I-35 CORRIDOR

Johnson and Wyandotte Counties

Project # 35-106-KA-2597-01

Optimization Plan Executive Summary

June 2013

MARC Mid-America Regional Council

Kansas Department of Transportation

I-35 Corridor Optimization Plan
Executive Summary

Study Purpose

Interstate 35 is a vital link for interstate commerce that is subject to growing multi-modal transportation needs impacting its safety, capacity, design and operation. Recognizing this, the Kansas Department of Transportation (KDOT) and the Mid America Regional Council (MARC) have conducted a corridor optimization study known as "I-35 Moving Forward." The study examined options to keep traffic moving safely and reliably today – and in the future. The study investigated innovative ways to address I-35's congestion issues through Johnson and Wyandotte counties. The solutions to these transportation challenges may not be "traditional" from historical standards.

This optimization plan is the culmination of the study and recommends short, medium and long-term improvements for I-35 through 2040 and beyond. The study team was comprised of KDOT, MARC and an advisory group comprised of Federal Highway Administration (FHWA), as well as state, city, county and private industry representatives.

Problem Definition

The key challenges and opportunities identified for the I-35 Corridor include recurring and non-recurring traffic congestion (e.g., incidents and work zones), safety, truck traffic, multi-modal connectivity and geometric design deficiencies. In the future, existing problems worsen significantly as traffic volumes increase. Forecasted traffic is expected to increase 25 to 60 percent through 2040 along the I-35 Corridor. The highest forecasted traffic volumes on I-35 are between U.S. 69 and I-635. When traffic is forecasted, an unconstrained assignment indicates that there is more demand than capacity in many parts of the corridor, especially north of U.S. 69 to the Kansas-Missouri state line. That means if additional capacity or operational efficiencies cannot be provided on I-35, the supporting transportation network will need to carry the additional demand.

The I-35 Corridor is a key transportation link in Kansas and the greater Kansas City area.

Strategy Development

The study team identified an initial list of over 70 potential strategies for possible application to the I-35 Corridor, designated as the Universe of Strategies. Based on technical analysis and feedback from the advisory group, the strategies were screened down to the following I-35 practical strategies:

- Fix key bottlenecks
- Managed lanes/shoulders
- Multi-modal
- Intelligent transportation solutions

In addition, to these I-35 practical strategies, a No-Action and an adding general purpose lane capacity were also considered, which provided a benchmark for comparison of the benefits of each strategy. The practical strategies were first analyzed individually and then combined together as strategy packages to assess which strategies, or combinations of strategies, were most practical for I-35.

Policy Considerations

Each of the strategy packages offers trade-offs for the I-35 Corridor. In addition to the technical analysis, policy considerations were evaluated to better understand the key governance and policy changes that could be needed in order to implement new or non-traditional strategies along the corridor. A policy survey was sent out to 15 KDOT staff and one MARC staff working on the project to get a better sense of how KDOT and MARC envision moving forward with improvements to I-35 over the next 30 years. Thirteen responses were returned. The policy questions focused on the following areas.

1. **Improvement Type —** Fifty-four percent of respondents would like to have corridor-wide solutions and 46 percent would prefer a greater number of smaller, localized projects. None of respondents indicated that they wanted one or two large isolated project, indicating the investment in the corridor should be spread throughout the corridor.
2. **Financial Level —** Sixty-two percent of respondents thought KDOT should spend about the same as historical funding on the I-35 Corridor.
3. **Investment Approach —** Ninety-two percent of respondents thought KDOT should continue traditional existing cost savings measures. Sixty-nine percent of respondents thought KDOT should toll to provide new capacity. Fifty-four percent of respondents indicated that modified design standards could be used to maximize dollars spent in the corridor. (More than one answer was possible).

4. **Stakeholder Support —** Eighty-five percent of respondents thought KDOT and its stakeholders would support continuing existing strategies for I-35, such as fixing key bottlenecks and adding general capacity where needed. Sixty-nine percent of respondents thought KDOT and its stakeholders would support pricing to manage congestion. Fifty-four percent of respondents supported a complete streets/multi-modal approach to solving congestion in the corridor. (More than one answer was possible.)
5. **Multi-Modal Level —** Seventy-seven percent of respondents thought KDOT should be moderately aggressive in their support and enhancement of multi-modal solutions.
6. **Shoulder Running —** Sixty-nine percent of respondents said they would support expansion of bus on shoulder to address congestion. Fifty-four percent of respondents said they would support restricted vehicles (e.g., transit, high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes using the shoulders during peak periods and incidents. Twenty-three percent felt that all traffic should use the shoulders to manage congestion and incidents during the peak periods.
7. **Managed Lanes —** One hundred percent of respondents said they understood that a primary purpose of managed lanes was to provide sustainable reliability to the I-35 Corridor. Sixty-nine percent of respondents said they understood that one of the key goals of managed lanes was to encourage greater use of transit and ridesharing.

Recommended Preferred Strategy

The recommended preferred strategy is based on a comprehensive analysis approach. The preferred strategy is based on:

- National and international best practices,
- Peer community interviews,
- Technical analysis, and
- Advisory group feedback.

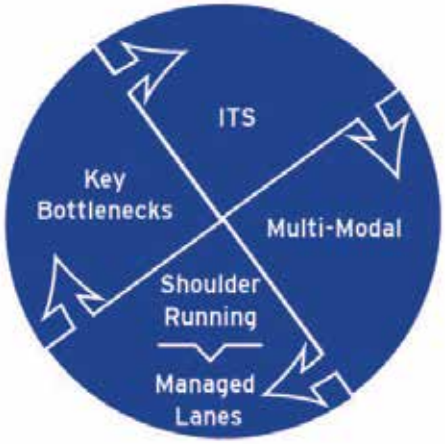
The recommended preferred strategy is to focus short-term, mid-term and long-term improvements on:

- Intelligent transportation system (ramp metering, advanced traveler information, traffic incident management and arterial dynamic message signs)
- Multi-modal (bicycle and pedestrian improvements, transit improvements including Bus on Shoulder, park and ride lots and express transit routes)

- Fixing key bottlenecks (focused on I-35 bottleneck improvements such as interchange and auxiliary lane improvements)
- Shoulder running (restricted peak hour and incident use to some combination of transit, HOV, HOT) in concert with crash investigation sites and active traffic management lane control
- Managed lanes (priced managed lane with supporting ITS of a toll collection system)

Exhibits ES-1 through ES-3 provide a graphical representation of the recommended preferred strategy improvements for I-35 Moving Forward for the short-term, mid-term and long-term, respectively.

Managing for Sustainable Reliability



I-35 Corridor improvements are focused on balanced solutions of operating the corridor efficiently and safety, managing demand and providing multi-modal options for people in an affordable way. These balanced solutions are provided through a common theme to *manage for sustainable reliability.*

The balanced solutions will meet the I-35 vision for a sustainable, multi-modal transportation system that maximizes the safety and efficiency of existing and future conditions in order to achieve local and regional transportation and economic goals. The balanced solutions will also address the I-35 guiding principles to:

1. Move people and goods more efficiently,
2. Maximize the safety of the corridor, and
3. Support economic growth in the region.

By achieving the I-35 vision and guiding principles KDOT is Moving I-35 Forward toward managing for sustainable reliability.

Cost estimates were developed at a planning level for this study. There are no TWORKS dollars available for I-35 and implementation of the study recommendations will require future resources that have not yet been secured.

Recommended I-35 Improvements summary Costs (2012 Dollars)

	Capital cost	O&M Cost	Total Cost
Short-Term (2013 – 2020)	$30M	$39M	$69M
Mid-Term (2020 – 2040)	$304M	$45M	$349M
Long-Term (2040 and beyond)	$614M	$89M	$703M

I-35 Moving Forward

The I-35 Corridor Optimization Plan is intended to serve as a living document that can be reviewed and reevaluated at regular intervals by KDOT, MARC and their planning partners to monitor and respond to the evolving operations, conditions and trends of the corridor. The optimization plan is comprised of a detailed description of the preferred strategy and five individual plans focused on key future planning elements. Implementation of the preferred strategy is planned to occur in phases over the next 30 years, as corridor conditions warrant their implementation.

These individual plans help guide the study team with its decision-making process for the corridor moving forward. The *I-35 Moving Forward Plan* is made up of five individual plans, as well as immediate next steps.

- Corridor Technical Plans
- Funding and Financing Plan
- Policy and Governance Plan
- Public Engagement Plan
- Corridor Monitoring Plan
- Next Steps

The I-35 Corridor Optimization plan developed short-term, mid-term and long-term recommended improvements for the I-35 corridor in Johnson and Wyandotte Counties. In order to keep the I-35 momentum "Moving Forward," KDOT and MARC have identified a list of cost-effective priority projects to advance the short-term recommendations. An initial list of 15 possible projects including both projects where further study is needed and implementable projects in the corridor was developed by the study team and reviewed with KDOT, MARC and the Advisory Group. Based on feedback from the Advisory Group, KDOT will decide which projects to move forward within the short-term.

I-35 Projects Moving Forward (2013 – 2020) Next Step Possible Projects

A. ITS

1 Ramp Metering Implementation

2 Advanced Traveler Information Public Awareness Campaign

3 Enhanced Traffic Incident Management Plan

4 Arterial Dynamic Message Signs Plan

B. Multi-Modal

5 Expand Johnson County Transit Bus on Shoulder

C. Shoulder Running

6 Shoulder Running Plan

D. Fix Bottlenecks

7 Preliminary Engineering for mainline through 75th Street

8 Add a continuous auxiliary lane from SB Mission on-ramp to 18th St. Expressway off-ramp

9 Detailed geometrics study of proposed improvements (Plan Plates)

E. Managed Lanes

10 Feasibility Study (Traffic and Revenue)

F. Policy, Governance and Legislative Plan

11 Develop Shoulder and Managed Lane Governance Plan

G. Funding and Financing Plan

12 Develop local partnership funding next steps

H. Public Engagement Plan

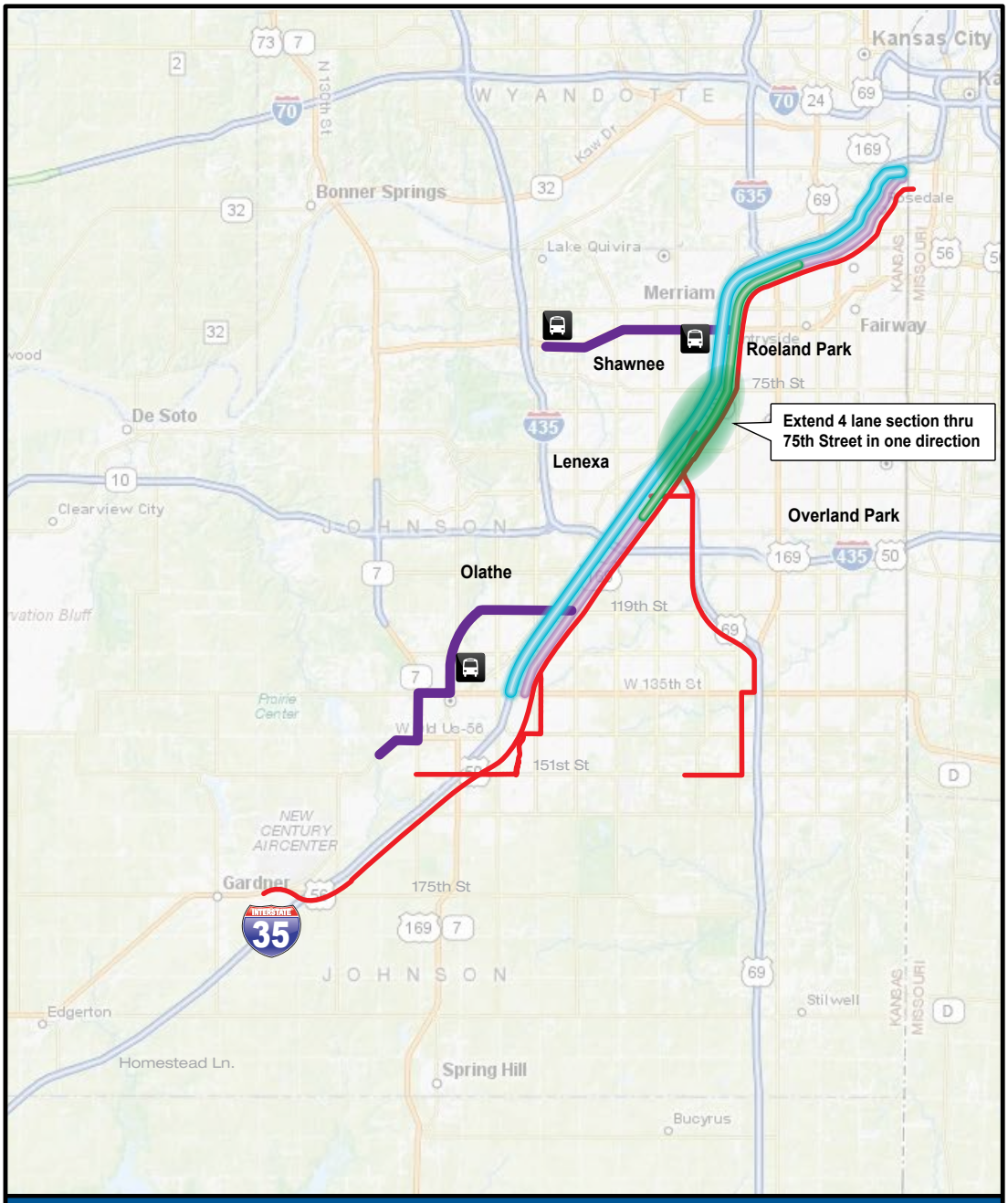
13 Messaging the I-35 Plan to other stakeholders (community leaders, legislators, general public, interest groups, etc.)

I. Performance Monitoring

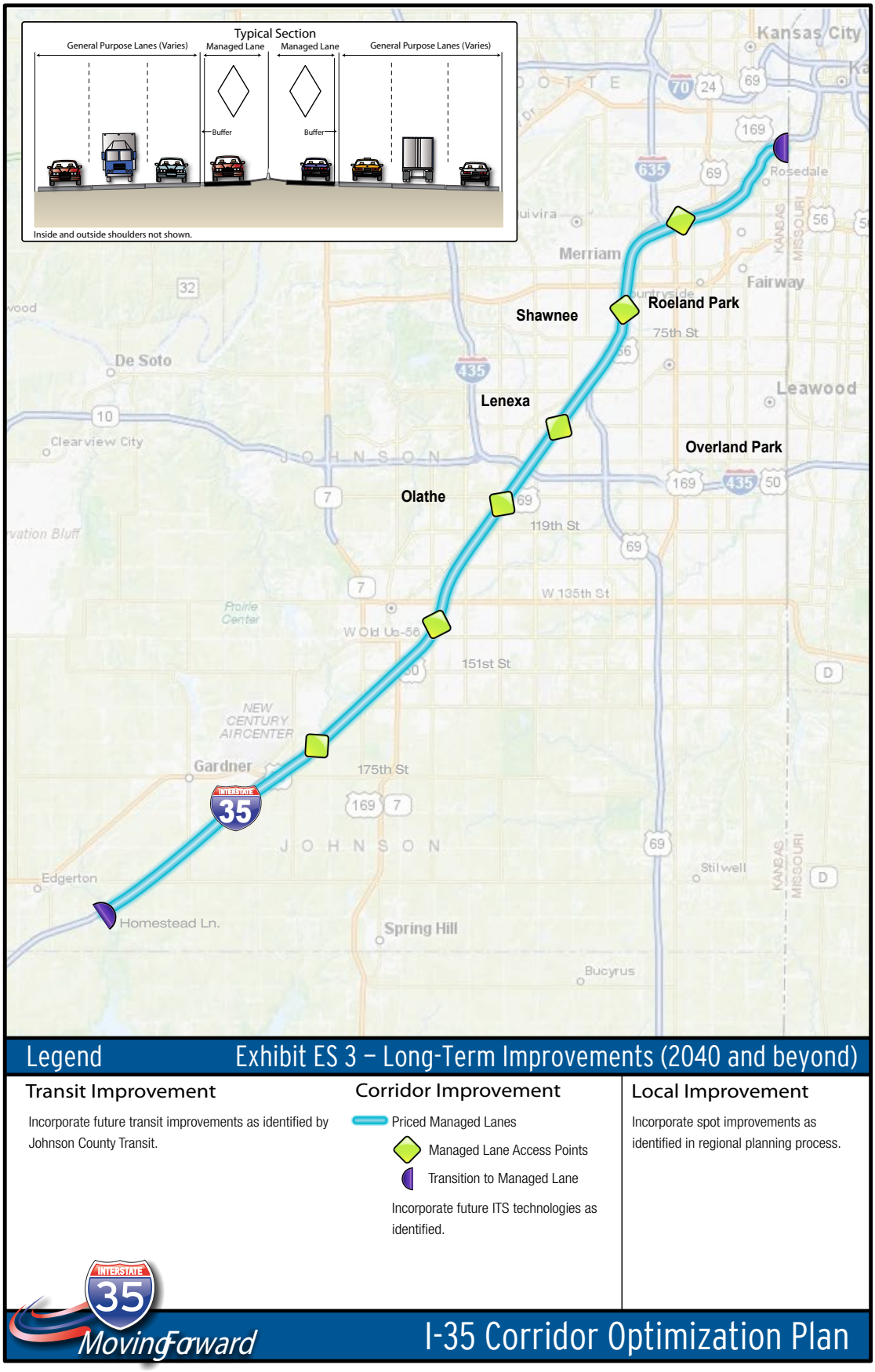
14 Conduct motorist survey to determine baseline satisfaction with current I-35 conditions

15 Establish Performance Monitoring Program for I-35

KDOT and MARC accept the final report of the I-35 Corridor Optimization Study for use in the next update of the Transportation Outlook 2040.


Kansas City
Bonner Springs
Lake Quivira
Merriam
Fairway
Roeland Park
Shawnee
75th St
Extend 4 lane section thru 75th Street in one direction
De Soto
Lenexa
Clearview City
Overland Park
Olathe
119th St
W 135th St
151st St
Prairie Center
NEW CENTURY AIRCENTER
Gardner
175th St
Edgerton
Homestead Ln.
Spring Hill
Stilwell
Bucyrus
JOHNSON
WYANDOTTE
Legend
Exhibit ES 1 – Short-Term Improvements (2013 – 2020)
Transit Improvement
Existing Bus On Shoulder
Expanded Bus on Shoulder
Existing Xpress Routes with Service Enhancements
New Xpress Routes
New Park and Ride Lots
Corridor Improvement
Enhanced ITS
Ramp Metering
Enhanced Traffic Incident Management
Interchange Approach Arterial Dynamic Message Signs
Transit Priority at Interchanges
Local Improvement
Bottleneck Improvement
I-35 MovingForward
I-35 Corridor Optimization Plan


Typical Section
Hard Shoulder
Running
General Purpose Lanes (Varies)
General Purpose Lanes (Varies)
Hard Shoulder
Running
¹ Could be inside or outside shoulder use.
Inside shoulder not shown.
Southwest Trafficway/Broadway Improvements (MoDOT)
I-635 Partial Improvements
New Lamar Interchange
Extend 4 lane section thru 75th Street in the other direction
Extend 6 lane section near 167th Street to 175th Street
Merriam
Fairway
Roeland Park
Shawnee
75th St
De Soto
Lenexa
Clearview City
Overland Park
Olathe
119th St
W 135th St
Prairie Center
W Old Us-56
151st St
Gardner
175th St
JOHNSON
Edgerton
Homestead Ln.
Spring Hill
Bucyrus
Stilwell
Rosedale
KANSAS
MISSOURI
Legend
Exhibit ES 2 – Mid-Term Improvements (2020 – 2040)
Transit Improvement
Expanded Bus on Shoulder
New Xpress Routes
New Park and Ride Lots
Corridor Improvement
Shoulder Running (includes BoS)
Active Traffic Management
Crash Investigation Sites
Ramp Metering (extended to 175th)
Interchange Approach Arterial Dynamic Message Signs (extended to Homestead Ln.)
Bike/Pedestrian Enhancements at Interchanges
Local Improvement
Bottleneck Improvement
New Auxiliary Lanes
I-35 Corridor Optimization Plan


Typical Section
General Purpose Lanes (Varies)
Managed Lane
Managed Lane
General Purpose Lanes (Varies)
Buffer
Buffer
Inside and outside shoulders not shown.
Kansas City
Rosedale
Merriam
Fairway
Shawnee
Roeland Park
75th St
De Soto
Lenexa
Leawood
Clearview City
Overland Park
Olathe
119th St
W 135th St
Prairie Center
W Old Us-56
151st St
NEW CENTURY AIRCENTER
Gardner
175th St
Edgerton
Homestead Ln.
Spring Hill
Stilwell
Bucyrus
JOHNSON
KANSAS
MISSOURI
Legend
Exhibit ES 3 – Long-Term Improvements (2040 and beyond)
Transit Improvement
Incorporate future transit improvements as identified by Johnson County Transit.
Corridor Improvement
Priced Managed Lanes
Managed Lane Access Points
Transition to Managed Lane
Incorporate future ITS technologies as identified.
Local Improvement
Incorporate spot improvements as identified in regional planning process.
Moving Forward
I-35 Corridor Optimization Plan