical Committee consisting of transportation planning and engineering officials from the City of Wichita, Sedgwick County, and the Metropolitan Area Planning Department was formed. They met regularly with representatives from BWR, KDOT, and the FHWA to provide technical review.
- Public forums were held at the “major milestones” during the study to update the public about project activities to date and to obtain input from the public about the study findings.
- A dedicated phone line was provided for public comments and questions. Numerous calls about the project were logged during the study.
- Reports and handouts were available for both the PSC and the general public throughout the course of the NWW MIS. A series of pamphlets was distributed to provide information about the project at key points.
- Paid and unpaid media coverage publicized the study proceedings.

## **MIS Elements**

This NWW MIS included the following elements, which are discussed in detail in the final report and summarized in this document:

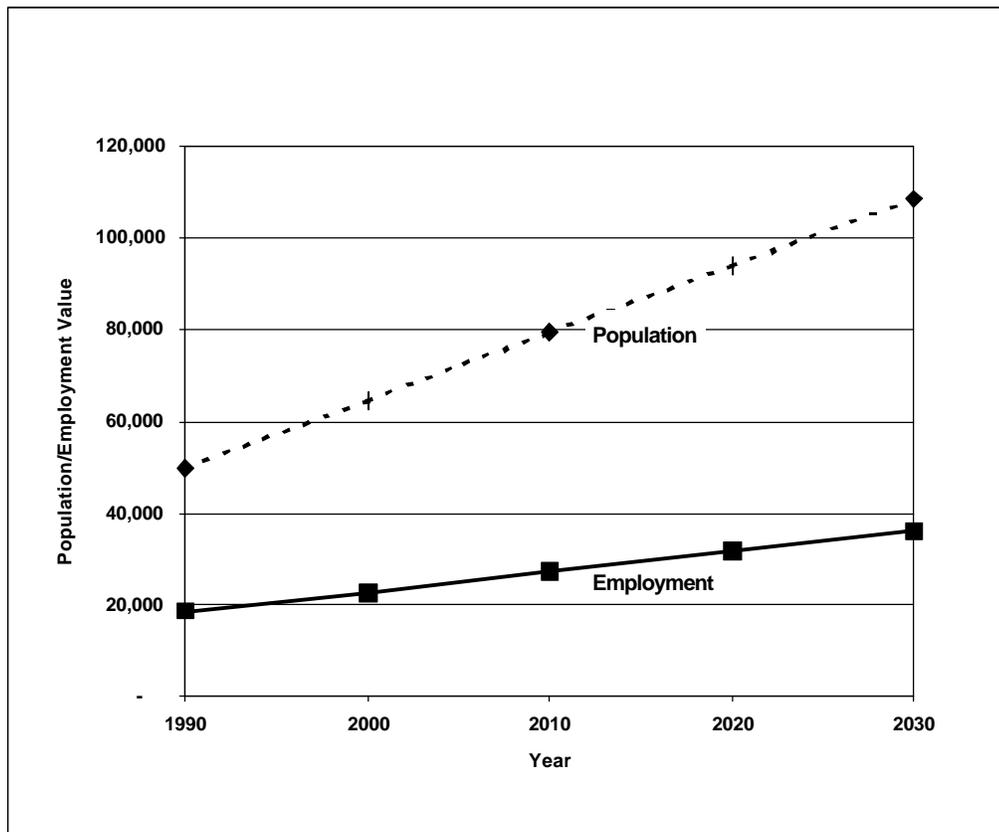
- 1) An inventory and analysis of existing transportation conditions and projected future conditions in the study area.
- 2) The preparation of a statement of transportation needs reflecting the goals and objectives for the major transportation investment as developed by the PSC.
- 3) The development of criteria and performance measures to evaluate the ability of the alternative strategies to meet the goals and objectives.
- 4) The identification and analysis of possible strategies to address the identified needs. These strategies consist of reasonable improvement measures that sufficiently address the project purpose and needs.

- 5) Evaluation or screening of the possible transportation improvement strategies. The evaluation assessed how well each strategy addresses the goals and objectives developed for this study. The highest-ranking strategy was presented for further consideration. A recommendation that the strategy be incorporated into the long-range transportation program will be presented to the MPO, City of Wichita and to Sedgwick County to formally recognize the preferred strategy.

## **Future Growth**

The Wichita-Sedgwick County Metropolitan Planning Department recently contracted with the Center for Economic Development and Business Research at Wichita State University (WSU) to develop population and employment forecasts for Sedgwick County through the year 2030. This area is rapidly growing in both population and in employment. It is projected that under current growth trends the 2030 population located in the study area will increase from approximately 49,900 in 1990 to 108,600, representing an increase of 118% percent. Similarly, the 2030 employment is projected to increase by 97 percent over 1990 levels from approximately 18,400 to 36,200 over the 40-year time frame. Figure ES-2 graphically displays the projected growth within the study area.

**Figure ES-2. NWW MIS Area Projected Growth**



## ***Needs Analysis***

This section summarizes the public input, transportation data, and land use data analyzed as part of the current and future needs.

### *Traffic*

The analysis of current traffic counts and the traffic forecast models indicate that traffic congestion is occurring or is projected to occur on major east-west roadways located within the NWW MIS area. In 1997, six miles of roadway were classified as either congested or approaching congestion (LOS D or worse). The roadways experiencing congestion are those serving east-west travel movements in the eastern section of the study area and include sections of Central, Maple and US-54. Congestion on these roadways exists largely due to the limited capacity and constraints crossing the Wichita-Valley Center Floodway.

The relief of future traffic congestion was an important consideration for future transportation strategies. Without any improvements other than those contained within the “existing plus committed” projects, the total miles of roadway operating at or near congestion in 2030 is projected to double from 6 to 16 miles. Of this increase, approximately 6 of the 10 additional congested miles are on north-south facilities, such as Tyler Road and Maize Road, linking US-54 with K-96.

### *Truck Travel*

Vehicle classification counts indicate nearly 10% of the traffic on Tyler Road and Maize Road is heavy vehicles. This level of heavy vehicle traffic warrants consideration of strategies to improve these roadways or to provide an improved truck-route connection.

### *Through Traffic*

The level of through-traffic from US-54 and K-96 through the Wichita metropolitan area is not high. Future improvements to US-54 or other routes could increase the amount of through-traffic, but at this time such impacts are uncertain.

### *Traffic Safety*

US-54 and I-235 have safety records that are better than statewide averages for similar facilities. However, the number of fatalities and injury accidents on US-54 was higher than on other routes in the study area.

### *Land Use Considerations*

With the rapid development of the northwest Wichita area, mobility and accessibility will become more constrained, thus affecting the overall quality of life for residents and businesses. Between 1990 and 2030, the population and employment within the study area is expected to double.

### *Public Issues*

The PSC identified a number of concerns relating to adequately planning for future roadway requirements but also to make sure that such improvements do not accelerate development or facilitate urban sprawl in the study area. In addition, public input identified similar current transportation and land use concerns, including:

- *Development of prime agricultural land,*
- *Congestion across the Wichita-Valley Center Floodway "Big Ditch,"*
- *Congestion on US-54 at the I-235 interchange,*
- *Safe access to public schools, and*
- *Accommodating the fast pace of growth in the study area.*

## **Goals and Objectives**

A coordinated set of goals and objectives provides a method for measuring the overall success of the MIS. The goals and objectives developed by the PSC for use in the NWW MIS evaluation process were:

**GOAL 1     Improve mobility, accessibility, and safety in the Northwest Wichita MIS area.**

Objectives

- a. Improve roadway efficiency
- b. Decrease travel time
- c. Improve accessibility
- d. Improve vehicle travel safety

**GOAL 2     Provide a plan that considers transportation corridor preservation.**

Objectives

- a. Proactively preserve corridor
- b. Minimize impact to existing properties
- c. Minimize corridor preservation cost

**GOAL 3     Provide a cost-effective transportation investment recommendation.**

Objectives

- a. Minimize cost
- b. Maximize cost-effectiveness

**GOAL 4     Provide a transportation system that enhances economic development.**

Objectives

- a. Promote a positive impact on property values
- b. Promote economic development

**GOAL 5     Provide a transportation system that promotes land use development patterns which provide for efficient delivery of city services.**

Objectives

- a. Minimize urban sprawl
- b. Provide a transportation system that assists in city services
- c. Provide a transportation system compatible with existing or proposed city services
- d. Accommodate alternative modes of transportation

**GOAL 6     Provide a transportation system that avoids / minimizes / mitigates adverse environmental impacts and fosters positive environmental effects.**

Objectives

- a. Avoid/minimize, or if unavoidable, mitigate adverse impact on environmentally sensitive areas
- b. Improve air quality
- c. Minimize energy consumption
- d. Foster environmental justice.

## ***Development of Improvement Strategies***

This section defines the transportation strategies considered to address Northwest Wichita area's transportation needs.

### *Selection of Initial Set of Strategies*

A number of transportation modes were initially evaluated in order to assess whether the mode should be further considered as part of a potential recommended strategy. Based on the current and projected transportation problems in the NWW MIS area, the following initial transportation modes were considered as potential solutions within the study area:

- Transit service
- Rail transportation
- Transportation System Management (TSM) measures
- Intelligent Transportation Systems (ITS) measures
- Transportation Demand Management (TDM) measures
- Improve existing arterial roadways
- New-build; new roadway connecting US-54 and K-96

This strategy includes the expansion of the regional highway system to include construction of a new facility connecting US-54 and K-96. For determining travel demand, two potential corridor alignments were analyzed:

- ◆ *Inner Corridor Highway* - a corridor between US-54 and K-96 conceptually located east of 167<sup>th</sup> Street West.
- ◆ *Outer Corridor Highway* - a corridor between US-54 and K-96 conceptually located west of 199<sup>th</sup> Street West.

Each of the individual transportation modes were evaluated for applicability in addressing the identified needs or satisfying the six goals. Those strategies that were not determined to be effective in addressing the identified needs were dropped from consideration. The strategies that were determined to be effective in addressing some of the concerns were combined to create a new set of improvement strategies.

### *Development of Combination Strategies*

Based on the initial evaluation, four strategies that combined the strongest elements were developed. The four strategies had a number of similar elements but had a major component that differed.

The four strategies are summarized below:

- *Strategy 1: Improve Arterials*  
Includes the upgrade of existing arterials and the incorporation of TSM measures. This reflects a future no-build strategy in terms of including those projects likely to be constructed over the planning period but without a new transportation connector between US-54 and K-96. TDM measures were also an option.
- *Strategy 2: Inner Connector*  
Includes a new inner connector highway and the upgrade of select arterials from Strategy 1. TSM, TDM and ITS measures were incorporated into this strategy as appropriate.
- *Strategy 3: Outer Connector*  
Includes a new outer connector highway and the upgrade of select arterials from Strategy 1. TSM, TDM and ITS measures were incorporated into this strategy as appropriate.

- Strategy 4: Inner/Outer Connector**  
 Includes a new highway that incorporates components of the roadway alignments contained within Strategies 2 and 3. Extending from K-96 to US-54, the highway alignment would be identical to the inner connector as identified in Strategy 2. The variation from Strategy 2 (Inner Connector) is the addition of an east-west freeway segment generally paralleling US-54 from 167<sup>th</sup> Street W. to west of the City of Goddard at which point it would join with US-54. In addition to the freeway component, this strategy also included the upgrade of select arterials, and the incorporation of TSM, TDM, and ITS measures.

Figure ES-3 displays the components of each of the four strategies.

**Figure ES-3. Strategy Development Process**

Strategy Components	Alternative Strategies and Improvement Components			
	<i>Strategy 1: Improved Arterials</i>	<i>Strategy 2: Inner Connector</i>	<i>Strategy 3: Outer Connector</i>	<i>Strategy 4: Inner/Outer Connector</i>
<b>Potential New Strategy Components</b> <div style="display: flex; flex-direction: column; align-items: center; gap: 5px;"> <div style="border: 1px solid black; padding: 2px; margin: 2px;">Programmed Projects</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">Increased Transit Service</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">Rail Service</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">Transportation System Management</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">Travel Demand Management</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">Arterial Improvements</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">New NW Connector Highway</div> <div style="border: 1px solid black; padding: 2px; margin: 2px;">Land Use Modification</div> </div>	Programmed Projects	Programmed Projects	Programmed Projects	Programmed Projects
	Transportation System Management	Transportation System Management	Transportation System Management	Transportation System Management
	Travel Demand Management	Travel Demand Management	Travel Demand Management	Travel Demand Management
	Arterial Improvements	Arterial Improvements	Arterial Improvements	Arterial Improvements
	New "Inner" Connector Highway	New "Outer" Connector Highway	New "Inner/Outer" Connector	New "Inner/Outer" Connector
	Medium growth 1 LU Scenario	Medium growth 2 LU Scenario	Medium growth 1 LU Scenario	Medium growth 1 LU Scenario

## **Environmental Study Summary**

KDOT’s Bureau of Transportation Planning, Environmental Services Section provided environmental information on the study area. The environmental information indicated no cultural or environmental constraints that would preclude the selection of one or more of the refined strategies as the preferred strategy.

No fatal flaws were identified in any of the four corridors during this investigation. More detailed analysis of the environmental impacts will be conducted during future phases of the project after a preferred strategy has been selected and alternative road alignments have been established. The findings of the environmental study are listed in Table ES-1.

**Table ES-1. Level of Concern of Environmental and Cultural Constraints Located in Each Strategy Corridor**

Constraint	Level of Concern <sup>1</sup>			
	Strategy 1	Strategy 2	Strategy 3	Strategy 4
Wetlands/Hydric Soils	Average	Average	Average	Average
Threatened and Endangered Species	Relatively Large	Relatively Large	Relatively Large	Relatively Large
Biological Resources	Relatively Small	Average	Average	Average
Mineral Resources/Unique Geological Features	Relatively Large	Average	Average	Relatively Small
Water Resources/Flood Plain	Average	Average	Average	Average
Hazardous Waste Sites	Insufficient Data	Insufficient Data	Insufficient Data	Insufficient Data
Agricultural Resources	Relatively Small	Relatively Large	Relatively Large	Relatively Large
Parks and Cemeteries	Average	Relatively Small	Relatively Small	Relatively Small
Cultural Resources	Relatively Large	Relatively Large	Insufficient Data	Relatively Large
Other Resources <sup>2</sup>	Relatively Small	Relatively Small	Relatively Small	Relatively Small

<sup>1</sup> Determined by the presence or absence and the relative amount of the resource within the corridor. Level of concern is not intended to indicate the impact of a strategy on the resource.

<sup>2</sup> See report

## **Strategy Evaluation**

As part of the evaluation process, the PSC weighted the relative value of the goals on a scale from 0 to 3, with 3 being the most important. The weighting exercise and scoring process were used as a guide in identifying preferred transportation strategies by obtaining feedback from the PSC on the relative importance of the goals. The average weights assigned by the PSC are listed in Table ES-2.

**Table ES-2. PSC Assigned Weights**

Goal	Committee Weights
Corridor Preservation	2.1
Mobility, Accessibility, and Safety	2.0
Cost-effectiveness	1.9
Economic Development	1.7
Consistent Land Use Development	1.7
Environmental Impact	1.5

Source: BWR Corporation.

Applying the above goals and associated weightings to the alternative transportation strategies provides differential rankings. Performance measures were identified for each goal/issue. Values were obtained from the travel model and other sources to indicate potential conditions in the year 2030. The relative differences between the strategies were the basis for the scoring. Applying the weights developed by the PSC resulted in the scores listed in Table ES-3.

**Table ES-3. PSC Weighted Scores of Transportation Strategies**

Goals/Issues	Transportation Strategy			
	1. Improve Arterials	2. Inner Connector	3. Outer Connector	4. In/Out Connector
1 Mobility / Accessibility / Safety	3.0	6.3	4.1	6.6
2 Cost-effectiveness	7.5	5.4	3.6	3.9
3 Economic Development	2.0	5.6	3.8	5.6
4 Consistent Land Use Development	4.8	3.6	3.4	3.5
5 Environmental Impact	4.8	3.3	3.9	3.0
<b>TOTAL</b>	<b>22.2</b>	<b>24.1</b>	<b>18.8</b>	<b>22.6</b>

Source: BWR Corporation.

Table ES-4 compares the unweighted and weighted scores of the strategies. Noteworthy is that the strategy receiving the highest “unweighted” score – Strategy 2 (Inner Connector) also received the highest score when applying the PSC-assigned weights. In the following section, a narrative is provided for each of the five goals / issues and the relative (unweighted) ranking of the strategies.

**Table ES-4. Unweighted and Weighted Scores of the Strategies**

No.	Transportation Strategies	Unweighted Score	PSC Weighted Score
1	Improve Arterials	12.7	22.2
2	Inner Connector	13.5	24.1
3	Outer Connector	10.8	18.8
4	Inner/Outer Connector	12.7	22.7

Source: BWR Corporation.

## ***Preferred Strategy***

Strategies 2 and 4 provided relative mobility benefits through reduced miles of congestion, vehicle-hours of travel and through lower accident rates. Of the four strategies, Strategy 1 had the highest score in cost-effectiveness. Strategies 2 and 4 were considered to have greater impact on economic development relative to the other four strategies. Strategy 1 had relatively less potential of an impact on the environment. When considered in total, Strategies 2 and 4 were rated highest based on the weighted importance of the project goals and objectives. The projects included as part of the preferred strategy are summarized in Table ES-5 and shown in Figure ES-4.

**Table ES-5. Primary Components of the Preferred Strategy**

<b>Preferred Strategy Components</b>	
<b>Components</b>	<b>Description</b>
1997 – 2002 CIP list	Combination of project types
2020 LRTP Improvement Projects	Combination of project types
Arterial Improvements	Combination of project types based on future travel demand and identified deficiencies
New Floodway crossings	13 <sup>th</sup> Street N. connection; 25 <sup>th</sup> Street N. - 29 <sup>th</sup> Street N.
Northwest Connector Highway*	4-lane Freeway
All corridors within the NW MIS area	Support bikeway, walkways, and ITS.

\*The alignment of the Northwest Connector Highway has not yet been determined.

The results of the MIS evaluation were presented to the PSC. It was the decision of the PSC to support the presentation of a corridor between US-54 and K-96, as represented in Figure ES-4, for the future construction of a freeway facility. The analysis of benefits and costs indicated that the freeway corridor would not need to be constructed until after the year 2010. The inclusion of the purchase of right-of-way was encouraged to be part of the new Comprehensive Highway Program under consideration by KDOT.

The decision to upgrade the section paralleling US-54 was included as part of the recommendation. However, the implementation of this section of the preferred recommendation was considered as less of a local priority. The City of Wichita, Sedgwick County and Metropolitan Planning Organization (MPO) received this recommendation in July of 1999.

# Legend

..... Wichita City Limits

## Improvement Projects

— Roadway Improvement Projects

1 - 16 1997 - 2002 CIP Projects

17 - 22 2020 LRTP Projects

23 29th St. N Connection

24 13th St. N Connection and I-235 Interchange

25 - 34 Arterial Improvements

35 NW Connector (Conceptual)



Figure ES-4. Preferred Strategy - Roadway Improvement Components

## ***Additional Elements of the Preferred Strategy***

In addition to the described transportation improvement components, additional improvements and components are recommended as part of the preferred strategy. These improvements include bicycle/pedestrian (bike-lane or path and sidewalk) measures and proactive corridor or right-of-way preservation measures.

ISTEA and TEA-21 encouraged transportation agencies to preserve rights-of-way for transportation projects that are being planned now, but may not be funded for construction for several years. Corridor preservation includes protecting land needed for capacity expansion of existing highways as well as land needed for relocated highways.

The importance of corridor preservation has been recognized by MAPD, the City of Wichita, Sedgwick County, KDOT, and other agencies involved in developing land use and transportation plans for the Wichita region. A more detailed engineering location and environmental study will be completed as part of a separate study phase, and corridor preservation issues can be addressed in more detail.

There are several options that may be considered for corridor preservation to accommodate a NWW Connector. Options include the outright acquisition of property by the appropriate local or state government. Another option would be that local and/or state government purchase options for property with a right of first refusal as development pressure occurs within the identified corridor. Real estate developers may also choose to dedicate right-of-way in their development plans. Other measures are also possible.

At the local level, mechanisms for implementing corridor preservation include designating transportation and other land use elements on official land use and zoning maps, and describing the corridor preservation approach in applicable land use and transportation planning documents, i.e., LRTP. At the state level, future transportation corridors can be “officially mapped” in consultation with the affected community.