In Collaboration with:

City of Belton
Cass County
FHWA
Johnson County
KDOT
MoDOT
City of Olathe
City of Overland Park
South Metro Study Team

I. Background

During the Johnson County Board of County Commissioner’s (JCBOCC) meeting on November 15th, 2007, it was decided that the South Metro Connection (SMC) Study would move forward for further study as a 2-lane roadway versus the Concept 3, 4-lane roadway as originally recommended by the SMC Study Team. Furthermore, the JCBOCC requested that the SMC Study Team develop and evaluate 2-lane roadway concepts which (1) meet the basic purpose and need of the SMC (see Exhibit 3); (2) provide for a 45mph posted speed, 2 lanes with 10’ shoulders, 100-120 foot right of way and truck restrictions; and (3) that the 2-lane roadway generally follow the recommended preferred alignment. This report summarizes the additional evaluation of the new 2-lane roadway concepts.

II. Description of Alternative Concepts

All the concepts being evaluated utilize Concept 2a as a base. Concept 2a is comprised of all planned roadway improvements from the local jurisdictions involved including Overland Park, Belton, Johnson County, Cass County, and the Mid-America Regional Council (MARC). These planned improvements include making 2-lane improvements to 175th Street and most of the other existing section line roads. The following are the new 2-lane concepts:

Concept 2c adds a 2-lane missing links roadway along 175th/179th Streets to Concept 2b which was called “The Missing Links”. The new missing links Concept 2c includes: (1) filling in the gaps along 183rd Street between Nall Avenue and Holmes Road, (2) upgrading 195th/199th Street from a 2-lane to a 4-lane roadway from Mission Road to Holmes Road, (3) adding a new SMC 2-lane alignment from Metcalf Avenue to Nall Avenue, following the existing alignment from Nall Avenue to just west of Kenneth Road, and adding a new 2-lane alignment from Kenneth Road to Holmes Road.

Concept 2d is comprised of adding a new 2-lane alignment from Metcalf Avenue to Nall Avenue, following existing alignment from Nall Avenue to just west of Kenneth Road, and adding a new 2-lane alignment from Kenneth Road to Holmes Road.
South Metro Study Team

III. Evaluation/Recommendation

Concepts 2c and 2d were evaluated and compared to Concept 3 based on a number of factors including alignment, traffic, project cost, displacements, and potential environmental impacts. The results are included in Exhibit 1 and the highlights of the results are described as follows:

Alignment – Given the smaller footprint of the 2-lane section and the objective to utilize as much of the existing roadways as possible, a modification to the alignment recommended with Concept 3 is possible. Instead of heading southwesterly immediately following the railroad crossing, the SMC alignment could follow 175th Street until reaching Nall Avenue, at which point, it could head southwesterly joining with 179th Street at Metcalf Avenue (see attached Exhibit 2). The EA process will determine if the “through Nall” modification or the original “diagonal” alignment is preferred.

Traffic - The new two-lane concepts were evaluated to determine if they met the basic requirements of roadway capacity. New traffic model runs were performed with the following results:

- Concept 2c and 2d (as compared to Concept 2a) provided a travel time savings of 4 minutes along the preferred alignment from US 69 to Holmes Road. Concept 3 provided a 7 minute travel time savings.
- Traffic volumes on the new 2-lane SMC alignment were generally about 15,000 vehicles per day which is the capacity of a 2-lane roadway. These volumes compare to the 37,000 vehicles per day of the 4-lane Concept 3 roadway. These volumes also represent the amount of traffic drawn from the surrounding local street network. Concept 2c and 2d resulted in a 2% reduction of traffic on the surrounding local streets while Concept 3 resulted in a 3% reduction.

Project Cost - The cost estimates for each concept include pavement, grading, access roads, hike and bike trails, landscaping, major drainage structures, bridge structures, utilities, right of way, engineering and administration costs, and a 20% contingency in 2007 dollars. Concept 2c was the most expensive at $108 million due to the other missing link improvements. Concept 2d was the least expensive at $63 million ($19 million cheaper than Concept 3) due to (1) the savings from not building two additional lanes of pavement and bridges and (2) the smaller right-of-way footprint.

Displacements – Concepts 2d and 3 had the same number of displacements at 10. Concept 2c had 2 additional displacements due to the missing link improvements along 183rd Street.

Environment – The reduced footprint of the 2-lane roadway reduces the potential impact to the natural environment. Concept 2d has fewer potential environmental impacts than Concept 2c, since 2c also impacts environmental features with two additional creek crossings along 183rd Street. At this time it appears that Concepts 2c and 2d could proceed as Environmental Assessments; however, the EA could be elevated to an Environmental Impact Statement depending on the controversy and issues that might be discovered during the remainder of the study.
**Recommendation** – Given the constraint of studying a 2-lane facility, the SMC Study Team recommends to proceed with Concept 2d through the environmental documentation process. While both concepts provide the same basic traffic levels of service (both in travel time and reduction in local street network traffic), Concept 2d is clearly the most cost-effective alternative with a project cost estimate of $63 million in 2007 dollars versus $108 million for Concept 2c. Furthermore, the study team feels Concept 2d meets the basic purpose and need of the project. This is due to its ability to still accommodate a significant amount of east-west traffic through restrictions in access and a 45mph posted speed.

### Exhibit 1

<table>
<thead>
<tr>
<th>Evaluation Measures</th>
<th>Concept 2c</th>
<th>Concept 2d</th>
<th>Concept 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Lane Undivided Shoulders / Ditch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROW = 100’-120’</td>
<td>15</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Travel Time between US 69 &amp; Holmes</td>
<td>108</td>
<td>63</td>
<td>82</td>
</tr>
<tr>
<td>(minutes)</td>
<td></td>
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<tr>
<td>Cost ($ millions)</td>
<td>14,662</td>
<td>15,825</td>
<td>37,339</td>
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<tr>
<td>Traffic Volume ADT (SMC Align.)</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
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<tr>
<td>Average % Reduction of Traffic on Local</td>
<td></td>
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<tr>
<td>Streets</td>
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<tr>
<td>Displacements</td>
<td>12</td>
<td>10</td>
<td>10</td>
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</tbody>
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PURPOSE OF THE STUDY

To improve access, mobility, and safety between Johnson and Cass Counties by assessing transportation needs and alternatives related to the east-west travel connection from the North Cass Parkway at Route D to US 69, while respecting the environmental constraints and quality of life concerns. The need for these improvements is supported by the recommendations contained in the Mid-America Regional Council Perimeter Transportation Needs Assessment Study, the North Cass Parkway Study, and Johnson County’s Comprehensive Arterial Road Network Plan.

NEEDS FOR THE STUDY

Based on both the existing and the projected future conditions described in the pages that follow, eight primary needs for the project were identified. These needs include the following:

1. **Regional Growth** – has resulted in more travel demand and cross-suburb travel.

2. **Johnson/Cass County Growth** – both counties have experienced and will continue to experience growth in employment and population.

3. **Jobs / Housing Location** – more limited housing options near employment centers in southern Johnson County, means growing commute movements from Cass County through this area and the region.

4. **System Linkage** – there are limited routes available to serve movements between Johnson County and northern Cass County.

5. **Capacity** – the main routes that serve the east-west travel in the southern part of the Kansas City region (I-435 and 135th/M-150) are congested and are expected to be highly congested 20+ years in the future.

6. **Roadway Deficiencies** – of the roads available for this movement of people and goods, many are circuitous and have very low capacity.

7. **Transit Service** – is a vital complementary component of the transportation options available to users of the region. The South Metro Connection study needs to continue to be aware of the transit plans, such as Smart Moves, and support the plans where possible.

8. **Bicycle and Pedestrian Routes** – do not connect across the state line in the study area limiting use of these modes. However, the study provides an opportunity to identify potential routes within the study corridor to work with future recommendations or accommodate future options.