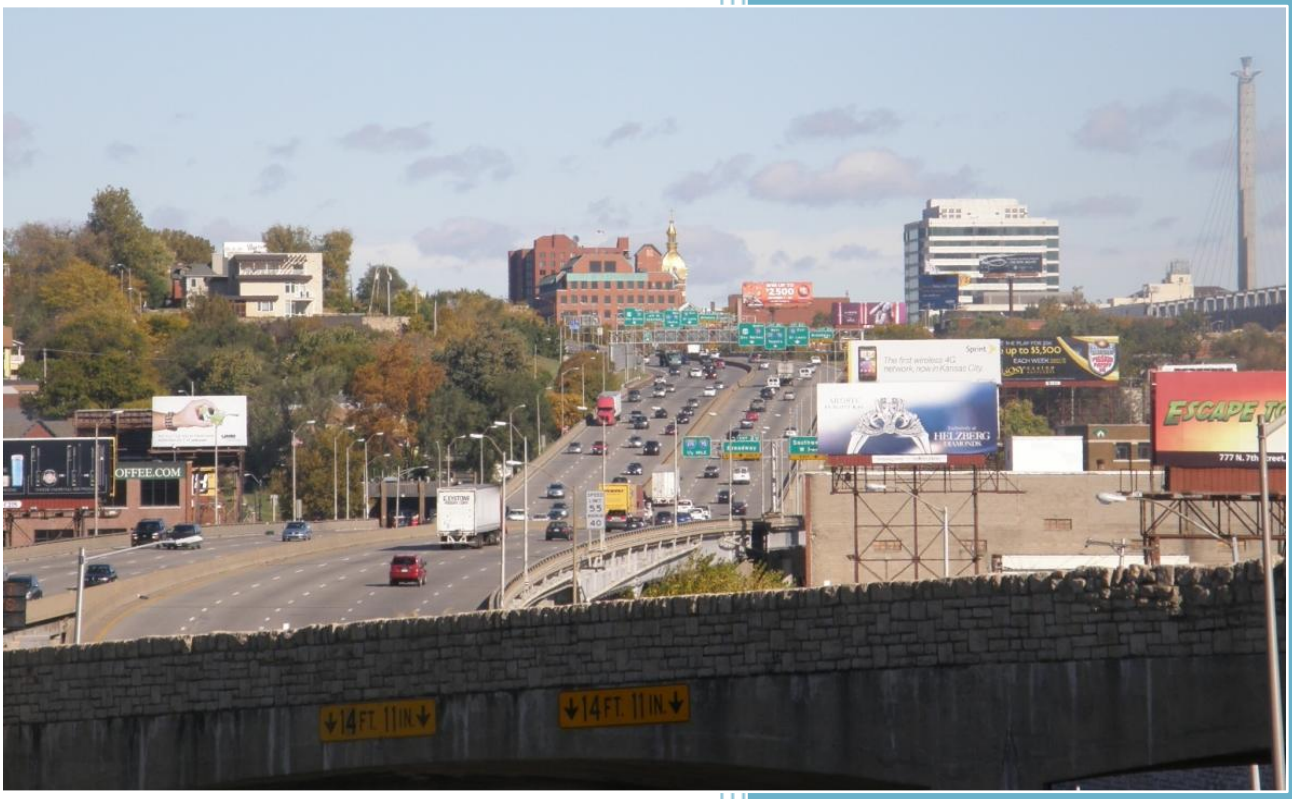
2011

I-35 OPERATIONAL STUDY



Prepared by MoDOT

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Background

In 2008, the Missouri Department of Transportation (MoDOT) started the first phase of environmental study on I-70 in Jackson County. This First Tier Environmental Impact Statement (FTEIS) for the I-70 corridor stretches from the Kansas (Kan.) state line to east of the I-470 interchange including Kansas City's downtown freeway loop. During the public outreach for the first tier improvement strategies, MoDOT received feedback that the section of I-35 from the southwest corner of the downtown loop to the Kan. state line should be included in the FTEIS.

The study area had not been included in any previous studies, including the Northland-Downtown Major Investment Study (MIS), the I-29/35 Paseo Bridge Environmental Impact Statement, the I-35 Transit Alternatives Analysis, and the Kansas Department of Transportation's (KDOT) I-35 MIS. I-35 from I-670 to the Kan. state line was included in the Greater Downtown Area Plan, but because this section of interstate has not been included in recent downtown transportation studies, an Operational Study was necessary to determine if there were transportation issues that needed to be addressed on I-35.

Study Purpose

MoDOT is conducting an operational study to develop potential improvements for approximately two miles of I-35 in the Kansas City metropolitan area. The study is intended to:

- Determine the current and future operational needs of the existing I-35 corridor
- Develop improvement concepts for addressing those needs
- Recommend a range of concepts to meet identified needs in the I-35 corridor

The goal of this operational study is to evaluate any deficiencies in the existing interstate to determine current and future transportation needs on I-35 and suggest concepts for addressing the needs. The study will examine existing conditions, crash data, traffic patterns and future traffic volumes, socioeconomic and environmental information and develop the most practical improvements that meet the transportation needs of the corridor.

Because the study area is among some of the oldest developed portions of Kansas City, the intent is to keep any potential concepts within the existing right-of-way (ROW) and minimize impacts to the surrounding neighborhoods. Concepts that add or remove access might affect ROW, however, no additional lanes will be added to the highway.

The study's range of concepts will guide MoDOT activity in the I-35 corridor and the southwest corner of the downtown loop.

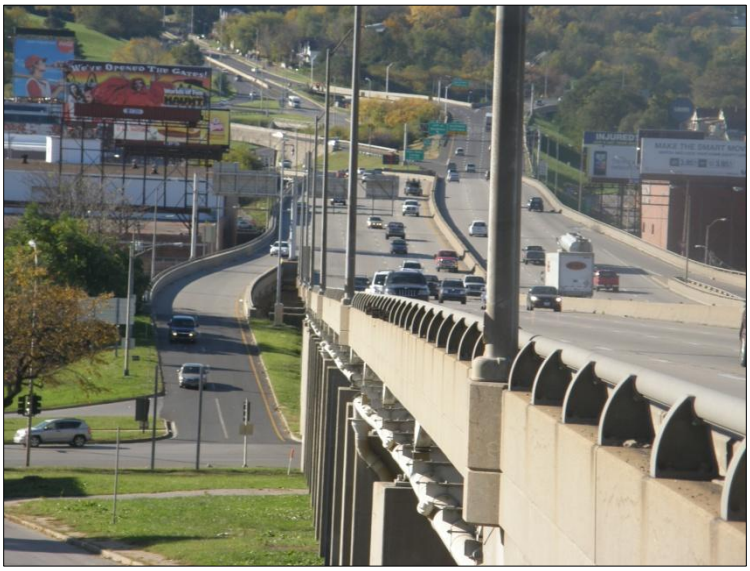
Study Area

I-35 Operational Study corridor is approximately 2.5 miles long and stretches 300 feet on either side of I-35 from 12th Street to the Kan. state line. The study corridor touches several neighborhoods: Downtown, Westside, Crossroads and Crown Center/Union Station. These neighborhoods have a diverse history, development pattern and transportation system. Figure 1 shows the study area for the Operational Study.

Facility History

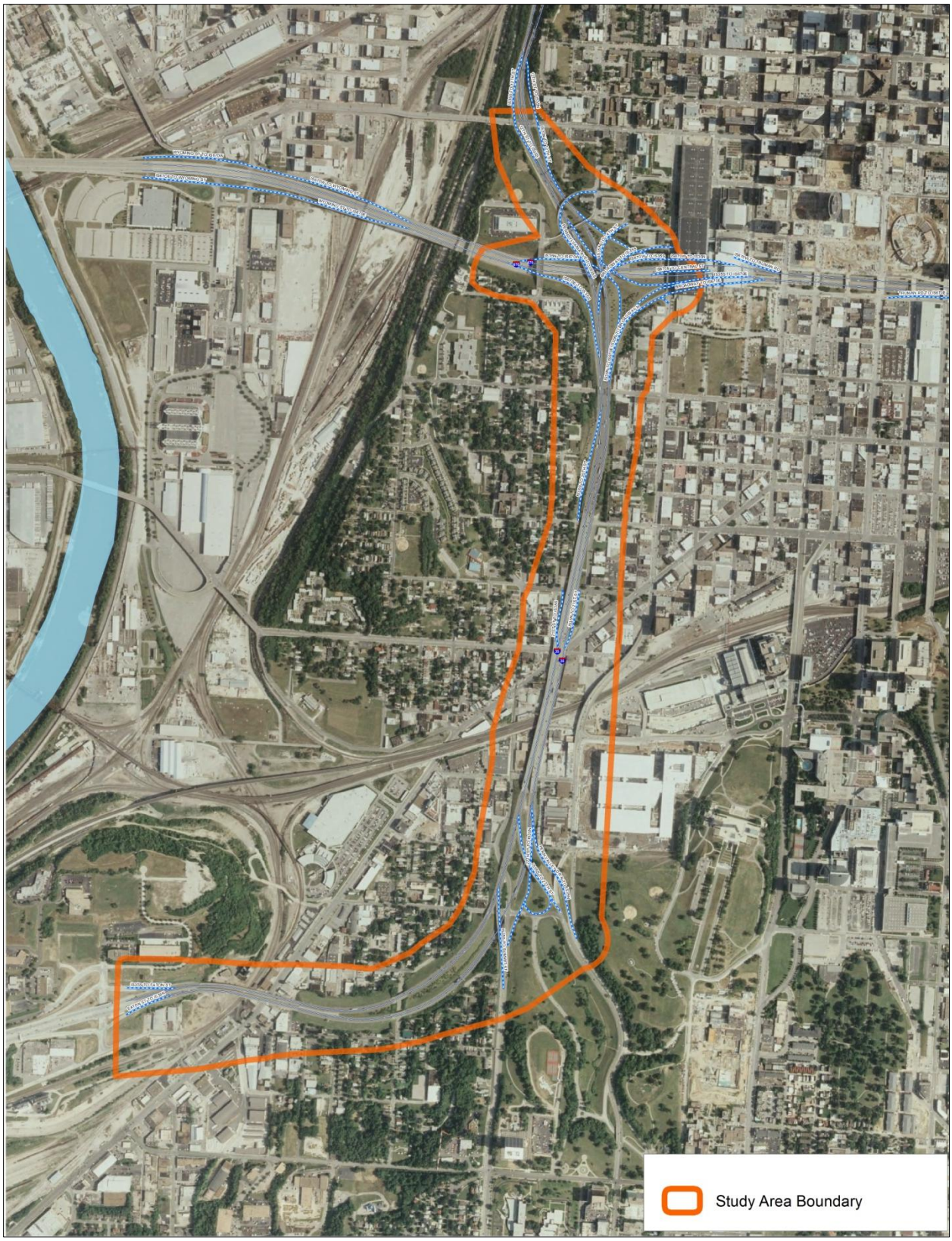
The first section of I-35 was built in the late 1940s as a part of the Southwest Trafficway, a crosstown freeway. The crosstown freeways were an effort to improve urban congestion in the late 1940s. According to MoDOT's Historic Preservation Section, the Mo. State Highway Department recommended a series of limited access highways to connect the congested urban core with the rapidly growing suburban areas of Waldo, Brookside and the Country Club Plaza. During the late 1950s, I-35 construction began in several states. The connection from the Kansas Turnpike in Ottawa, Kan., to Kansas City, Mo., began in the late 1960s, and this portion of Southwest Trafficway was incorporated into I-35 in the 1960s.

Picture 1 – Viaduct from 20th Street over Kansas City Terminal Railway



In the study corridor, the roadway contains twenty-three bridges built between the late 1940s and the late 1960s. One of the original Southwest Trafficway bridges is a viaduct that runs through residential and commercial neighborhoods and over the Kansas City Terminal Railway. This bridge is over 2,900 feet long (0.5 miles).

Figure 1- I-35 Project Location Map



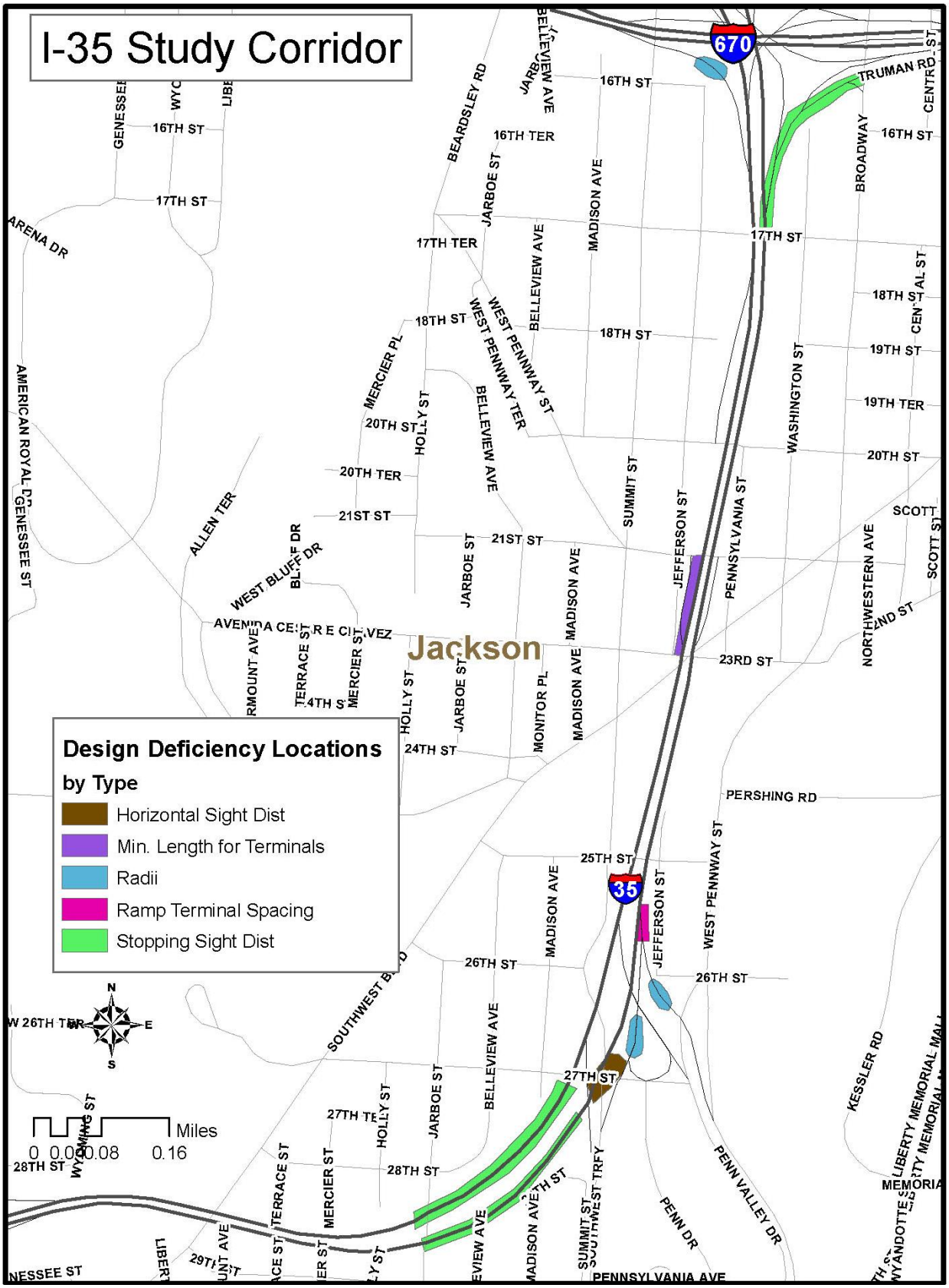
Existing Conditions and Operational Review

An existing conditions review looks at the design of the roadway, condition of the roadway and bridges, traffic flow and volume, future volumes and crashes in the corridor. Detailed tables for the existing conditions review can be found in Appendix A.

Existing Conditions

Design standards insure continuity in the design of roadways and safe operation. The largest section of roadway in the study area was designed and built in the late 40s, and the rest of the interstate was built in the 1960s. Design standards have changed in the intervening years, so certain parts of the corridor do not meet current standards. This section reviews the areas that do not comply with current guidelines to determine if there is a significant safety or operations impact. Design components reviewed in this corridor include: horizontal alignment, curvature, sight distance, stopping sight distance, shoulder width, pavement condition, neighborhood access and mobility, ramp spacing and bridge condition, crash summary, traffic volumes and future traffic volume projections. Figure 2 shows the locations of design deficiencies in the study corridor.

Figure 2- Design Deficiencies in the Study Corridor



Horizontal Alignment

The horizontal alignment of a roadway depends on the terrain of the land through which the road is built. When curves are too sharp, drivers can have trouble controlling their vehicle and staying on the roadway. Drivers also have trouble seeing around sharp curves. An appropriate horizontal alignment provides drivers with adequate sight distance to comfortably navigate curves and hills at the posted speed. Picture 2 shows the horizontal alignment issues at the convergence of the Broadway and Southwest Trafficway entrance ramps to northbound I-35.[1]

Curvature

Figure 2 shows three locations in the study corridor where the curves do not meet current standards. The entrance ramps from Southwest Trafficway and Broadway to northbound I-35 both have curves that are tighter than current standards allow. The third location is on the I-670 exit ramp to southbound I-35. This ramp curves around a hill, and drivers are not able to see around the corner to the merge with the interstate.

Picture 2 – Horizontal Alignment at Southwest Trafficway and Broadway Ramps

[1] *Google Streetview Map of Broadway and Southwest Trafficway entrance ramps on I-35 in Kansas City, MO. 2010*

Sight Distance

Sight distance is a term that refers to how far ahead a driver can see before the line of sight is blocked. Figure 2 shows locations where the horizontal sight distance does not meet current standards. At 27th Street, interstate travelers are coming from the south at an angle that is below Southwest Trafficway and Broadway. Likewise, drivers on the northbound Southwest Trafficway and Broadway ramps are unable to see cars on I-35 as they come up from behind as shown in Picture 3.

Picture 3 – Non-Standard Sight Distance

Stopping Sight Distance

Stopping sight distance refers to the distance that a driver needs to recognize that there is a condition ahead that requires the vehicle to stop. There are two locations in the study corridor where the stopping sight distance does not meet current standards. I-35 has a long sweeping curve in both northbound and southbound directions between 27th Street and the viaduct over Southwest Boulevard. As drivers head toward downtown on northbound I-35 the highway is below the surrounding development. Drivers navigate under 27th Street on a curve, so sight distance is obstructed by the angle of the culvert walls and 27th Street.

Shoulder Width

I-35 incorporates sections of roadway built in different decades. Design standards change over time, and this is reflected in the shoulder widths of different sections of the interstate. Current desired shoulder width on interstates is 10' on the outside with a minimum four foot shoulder on the inside. Shoulders widths on the existing facility vary from one foot to eight feet. Figure 3 shows the total widths for the inside and outside shoulder on northbound and southbound I-35. A large segment of the corridor has shoulders that are three feet wide or less.

The I-35 Transit Alternatives Analysis proposes bus-on-shoulder operations in the I-35 corridor. However, as shown previously, there are insufficient shoulder widths in most of the study corridor to support bus-on-shoulder operations. Due to constraints in the corridor, adding shoulder width to the interstate would be highly disruptive to the neighborhoods and very costly. This also conflicts with MoDOT's commitment to staying within existing ROW

Pavement Condition

MoDOT rates pavement condition using an index from 0-20. See the Condition Index in Table 1. The Condition Index rating system is based on the visual condition of the road and reviews cracking, patching, potholes, raveling, spalling and joint condition. The average pavement rating in the northbound section of the study corridor is 18.3, with scores ranging from 16.4 – 19.8. Pavement condition southbound is slightly higher with a range from 16.0 to 20, with most of the corridor above 17 and an average pavement rating of 18.7. See Appendix B for a detailed table of pavement conditions in the study corridor.

Table 1 – Pavement Condition Index

Interstate Condition Index	
Rating	**Value**
Very Good	20.0 - 18.9
Good	18.8 - 17.8
Fair	17.7 - 16.4
Poor	16.3 - 15.3
Very Poor	15.2 - 0.0

Interchange Spacing

Adequate spacing between interchanges is required to give drivers enough space to change lanes when entering and exiting the freeway. According to MoDOT's Engineering Policy Guide (EPG), the optimum spacing for ramps in urban areas is two to three miles apart, although, spacing less than two miles apart may be acceptable based upon the traffic analysis. [2] Interchange spacing varies through the study corridor with some distances meeting the current standards and some interchanges providing less than half of a mile for drivers to merge to and from ramps.

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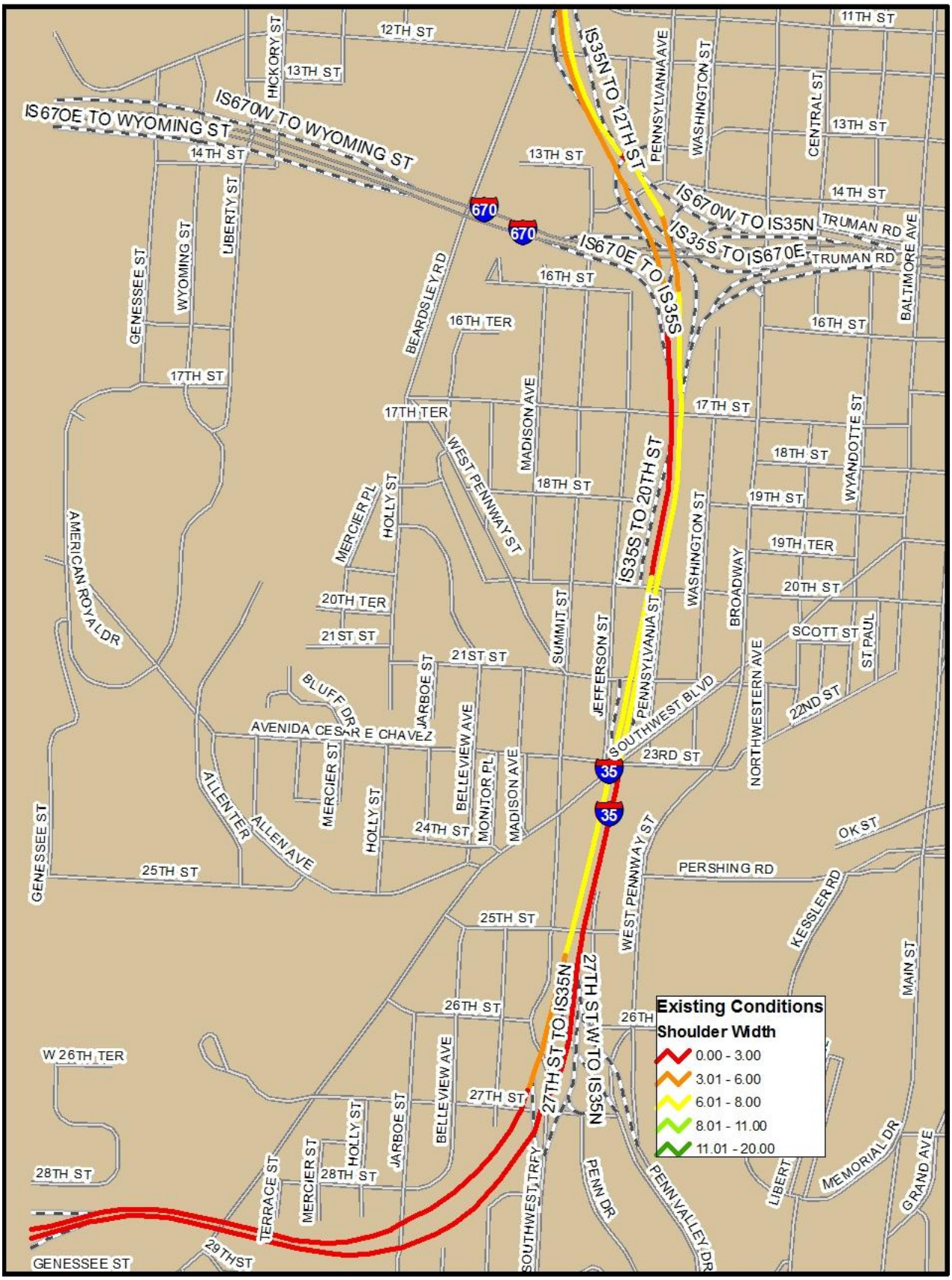
[2] *Interchange spacing standards from MoDOT's Engineering Policy Guide. http://epg.modot.mo.gov/index.php?title=940.2_Spacing_between_Interchanges*

Figure 3 – Shoulder Width in the Study Corridor



Interchanges that are less than a mile apart are spread through the study area. Northbound, the interchanges at Southwest Trafficway/Broadway and West Pennway are less than a mile apart. Southbound, the 12th Street interchange and the first ramp in the I-670 interchange are less than 700 feet apart. Likewise, the I-670 interchange ramps to southbound I-35 are less than half of a mile from the 20th Street interchange. In these situations, current design standards would dictate adding an auxiliary lane or collector distributor road to accommodate lane changes (weaving movements) off the main lanes of the highway to minimize slowdowns and stoppages for through traffic. However, this solution would be extremely expensive and negatively impact the surrounding urban neighborhoods. The only spacing issues that will be addressed are those that can be accommodated within the existing right-of-way.

Bridge Condition

There are 22 bridge structures in the study corridor. Figure 4 shows the locations of each. The remaining bridges in the corridor are shown in Appendix B.

Table 2 – Bridge Condition Ratings

BRIDGE CONDITION RATINGS	
Code	Description
N	NOT APPLICABLE
9	EXCELLENT CONDITION
8	VERY GOOD CONDITION
7	GOOD CONDITION
6	SATISFACTORY CONDITION
5	FAIR CONDITION
4	POOR CONDITION
3	SERIOUS CONDITION
2	CRITICAL CONDITION
1	IMMINENT FAILURE CONDITION
0	FAILED CONDITION

Bridge condition ratings identify and prioritize bridges that need preventative maintenance, complete rehabilitation or replacement. The substructure, superstructure and deck are each rated. The substructure is the foundation of the bridge and consists of the piers and abutments which transfer the load of the bridge deck and superstructure to the soil and rock underneath.[3] The superstructure rests on top of the substructure's piers and abutments and holds the bridge deck which carries vehicle traffic.[4]

The deck, superstructure and substructure of each bridge are rated from 0 to 9, defined in Table 2. When a bridge superstructure or substructure reaches a 2 rating, MoDOT will close the bridge to traffic.

[3] *Information from Answers.com.* http://www.answers.com/topic/bridge#ixzz1BcOKAkvv

[4] *Definition from Answers.com.* http://www.answers.com/topic/bridge#ixzz1BcPEQi6b

Although the bridges in the corridor are in generally good condition, MoDOT has programmed two projects in the study corridor in 2013. Those projects will rehabilitate bridges A1701 and L0232. The bridge deck of bridge A1701 over Southwest Boulevard has a 3 rating, which generally means that the deck is cracked and deteriorating, so drivers will experience a rough ride. All the other bridges in the study corridor have ratings that range from 5-8, so after rehabilitation and with continued preventative maintenance, MoDOT believes these bridges will not need substantial rehabilitation or rebuilding for 20-30 years.

MoDOT standards mandate that bridges over an interstate must be 16‘6” above the roadway, including the shoulders, and bridges over local streets must be 14’6” above the pavement including shoulders. Near the Southwest Trafficway interchange, Table 3 shows that four bridges do not meet current design standards. These bridges were built in the 1950s and 1960s before the current standards were adopted, so because the bridges are in good condition, the clearance height will be addressed whenever the bridges are ready for replacement.

Table 3 – Bridge Clearance Table

Bridge Clearances		
Bridge No.	**Location**	**Clearance**
L0248	S-35 ramp to Broadway over N-35	14ft.11in.
	S-35 ramp to Broadway over N-35 entrance. Ramp	15ft. 6in.
A1708	S-35 over Summit	15ft. 2in.
A1707	S-35 ramp to SW Trafficway over 27th Street	14ft. 3 in.

Figure 4 – Bridge Locations and Numbers in the Study Corridor

Operational Review

This section reviews the operation of the facility or the way traffic flows on the roadway, as well as access, mobility, crash data, current traffic volumes, future traffic projections and level of service (LOS).

Neighborhood Access and Mobility

The Southwest Trafficway was designed and built to serve traffic patterns and design standards in the late 1940s. At that time, Kansas City, Mo., was still the employment and retail/commercial center of the city and region. The Crosstown Freeway was built to help employees get from the emerging suburbs in the Brookside, Waldo, Prairie Village and Roeland Park areas into the downtown employment and retail center. The transportation system was configured to take workers into downtown in the morning and home in the evening. The employment centers that now exist in Johnson County, Kan., Wyandotte County, Kan., Mo. cities north of the river, Independence, Raytown and Lee's Summit, Mo., were not even imagined during the design of the Crosstown Freeway. So, the oldest section of highway in the study area is configured to serve people traveling downtown or Union Station and returning home southbound.

Picture 4 – Uncoordinated Local and State Signage at West Pennway Exit

There is only one direct access point for Crown Center and Union Station when northbound on I-35 at West Pennway, but returning southbound can be difficult. For example, a field check at West Pennway revealed that drivers from Southwest Trafficway and Broadway were entering the interstate northbound, exiting at West Pennway, making a u-turn under the bridge and continuing their trip southbound on I-35. Most of the cars making this maneuver had Johnson County, Kan., license plates.

Picture 5 – Wayfinding Signs at West Pennway Exit

Access to the study area and surrounding neighborhoods is also hindered by the lack of coherent signage strategy between

MoDOT and the City of Kansas City. From 20th Street, there is a wayfinding sign on the ramp for Crown Center, Union Station and Kemper Arena, but there are no local wayfinding signs to help travelers on local streets. Drivers exiting the interstate at West Pennway, are confronted by a confusing selection of state and local signs that do not work together to help drivers get to their final destination. Picture 5 shows a number of non-standard signs that do not provide any clear direction to drivers.

The only access to the Crossroads, Westside and Crown Center from the north is at 20th Street, and depending on the direction of travel may require changing lanes up to four times very quickly. Travel northbound is less difficult, but returning home from the Crossroads area requires going south on Broadway and making a u-turn to go northbound to access I-35. The other choice is to travel north into downtown and enter the interstate at a downtown interchange.

Picture 6 – Confusing Exit Numbers on Northbound I-35

The West Bottoms neighborhood does not directly touch the study area, but as a primarily an industrial area, business owners in the bottoms are very concerned with interstate access and signage. According to the Central Industrial Association, the main issue facing industries and the American Royal is access. Signage on northbound I-35 is confusing to freight drivers who use exit numbers. The three ramps to downtown, eastbound I-670 and westbound I-670 have the same exit number, so three ramps going in three different directions each have the same exit number (2U). This signage confuses drivers and GPS.

Picture 4 – Area under Bridge L0232

In addition to mobility issues on the interstate itself, a large portion of the interstate in the study corridor is built on bridges. These large bridges separate development to the east and west of the structures. Although this is not a direct operational issue for the interstate, it does affect mobility in the neighborhood and mode choice on local streets. Underneath the

bridge structures, the environment is sterile and dark, with sidewalks that have not been upgraded to current standards. The viaduct from 20th Street to the Kansas City Terminal Railway is shown in Picture 7.

The pedestrian environment under the structures could be improved to support walking and biking. An inviting walking environment can help support transit ridership by making stops more accessible to residents. Therefore, the area under the viaduct should be examined to help improve mobility in the surrounding neighborhoods. In addition, by linking the neighborhoods together, MoDOT can support the continued vitality and growth in surrounding neighborhoods.

Crash Analysis

MoDOT's Number One priority is safety. Crash data is used to determine if there are spots in a study corridor that have a higher than expected number of crashes or a high number of disabling or fatal crashes. In order to determine whether the crash rate is high, crash data along a corridor or at an intersection is compared to the average statewide crash rate for similar types of roadways and intersections. This data is matched up with the design review to determine if high accident locations correspond with sites that do not meet current design standards. The analysis looks to identify locations where the design of the roadway could be contributing to a high crash rate.

The initial review of crash data in the study corridor showed that the corridor exceeded the statewide crash rate for interstates. However, a more detailed analysis showed that only one location in each direction exceeded the statewide crash rate. Figures 5 and 6 show crash rates at various locations along the study corridor.

Southbound crash data is shown in Figure 5. Most southbound crashes happened between the 13th Street ramp and the 20th Street exit ramp. Several ramps merge together and a lane of through traffic becomes the 20th Street exit ramp, so through traffic must merge left. Southbound crashes are generally property damage and minor injury only. However, there was one fatality in the southbound direction between 2004 and 2008.

Only a single location northbound exceeds the statewide crash rate. Northbound, the rate between Southwest Trafficway and West Pennway/21st Street exceeds the statewide average. The Southwest Trafficway and Broadway entrance ramps are too close to the West Pennway exit ramp, so there are a number of different lane changes happening in a relatively short space. Most of the crashes in the northbound direction resulted in property damage only or minor injuries. Northbound crash rates by location are shown in Figure 6.

Figure 5 – Southbound Crash Data

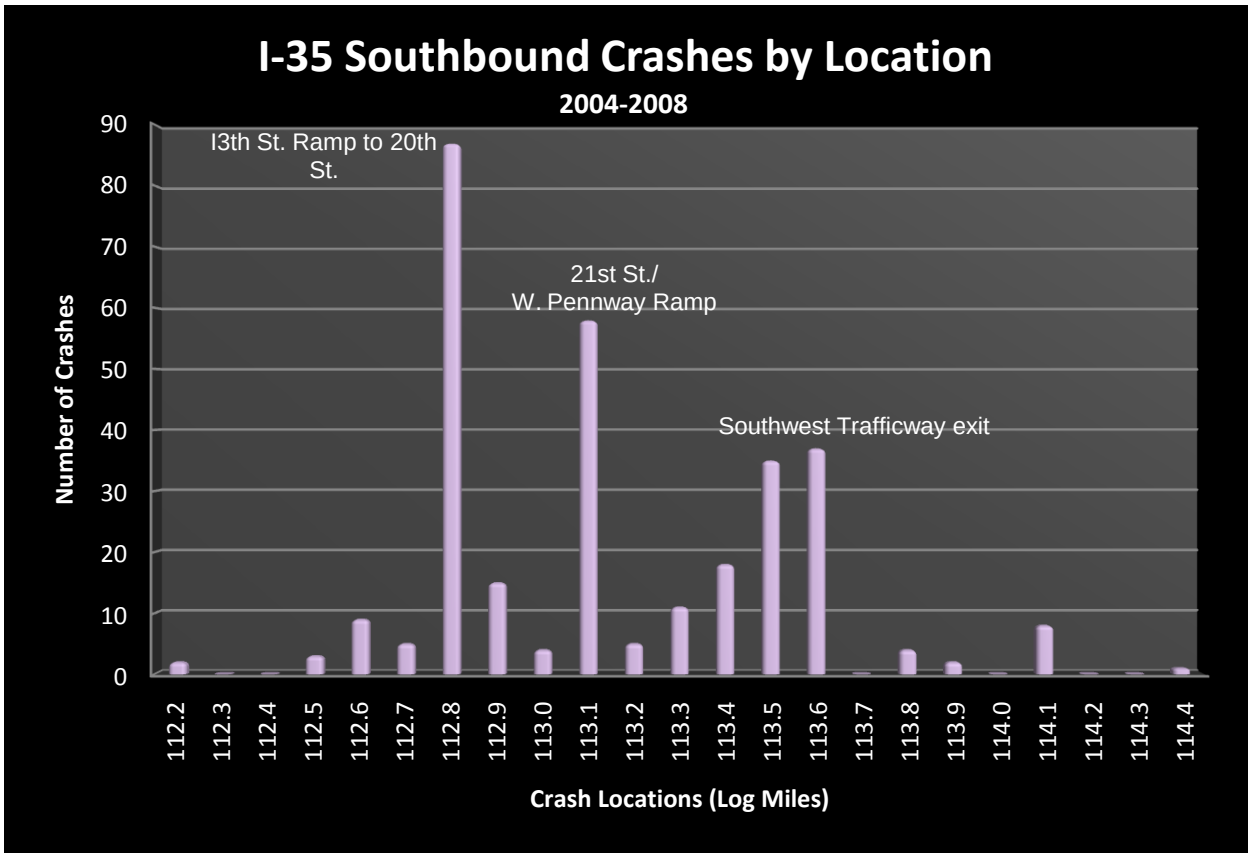
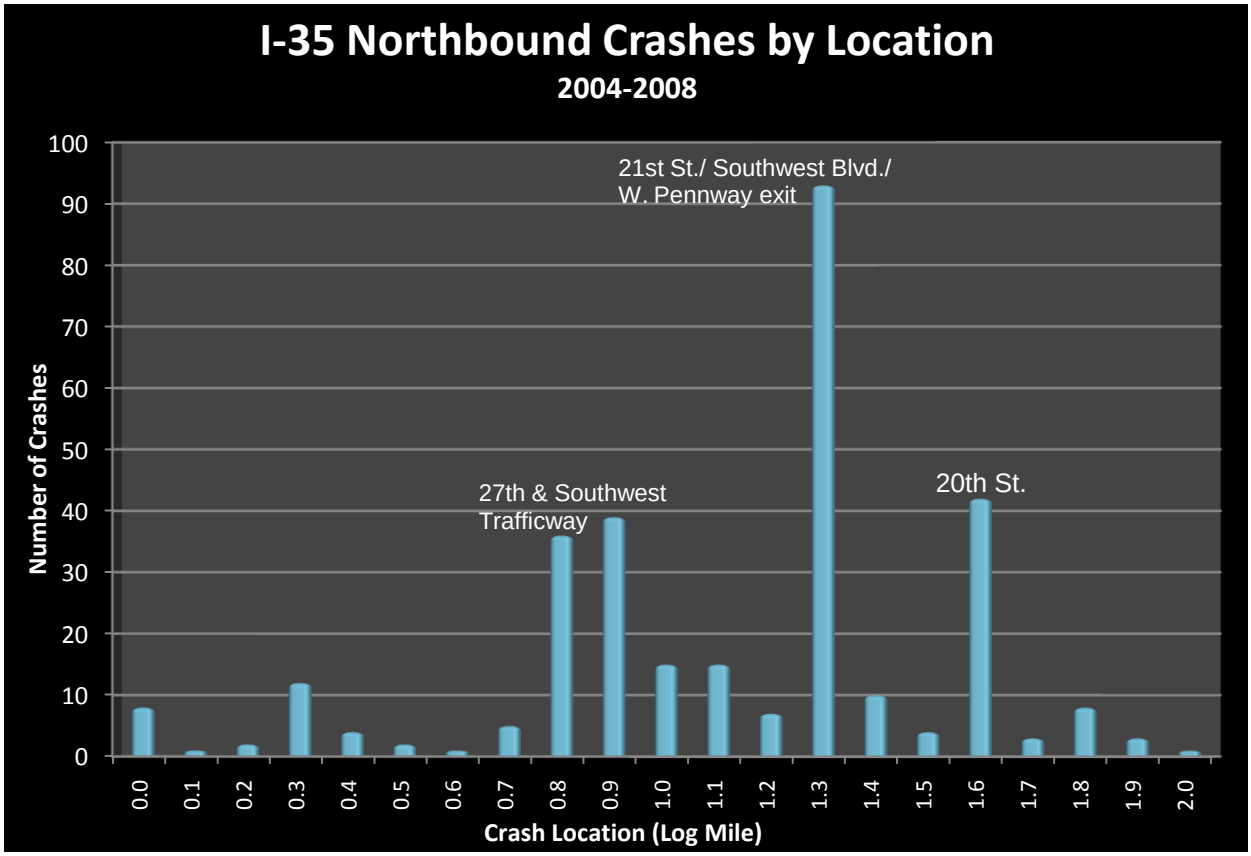


Figure 6 – Northbound Crash Data



Traffic Analysis

Traffic analysis helps planners and engineers analyze the function of a roadway to determine if congestion mitigation solutions are warranted. The duration of the delays and location of congested segments will help determine if any counter measures can or should be applied in the study corridor.

Traffic data was collected and used to calibrate traffic modeling software, which produced the future traffic volumes. Current and future volumes were then compared to the roadway capacity to determine congestion levels and delay.

Existing Traffic Volumes

The first step in the traffic analysis process is to compile existing traffic data in the study corridor. Traffic data is collected at various locations. Because traffic volumes fluctuate by day of the week, time of day and time of the year, traffic counts are generally collected on a regular basis, averaged over a year and reported as Average Annual Daily Traffic (AADT).[5] Figure 7 shows current AADT in the corridor, which ranges from about 30,000 to 70,000.

Forecast Traffic Volumes

The second step in traffic analysis is to forecast traffic volumes for 20 years into the future. Future employment and population estimates are input into the Mid-America Regional Council (MARC) travel demand model to project future interstate volumes. Because the land in and around the study area is generally developed, lower growth rates of 0.5 to 2 percent are applied to existing traffic volumes. The lowest rate, 0.5 percent, is used near downtown and the Westside neighborhood. Closer to the Cambridge exit ramps where more land could be developed a 2 percent growth rate is applied. Figure 7 shows the projected AADT for 2030.

Daily traffic volumes are useful but provide a limited perspective because there is no mechanism for comparing and evaluating the operation of the roadway from the traffic volume alone. A large AADT does not necessarily reflect higher levels of congestion or obstructed traffic flows on the interstate. For example, an AADT of 80,000 could represent grid-lock on one roadway, but the same AADT could represent nearly free flow traffic on another facility.

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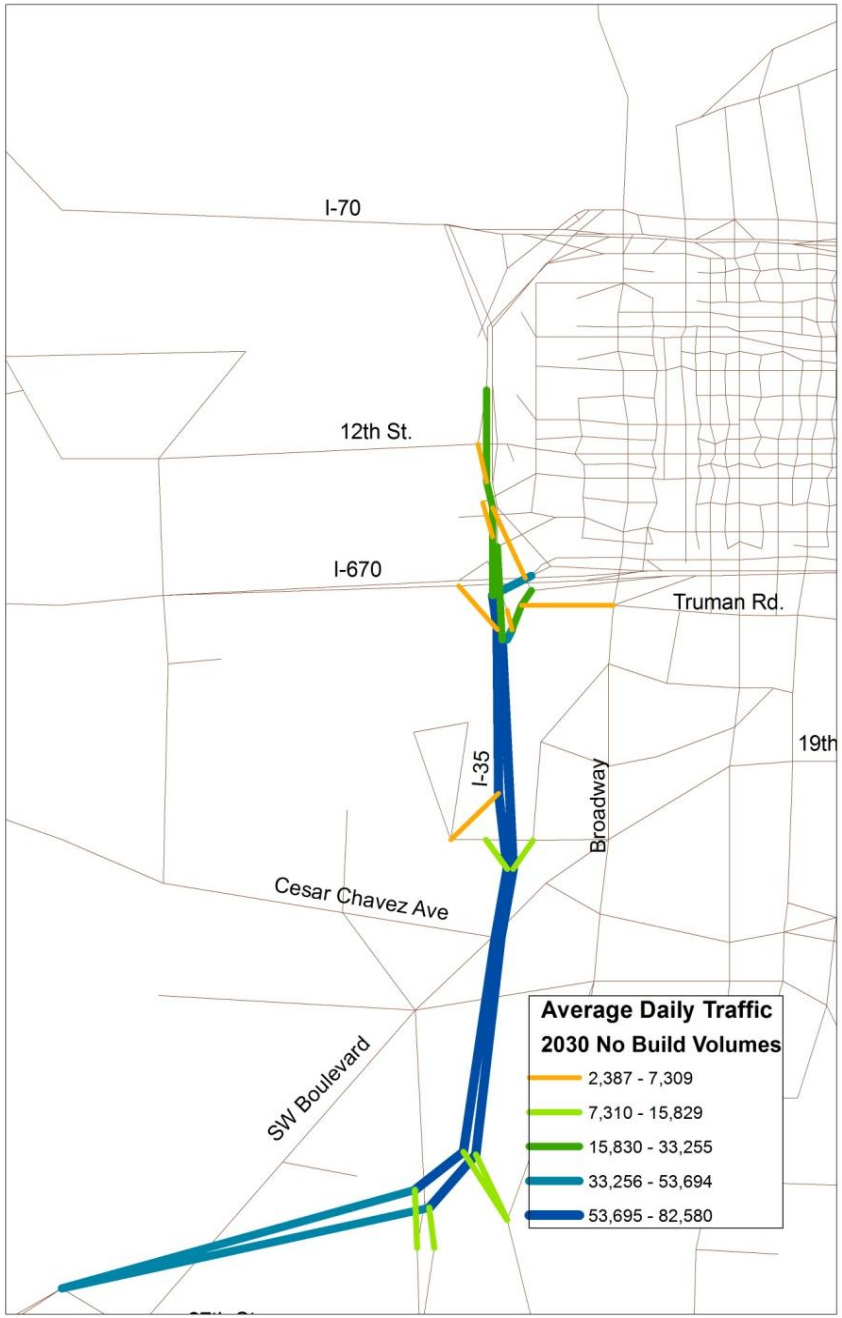
[5] *Wikipedia. Average Annual Daily Traffic definition. http://en.wikipedia.org/wiki/Annual_average_daily_traffic*

Figure 7 – Existing Traffic Volumes and Future Traffic Volume Projections

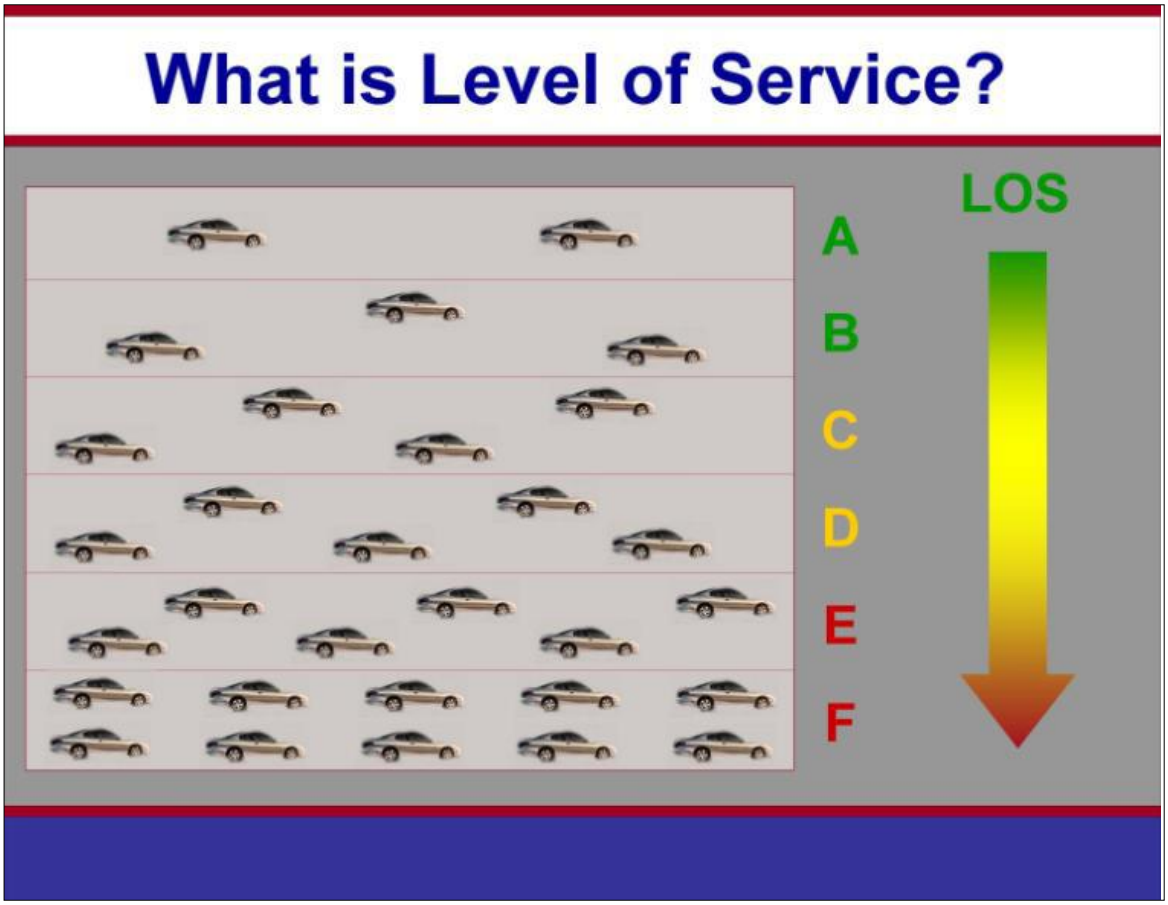


Level of Service

Level of service (LOS) or capacity analysis compares the operation of roadway segments based on the methodology in the Highway Capacity Manual. LOS measures the effect of traffic flow factors such as speed and travel time, interruption, freedom to maneuver, driver comfort, convenience, and indirect safety and operating costs. Peak hour data is necessary to calculate LOS, so peak hour traffic volumes are extracted from the current and projected AADT.

Level of service categorizes roadway operation into six categories that work much like a grade card: LOS A represents the best operation and LOS F represents highly restricted operation. For example, LOS A exists when there is little or no restriction in speed or maneuverability caused by other vehicles, and LOS F exists when traffic moves at low speed, including many stoppages, with the highway acting as a storage area. Figure 8 illustrates the traffic conditions at each LOS level.

Figure 8 – Level of Service (LOS)



Current data for the model was collected in 2008. Figure 9 shows LOS for 2008 morning and afternoon rush hour periods. The corridor operates at an acceptable LOS, with the exception of

one segment. The segment between I-670 and Southwest Trafficway operates at LOS F northbound in the morning rush hour and southbound during the afternoon rush hour.

The future traffic projections assume no physical changes are made to the interstate or interchanges in the study corridor by 2030. AADT and peak hour volumes increase in 2030, and LOS generally shifts lower. By 2030, most of the corridor continues to operate at an acceptable LOS. However, the section between I-670 and Southwest Trafficway shows significant congestion in the future. Figure 10 shows LOS for 2030.

Figure 9 – Current (2008) Level of service – AM and PM Rush Hour

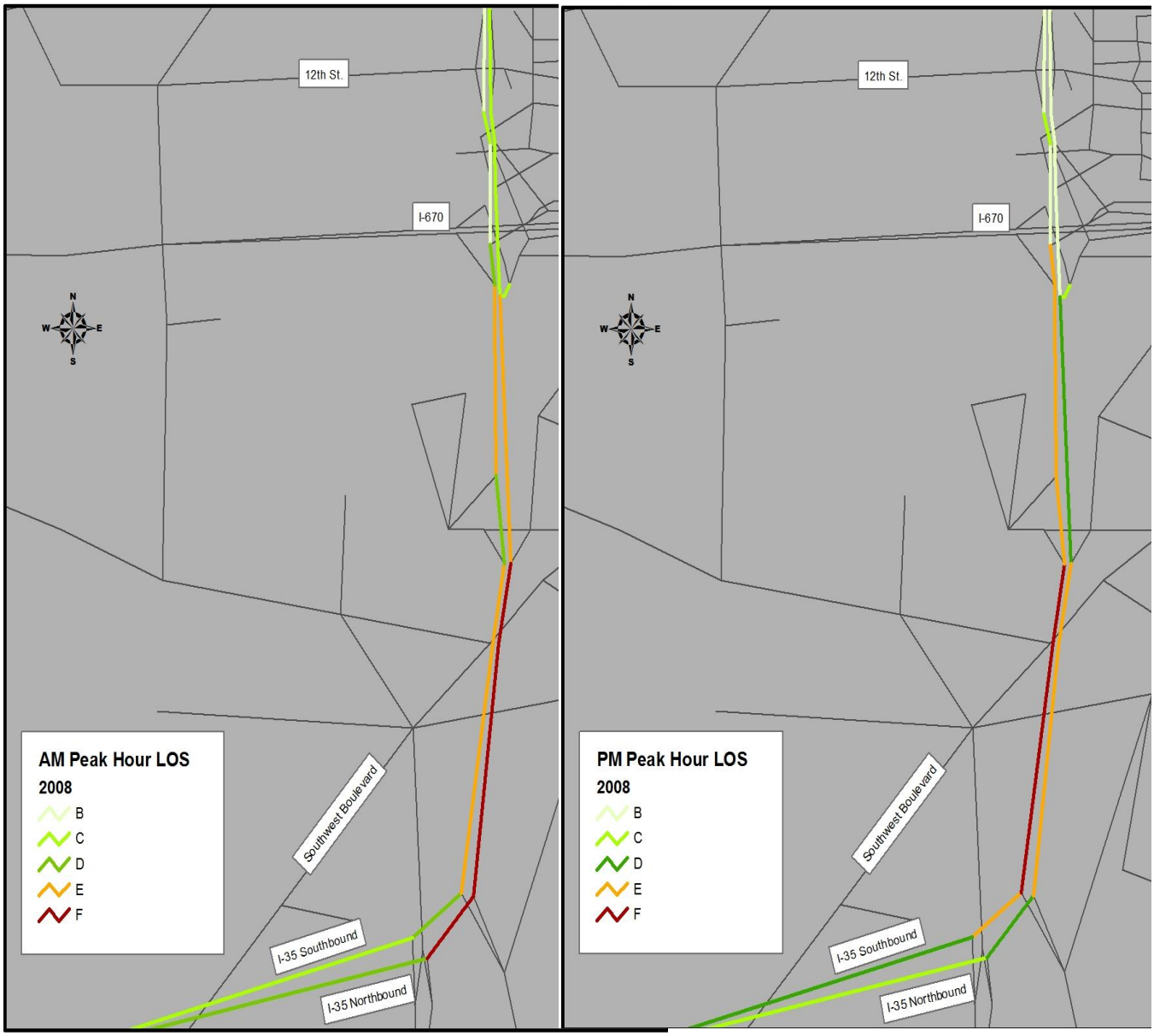
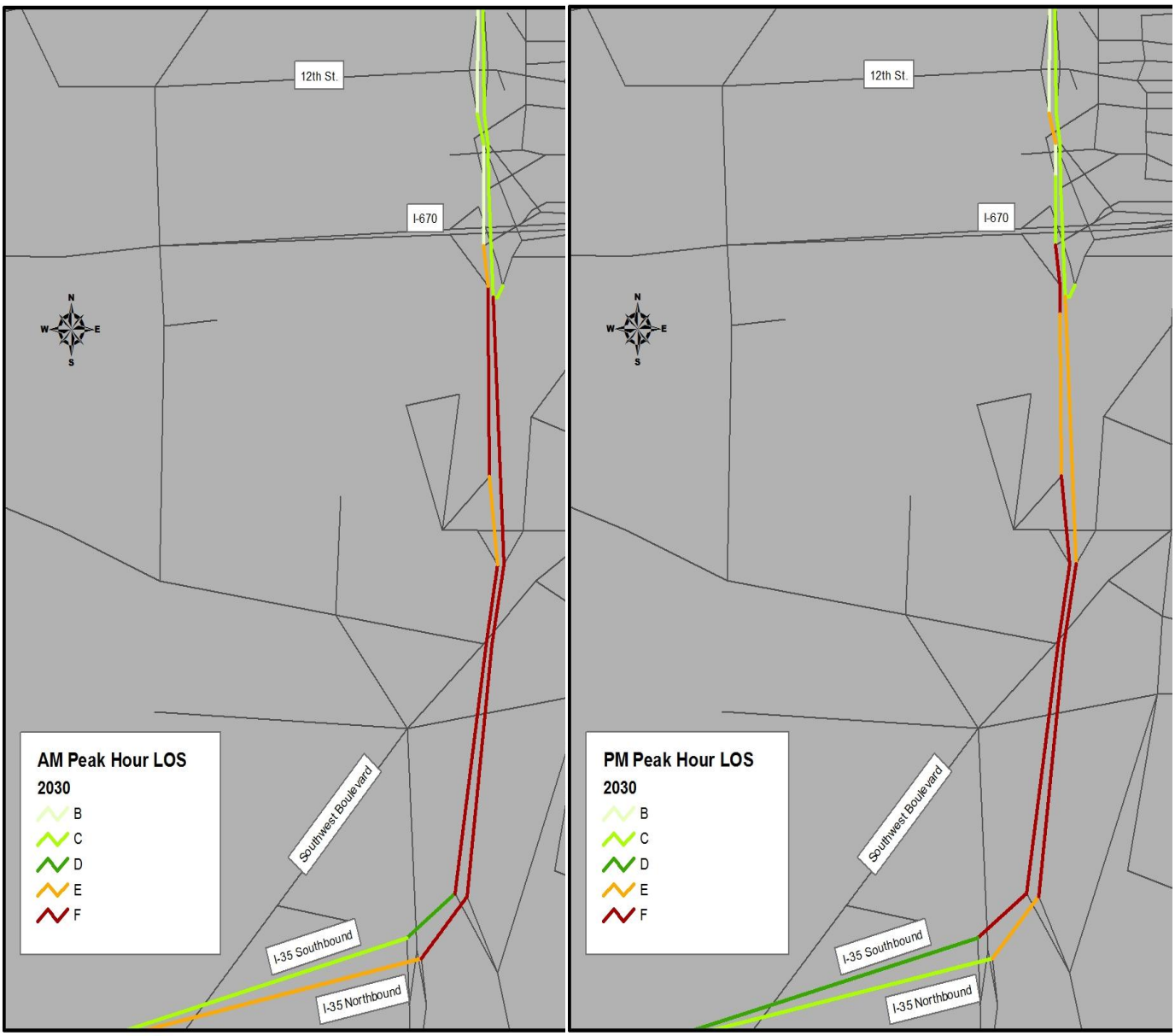


Figure 10 – Future (2030) Level of Service – AM and PM Rush Hour



The most serious congestion points in the corridor occur where traffic enters the highway on the rights and exits on the left or enters on the left and exits on the right. In these locations drivers have to change lanes multiple times to get to an exit ramp sometimes in a short space. For example, from the 12th Street entrance ramp, drivers who want to go east on I-670 must cross two lanes in about 650 feet. Between the I-670 /I-35 South merge and the 20th Street exit, vehicles coming from I-670 westbound and exiting at 20th Street have to cross three lanes in less than half a mile. Meanwhile drivers southbound on I-35 are merging left because the

right lane becomes the 20th Street exit ramp. Where these lane changes occur, through traffic often must slow down or brake to avoid vehicles making sudden lane changes, which can intensify congestion.

According to MoDOT's EPG, a roadway segment in an urban or suburban location that experiences a LOS E is acceptable. LOS E is the point at which drivers experience noticeable delays and slow downs. While the largest volumes of traffic usually occur during the peak hour, these volumes generally only account for about 10 percent of the total traffic that uses the roadway. MoDOT believes that it is reasonable to expect some delays and slowdowns during these short time periods, especially if the majority of the time most drivers could still experience light to no congestion or delay. This policy is based on cost-benefit analysis that examined the costs of addressing an hour or two of congestion vs. the benefits of reducing congestion in urban and suburban areas.

Improving the LOS of a roadway often requires adding roadway capacity in the form of general purpose lanes, auxiliary lanes, collector distributor lanes, etc. Capacity additions to the interstate system in the study corridor would be expensive and have wide-ranging impacts to surrounding neighborhoods. Under these circumstances, LOS F also can be acceptable because the cost of adding capacity and the neighborhood impacts far outweighs the benefits of improving LOS from F to E.

Needs Identification Summary

Based upon the operational review, several issues were identified in the corridor, however there were no critical operational or structural issues requiring immediate attention. The operational issues were access to amenities near the corridor and mobility on or around the interstate.

Weaving/Merging and Ramp Length

Lane changes or weaves, and merge movements happen whenever drivers enter or exit the interstate. As shown in the Operational Review section, the northern portion of the study corridor contains a series of ramps and interchanges, some of which are less than half-of a mile apart. When ramps are too close together, speed tends to decrease as drivers approach the interchange areas where cars are entering and exiting the interstate. These slowdowns and rapid lane changes or merges can lead to increased crashes.

In order to address the weaving and merging sections, four sets of opportunities were identified for the range of concepts:

- Identify opportunities to improve weaves, merges and lane changes in the study corridor;
- Identify opportunities to reconfigure entrance and exit ramps at problematic locations;
- Identify opportunities to support transit service in or near the study area;
- Identify opportunities to improve safety on the interstate at or near weaving/merging sections, and at entrance and exit ramps.

Access to Local Streets and Destinations

Connections to local streets in the study corridor support some travel choices, but do not fully support today's bi-directional travel. This leads to situations where drivers make unexpected maneuvers to access the closest interstate ramp. In addition, some interstate exit ramps connect to neighborhood streets. Better connections between the interstate and local streets are needed.

In order to access to local streets and destinations, four sets of opportunities were identified for the range of concepts:

- Identify opportunities to add access to and from the interstate;
- Coordinate information to help travelers move through the corridor and access local destinations;
- Identify opportunities for alternate alignments on underutilized major city streets;
- Identify opportunities to improve safety at locations where local streets and MoDOT facilities intersect.

Support Neighborhood Development and Multimodal Trips

The interstate is a part of the neighborhood, and it is important to neighborhood health and vitality that all the neighbors work together. It also provides an important link to attractions and activity centers in the community support economic health and vitality.

In order to address neighborhood development and multimodal travel, six sets of opportunities were identified for the range of concepts:

- Identify ways to improve the walking and biking environment under the elevated sections of interstate;
- Identify opportunities to coordinate with the City of Kansas City, Mo., and neighborhood groups;
- Identify opportunities to improve safety under and near the interstate facility;
- Identify opportunities to support transit usage near the study corridor;

- Identify opportunities to direct traffic to appropriate non-residential streets;
- Identify opportunities to limit impacts to neighborhoods.

Environmental Review

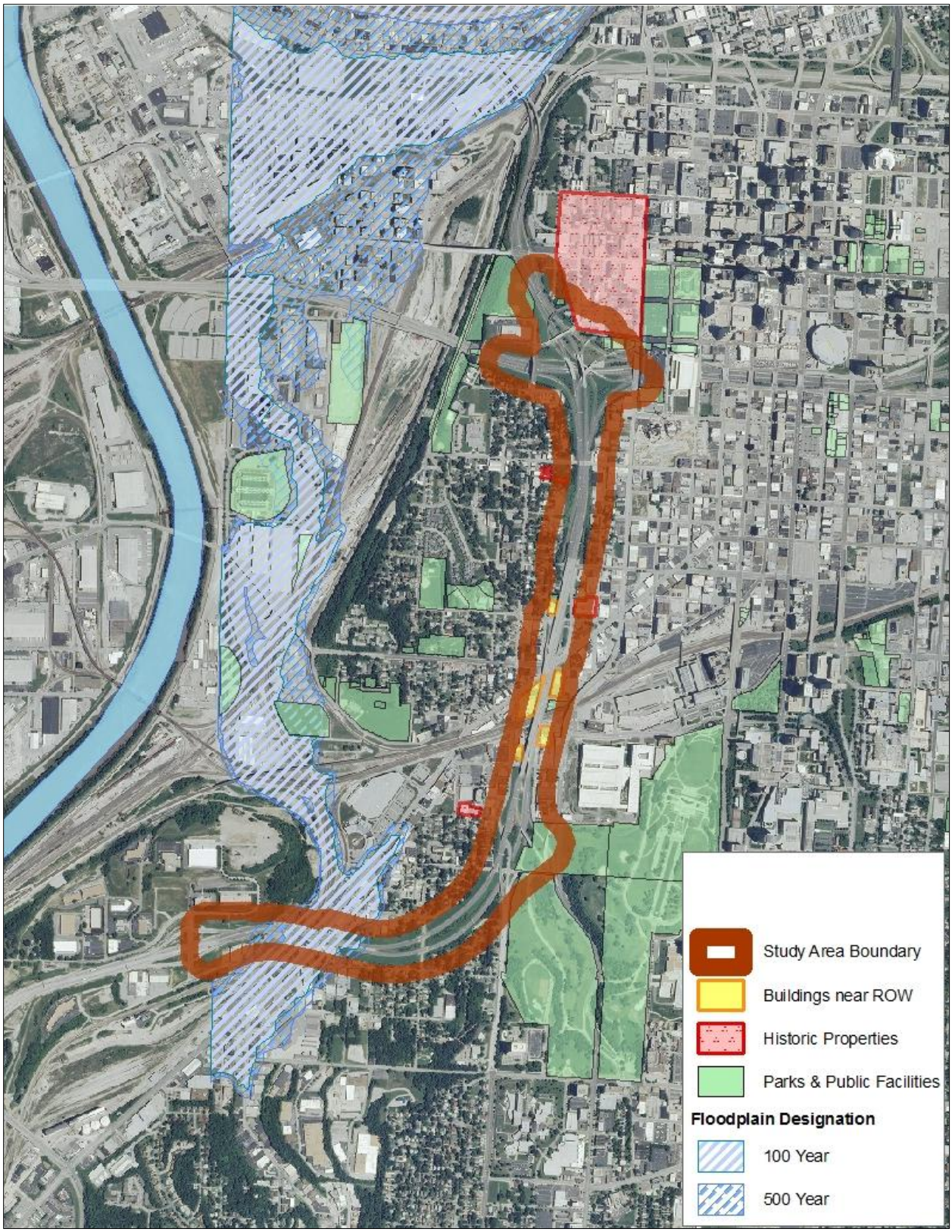
MoDOT is required by federal law to review the environment around a study corridor. An environmental review examines ecological, historical and demographic data within and near the study area. Items reviewed for this study include:

- Wetlands and waters of the US
- Historic and cultural resources
- Hazardous waste sites
- Floodplains
- Federal Emergency Management Agency buyout sites
- Farm land and soil
- Threatened and endangered species
- Parkland
- Air quality
- Noise quality
- Environmental justice areas

Figure 11 shows the locations of some environmental constraints in the corridor.

The neighborhood review focuses on the areas immediately adjacent to the study area, but the demographic review includes a larger area of block groups that extend from the state line to Grand Street.

Figure 11 – Environmental Constraints Near Study Corridor



Wetlands and Waters of the U.S.

The Clean Water Act of 1972 requires MoDOT to evaluate every project and determine whether the project could have a negative impact on any waters of the U.S. including wetlands, streams, and special aquatic sites.

Following the review of topographic, aerial, and National Wetland Inventory (NWI) maps, it was determined that no wetlands or streams are located within the study area. However, a field survey would be required to verify this determination for any future project activities.

Historic and Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 requires cultural resources investigations. Cultural resources can include archaeological sites, buildings, bridges, and other structures such as dams and tunnels, and even landscapes that still maintain a palpable connection to the past. A significant cultural resource is one that meets certain criteria and is included in or eligible for inclusion in the National Register of Historic Places (NHRP) and is termed a historic property or historic resource. Not all cultural resources are historically significant, but potential project impacts to all must be considered.

In addition to a Section 106 review, Section 4(f) of the Department of Transportation Act of 1966 (DOT) Act can also apply to structures and sites that are of national, state or local significance. This section was created to ensure that federal transportation policy encouraged efforts to preserve the beauty and integrity of publicly owned parks, recreation areas, waterfowl and wildlife refuges, and historic sites considered to have national, state or local significance. [6]

Section 4(f) stipulated that the Federal Highway Administration (FHWA) and other federal DOT agencies could not approve the use of land from a significant publicly owned park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless the following conditions apply:

- There is no feasible and prudent alternative to the use of land.
- The action includes all possible planning to minimize harm to the property resulting from use.

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[6] *Maryland Department of Transportation. State Highway Administration. Website summarizing National Environmental Policy Act provisions. History Section. http://www.section4f.com/history.htm*

The operational study looked to identify any such sites, so that those locations could be avoided. A preliminary evaluation was conducted to identify any known resources in three categories: archaeology, architecture, and bridges.

Archaeology

The Missouri State Historic Preservation Office (SHPO) archaeological database has identified no archaeological sites in the study area.

Architecture

There are three NRHP listings for architectural resources in the study area. Table 4 provides the name and location of these resources.

Table 4 - NRHP – Architectural Resources within the Study Area

Name	Location
Quality Hill Historic District	Bounded by Broadway, 10th, 14th, and Jefferson Street, KCMO
Howe, Frank M., Residence	1707 Jefferson Street, Kansas City, Mo.
Jensen-Salsbery Laboratories	520 West 21st Street, Kansas City, Mo.

NHRP has listed two architectural resources close to the study area. Table 5 below provides the names and locations of these resources.

Table 5 - NRHP – Architectural Resources Close to the Study Area

Name	Location
Peppard, Joseph Grear, House	1704 Jefferson Street, Kansas City, Mo.
Sacred Heart Church, School and Rectory	2540-2544 Madison Avenue and 910 West 26th Street, Kansas City, MO

The northern end of the study area intersects the Quality Hill Historic District, which is included in the NRHP and the Kansas City Register of Historic Places (KCRHP). KCRHP has listed no specific architectural resources in the Quality Hill Historic District that are within the I-35 Operational Study analysis area boundary. However, KCRHP has identified one resource near the study area. Table 6 provides the name and location of this resource.

Table 6 - KCRHP – Architectural Resources Close to the Study Area

Name	Location
Moss Residence	1714 Jefferson Street, Kansas City, MO

Bridges

There are 22 bridges within the study area. Two of the bridges, L0232 and L0248, were built prior to 1965. The remaining bridges were built in the late 1960's and some were reconstructed or rehabilitated in the late 1980s or early 1990s. None of the 22 bridges are on the 1996 Missouri Historic Bridge Inventory and none of the bridges are listed on or considered eligible for listing on the NRHP.

Hazardous Waste Sites

MoDOT evaluates project corridors for hazardous waste sites, provides management and oversight of sites acquired, and monitors projects for compliance with applicable federal and state laws and regulations. Any unknown sites that are found during project construction will be handled in accordance with applicable federal and state laws and regulations. The Missouri Department of Natural Resources is contacted for coordination and approval of required activities as needed.

Based upon a review of existing databases, several potential hazardous waste sites were found within study area. These potential sites include residential homes, commercial businesses, industrial facilities, and a railroad that could all pose a direct or indirect impact on the project. Any improvements outside the current right-of-way will need additional investigation.

Floodplains

MoDOT must evaluate every project and determine whether it could have a negative impact on the base (100-year) floodplain or regulatory floodway. The Federal Emergency Management Agency (FEMA) and FHWA guidelines 23 CFR 650 identify the base (100-year) flood as the flood having a one-percent probability of being equaled or exceeded in any given year. The base floodplain is the area of 100-year flood hazard within a county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects can cause no rise in the regulatory floodway and no more than a one-foot cumulative rise for all projects in the base (100-year) floodplain.

There is a base (100-year) floodplain at the southwestern end of the study corridor, near the Kan. state line. Any new right-of-way or easement, or fill placed within this Special Flood Hazard Area (SFHA) will require a floodplain development permit from State Federal Emergency Management Agency.

FEMA Buyout Sites

The Flood Disaster Protection Act of 1973, as amended by the Disaster Relief and Emergency Assistance Act of 1988 (The Stafford Act), identified the use of disaster relief funds under Section 404 for the Hazard Mitigation Grant Program (HMGP), including the acquisition and relocation of flood damaged property. The Volkmer Bill further expanded the use of HMGP funds under Section 404 to "buyout" flood damaged property, which had been affected by the Great Flood of 1993.

There are numerous restrictions on FEMA buyout properties. Available references indicate no FEMA buyout sites in the project area.

Farmland and Soil

The Farmland Protection Policy Act (FPPA) requires MoDOT to evaluate every project and determine whether it could have a negative impact on farmland. Both the relative value of the soils present on the site and the impact that the project will have on the area relative to agricultural use are considered for that determination.

The study area is located in the urbanized city of Kansas City, Mo. Over time, development has transformed any farmland in this area to urban uses including homes and businesses. As a result there are no farmlands located within the study area.

Threatened and Endangered Species

Federal laws require MoDOT to thoroughly address any potential impacts their projects might have on federally listed threatened and endangered (T&E) species and eliminate or minimize those impacts. T&E species considerations for MoDOT projects include potential impacts to rare plants, animals, critical habitat, and natural communities (e.g., caves).

A cursory evaluation of the study corridor was inconclusive, so staff was unable to completely determine whether future projects would result in any T&E issues. T&E would be reviewed in greater detail when a project is proposed for the study area.

Parklands

MoDOT monitors all federally funded roadway improvement projects for compliance with federal regulations concerning the use of public lands, specifically Section 4(f) and Section 6(f) requirements. MoDOT considers the impact on using public land in the planning process and then attempts to minimize and mitigate when impacts are unavoidable. Section 4(f) refers to the original section within the Department of Transportation (DOT) Act of 1966, which set the requirement for consideration of park and recreational lands, wildlife and waterfowl refuges, and historic sites in transportation project development. 4(f) resources include any publicly owned park, recreation area, or wildlife refuge or any publicly or privately owned historic site. Section 6(f) is part of the Land and Water Conservation Fund (LWCF) Act, which was designed to provide restrictions for public recreation facilities funded with LWCF money by restricting non-recreation uses.

There are several publicly owned properties in the study corridor, including Penn Valley Park, which is potentially both a Section 4(f) and Section 6(f)-eligible property, an LB Kansas City Technology Holding property north of 25th Street and east of I-35, and property listed as belonging to KC Parks north of 21st Street on the west side of I-35 over to Jefferson Street. All publicly held land should be avoided.

Air Quality

The Federal Clean Air Act set air quality standards to protect public health, safety and welfare from known or anticipated effects of specific pollutants such as ozone and carbon monoxide. All states must identify geographic areas with monitored levels that meet or exceed the National Ambient Air Quality Standards (NAAQS) primary standard for each of these pollutants. A geographic area exceeding the NAAQS for any criteria pollutant is designated "non-attainment" areas for that pollutant.

The Kansas City region is currently in attainment status for all pollutant criteria, so the region currently does not exceed NAAQS. However, there are air quality monitors in the region that have exceeded the standards in recent years, and the region could exceed NAAQS in the near future.

The I-35 study area is located in the Kansas City region, and any projects that are suggested for the area are subject to Air Quality analysis. Because the region is currently an attainment area, conformity requirements for non-attainment status do not apply to the concepts presented in this study. However, the region is expected to become a non-attainment area in a few years. When the region becomes a non-attainment area, any project proposed for the I-35 within this study area would be reevaluated for air quality implications.

Noise Quality

The Federal Aid Highway Act of 1970 established the requirements contained in 23 CFR, Part 772 that traffic noise control be a part of the planning and design of all federally funded highway projects. To conform to 23 CFR 772, MoDOT has a traffic noise policy approved by FHWA to provide guidance for determining the feasibility and need of noise abatement measures such as sound walls.

Noise abatement measures would be considered when there is highway construction or when certain type of improvement to the existing highway as listed in the MoDOT Noise Policy are proposed. The I-35 Operational Study does present some improvement concepts which would require the consideration of noise abatements measures and an appropriate traffic noise analysis.

Neighborhood Description

There are several neighborhoods within or near the study area, including, Quality Hill, Westside, Westside South, Crossroads, Hospital Hill, Crown Center, Coleman Highland and Union Hill. These neighborhoods provide diverse housing, commercial, retail and recreation opportunities for residents.

Activity centers in this area include the Sprint Center, Power & Light District, Kemper Arena, Union Station, Hospital Hill and Crown Center. The neighborhoods that intersect the study area are also home to a number of jobs, including the recently constructed Federal Reserve Bank and IRS facilities.

Because many of the neighborhoods in or near the study area are some of the oldest in the city, there is very little open land available for development. Approximately 45 percent of homes in the Westside neighborhood were built on or before 1939.[7] New housing stock is generally available where an older residence was removed and rebuilt or a building site is repurposed from commercial or manufacturing to apartments and condominiums. In the Freight House and Crossroads Districts, many former manufacturing and commercial sites have been converted into urban lofts. A general neighborhood boundary map is shown in Figure 12.

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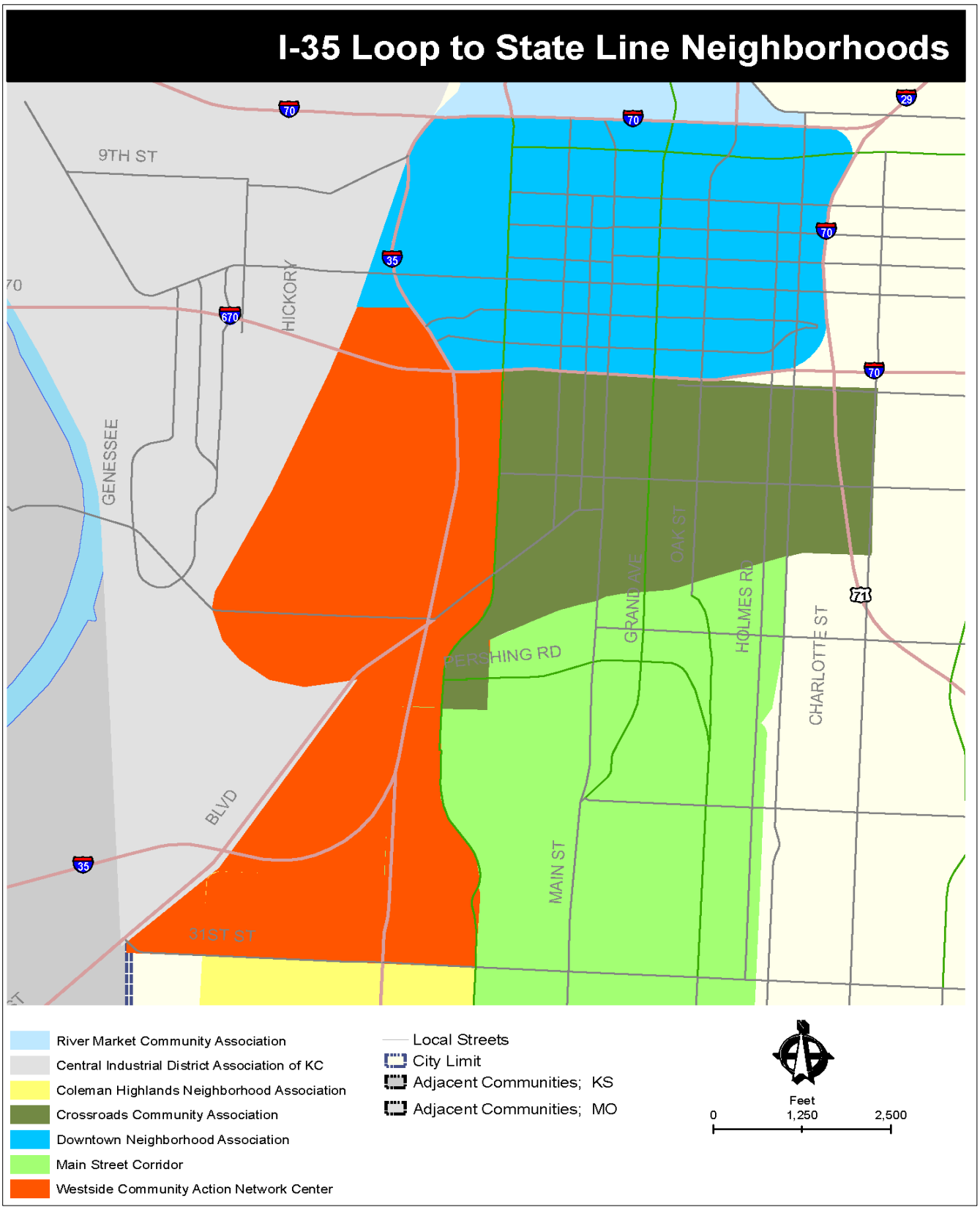
[7] *US Census Bureau 2000 data.*

Figure 12 – Generalized Neighborhood Boundaries Near the Study Corridor



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Neighborhood History

The neighborhoods in the study area are some of the oldest in the city with rich histories. Kansas City became a major stop for settlers traveling west. As settlers moved west, some of the settlers stopped in Kansas City, built homes and found jobs. For those settlers heading to Santa Fe, their wagon trains would leave Kansas City through the Penn Valley Ravine, which was later incorporated as a part of Penn Valley Park.[9]

In 1904 a large area surrounding the Penn Valley Ravine was incorporated as a park. The park covers 176 acres between Union Station and 31st Street. The main feature of the park at that time was the Penn Valley Ravine. Within two decades, the construction of the Liberty Memorial and Union Station created destinations on the eastern side of the study corridor.

A very important factor in the growth of Kansas City and the formation of the neighborhoods near the study area was the railroad. Kansas City became a connecting point between north-south and east-west routes. Several rail lines cross the study area. The largest section of track in the study area is operated by the Kansas City Terminal (KCT) Railway. The KCT was created by twelve railroads in the early 1900s after a flood destroyed the city's main depot in the West Bottoms. Today, the KCT serves four Class I railroads: Burlington Northern and Santa Fe (BNSF), Kansas City Southern (KCS), Norfolk Southern (NS) and the Union Pacific (UP). Other smaller railroads such as Iowa, Chicago and Eastern Railroad, the Missouri and Northern Arkansas Railroad and Amtrak also use the KCT[10]. The BNSF railroad operates on a number of tracks that generally parallel the interstate.

Railroad lines brought goods, visitors, employees and immigrants to the city. Kansas City is the largest rail hub in the country behind Chicago.[11] Railroad tracks through the study area define the area available for development of housing, retail, commercial and roadways. A number of the workers and visitors stayed in the city and some settled in the Westside contributing to the rich mix of cultures.

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[8] *Map provided by the City of Kansas City, Mo., Community Development Department. 2010. Neighborhood boundaries are generalized and may change over time.*

[9] *Information from Parks Department pages on the KCMO website. http://www.kcmo.org/CKCMO/Depts/ParksandRecreation/PennValleyPark/index.htm*

[10] *Information from Wikipedia. Webpage "Kansas City Terminal Railway." http://en.wikipedia.org/wiki/Kansas_City_Terminal_Railway.*

[11] *Information from Wikipedia. Webpage "Kansas City Terminal Railway." http://en.wikipedia.org/wiki/Kansas_City_Terminal_Railway.*

Activity/Employment Centers

Activity centers provide employment, service and recreation opportunities. Near the study area, the Downtown Loop, Union Station/Crown Center and Crossroads areas provide a broad mix of employment, service and recreation opportunities.

Downtown Kansas City, Mo., has the densest concentration of employees in the metro area. This concentration of employment makes the downtown loop a destination for thousands of employees from all over the metropolitan area each day. In addition to employment opportunities, the downtown area provides a variety of cultural and entertainment sites, such as the Lyric Theater, Bartle Hall, Music Hall, Sprint Center and Power & Light District. These amenities provide jobs and attract visitors to shows and concerts. In the early fall 2011, the Kauffman Center for the Performing Arts center will open. This center is located just to the east of the study area, and I-35 provides access to this site.

To the south of downtown, the Crossroads and Union Station/Freight House District neighborhoods have emerged in the last decades. The restoration of Union Station happened as the Freight House and Crossroads Districts emerged, creating a renewed residential and entertainment area. In addition to new residential opportunities, the Internal Revenue Service and Federal Reserve Bank have recently located in the area bringing large numbers of employees.

To the east of Union Station, the Crown Center and Hospital Hill areas also attract large numbers of employees, visitors and patients. In addition to the thousands of employees entering this area each day, thousands of visitors stay in nearby hotels, visit Hallmark, shop or eat at the venues in the area. Crown Center also offers ice skating in the winter and periodic movies and concerts in the summer.

The western portion of the study area is bordered by the Westside and West Bottoms neighborhoods. The Westside community is one of the oldest neighborhoods in town and an ethnically diverse area with a high percentage of Hispanic residents. It is known as a dining destination for ethnic food, especially Mexican. However, the area also boasts a variety of other industries, such as the Boulevard Brewing Company and the Roasterie Coffee Processing plant.

The West Bottoms like the Westside has a long, rich history and is probably best known as the home of the stockyards. By the 1920s, the stockyards were processing over 2 million head of

cattle a year making Kansas City the second biggest producer of beef after Chicago.[12] The stockyards were destroyed in the flood of 1951 and never fully recovered. The most visible legacy of the stockyards is the American Royal agricultural show, which runs for six weeks in the late summer at Kemper Arena. Since the flood of 1951, the West Bottoms has been slowly becoming a hub for industry[13].

Table 7 below provides a small sample of employers near the study area.

Table 7 - Sample of Employers Near Study Area[14]

Company	Daily Employees	Company	Daily Employees
Children's Mercy Hospital	2,500 – 3,000	Truman Med Cntr West	2,000
Federal Reserve Bank	900	Internal Revenue Service	3,940
Boulevard Brewing Company	100	Roasterie Coffee	50
Faultless Starch/Bon Ami	500-1,000	CFM Distributors	55-60

Demographic Overview

A demographic review of the area looks at the general social characteristics of the population in and around the study area. These characteristics include racial and ethnic composition and average income of each tract or block group. These factors are reviewed to determine if the area might qualify as an environmental justice area.

Racial Composition of Neighborhoods

Race and ethnic identity are defined by country and continent of origin. However, race and ethnicity are defined differently by the Census Bureau for self reporting purposes. Race is not defined by country or continent of origin, but by five broad racial categories. Census respondents are asked to classify themselves as White, Black, American Indian/Alaskan Native, Asian, Hawaiian/Pacific Islander or a combination of two or more races. Ethnic classifications

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[12] *Information from Wikipedia. http://en.wikipedia.org/wiki/Kansas_City_Stockyards*

[13] *Information from Wikipedia. http://en.wikipedia.org/wiki/Kansas_City_Stockyards*

[14] *The numbers shown are approximate numbers gathered from phone calls and websites.*

are subsets of race that can be tied to nationality or location, such as Italian, Irish or German. However, the only ethnic classification tracked in the Census is Hispanic/Latino, and individuals within any of the Census' five racial classifications can self report as Hispanic/Latino. A more detailed description of how race and ethnicity are defined in the 2000 Census is provided in Appendix D.

In order to determine whether any of the census blocks near the study area qualify as environmental justice area, the racial and ethnic composition of the city of Kansas City, Mo., is compared to the same data in blocks near the study corridor. Nineteen census blocks surrounding the study corridor were selected to represent neighborhood areas. Those blocks with racial and ethnic populations higher than the city as a whole were identified in each category.

Minority Population:

For this study minority populations are defined as any non-Caucasian/non-White person. Approximately 60 percent of residents in the Kansas City, Mo., area identify themselves as White/Caucasian, and 40 percent of residents identify themselves as another race, such as Black, American Indian/Alaskan Native, Asian, Hawaiian/Pacific Islander or a mix of two or more races. Eight block groups near the study area have minority populations higher than the city as a whole. These blocks are shown in orange and red in Figure 13.

Hispanic Population:

In the Kansas City area, 7 percent of residents identify themselves as Hispanic/Latino according the Census' Community Profile. Fifteen block groups, of the nineteen analyzed, have Hispanic/Latino populations greater than the city wide percentage. Blocks with a Hispanic population above 7 percent are shown in medium blue, orange and red in Figure 14.

Figure 13 – Percent of Non-Caucasian Population in Study Area

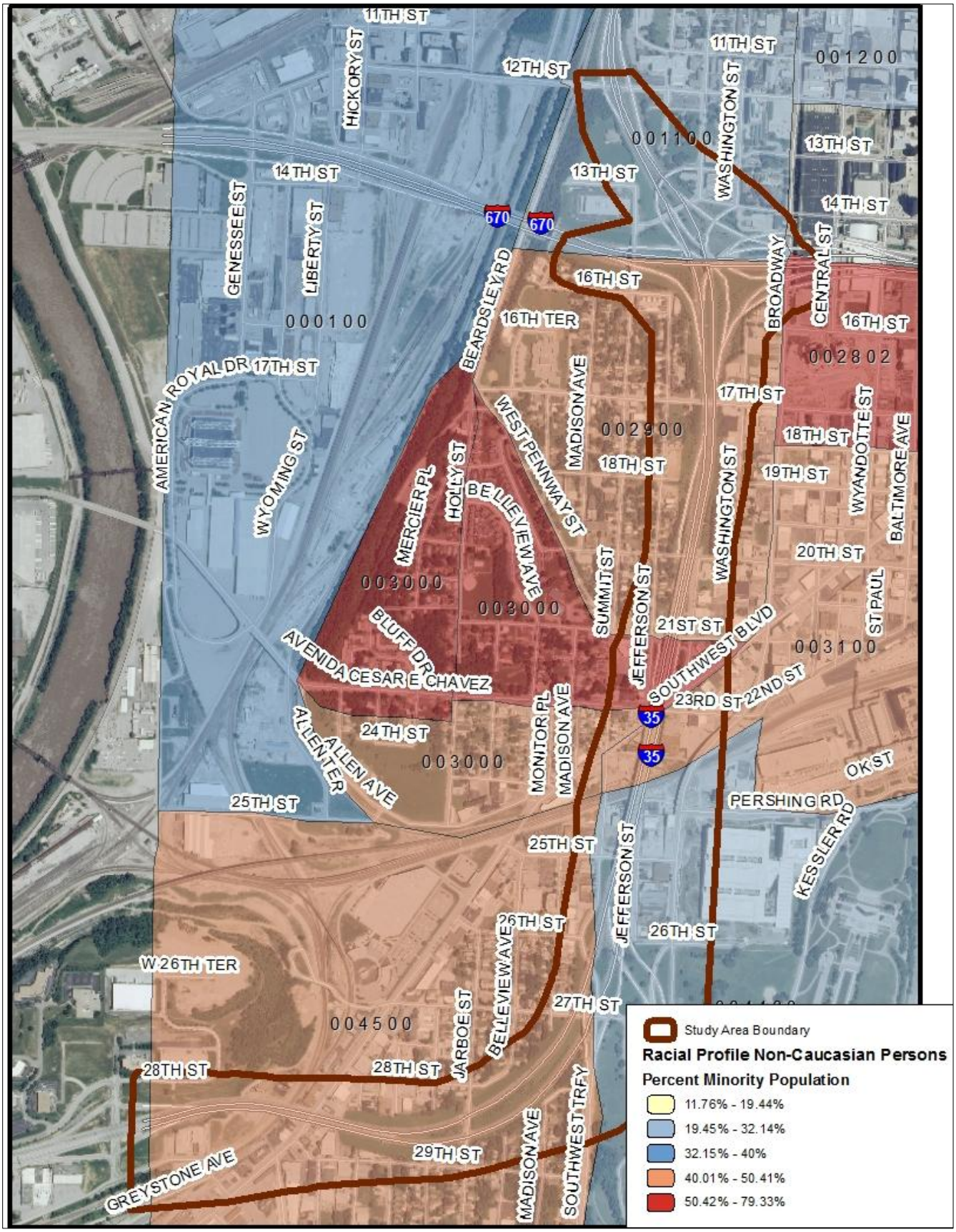
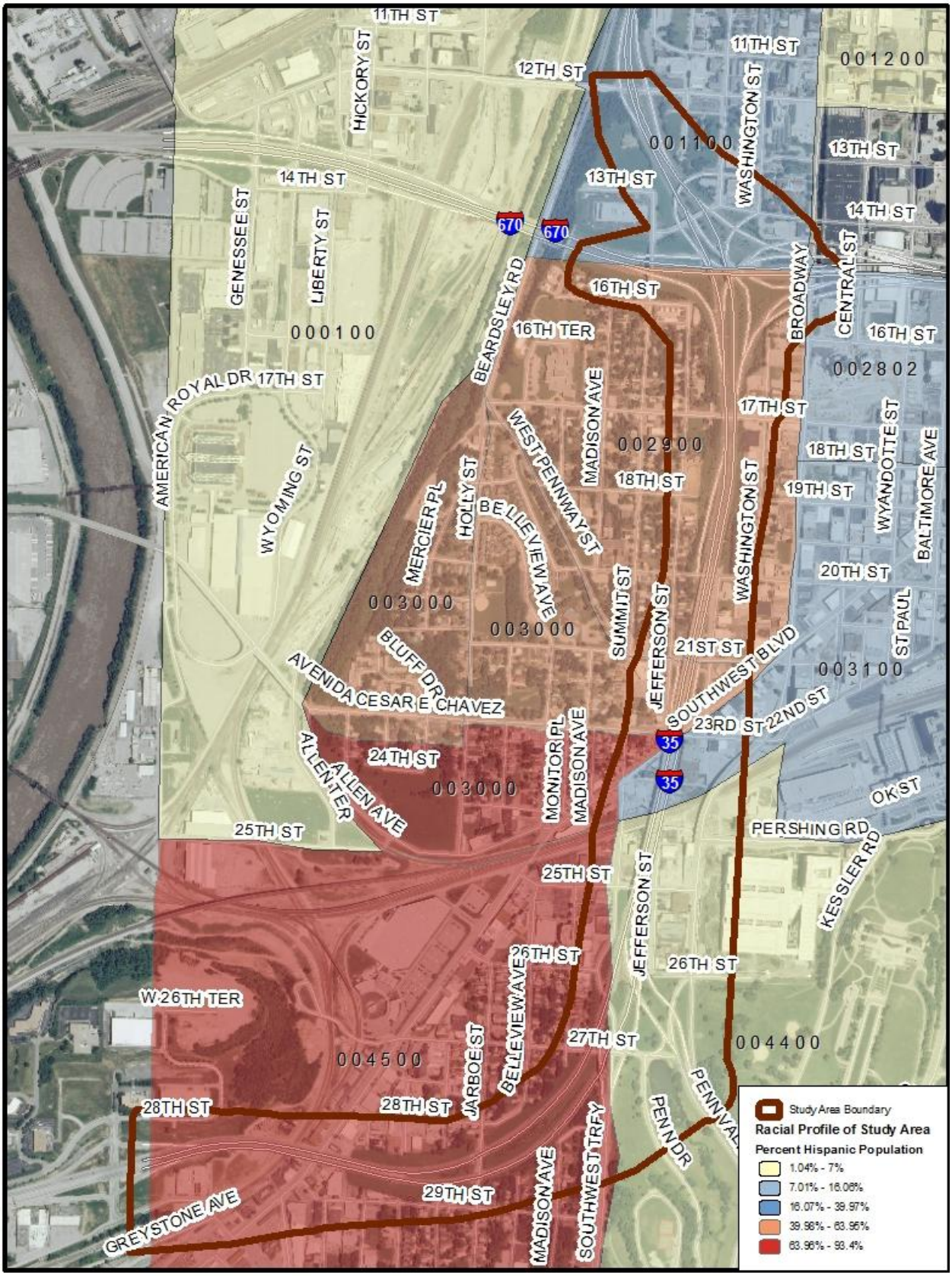


Figure 14 – Percent Hispanic/Latino Population in Study Area



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Low Income:

The Census provides information on the median per person (per capita) income of Kansas City, Mo. The median is the middle number in a range of values, so that half the incomes are above and half are below the median income per year. For Kansas City, Mo., the median per capita income was approximately $20,800 according to the 2000 US Census.

Income values in the study corridor were compared to the median Kansas City income. Those blocks with incomes lower than $20,800 were highlighted. Approximately, 11 blocks near the study area have a per capita income below the city-wide median. Those blocks are shown in pink, purple and dark blue in Figure 15.

Environmental Justice

Environmental justice is a process used to identify and avoid any disproportionately high or adverse human health or environmental effects on minority and low-income populations. FHWA has provided three fundamental environmental justice principles, which have been incorporated into MoDOT policy:

(1) Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;

(2) Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;

(3) Prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations.

Environmental Justice Areas:

To identify environmental justice areas, areas of high minority populations, high ethnicity and low-income blocks were identified. Eight blocks near the study area meet these qualifications. In these areas, MoDOT must ensure that environmental justice principles are applied. These blocks are shown in Figure 16.

Figure 15 – Median Income in the Study Area

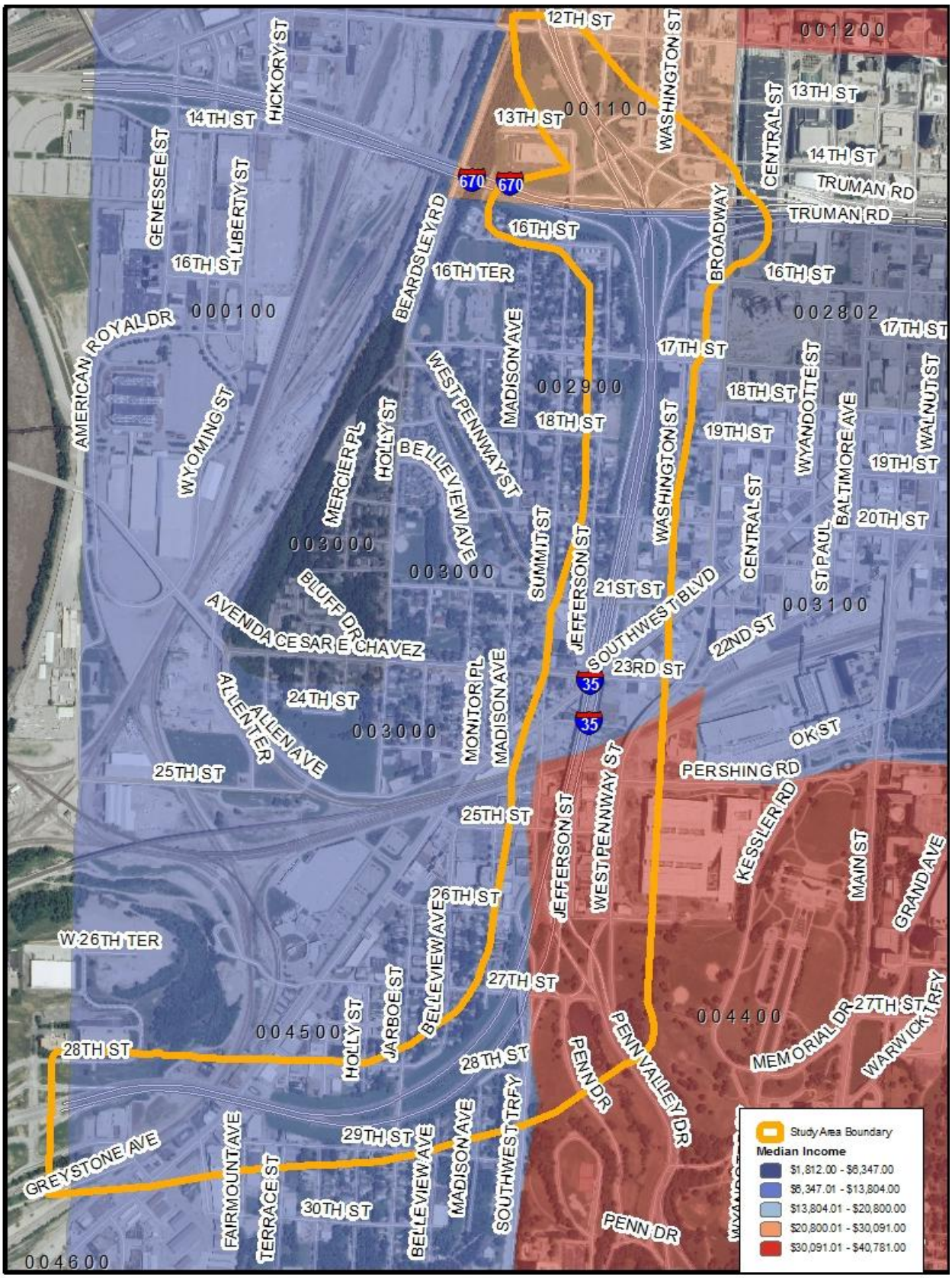

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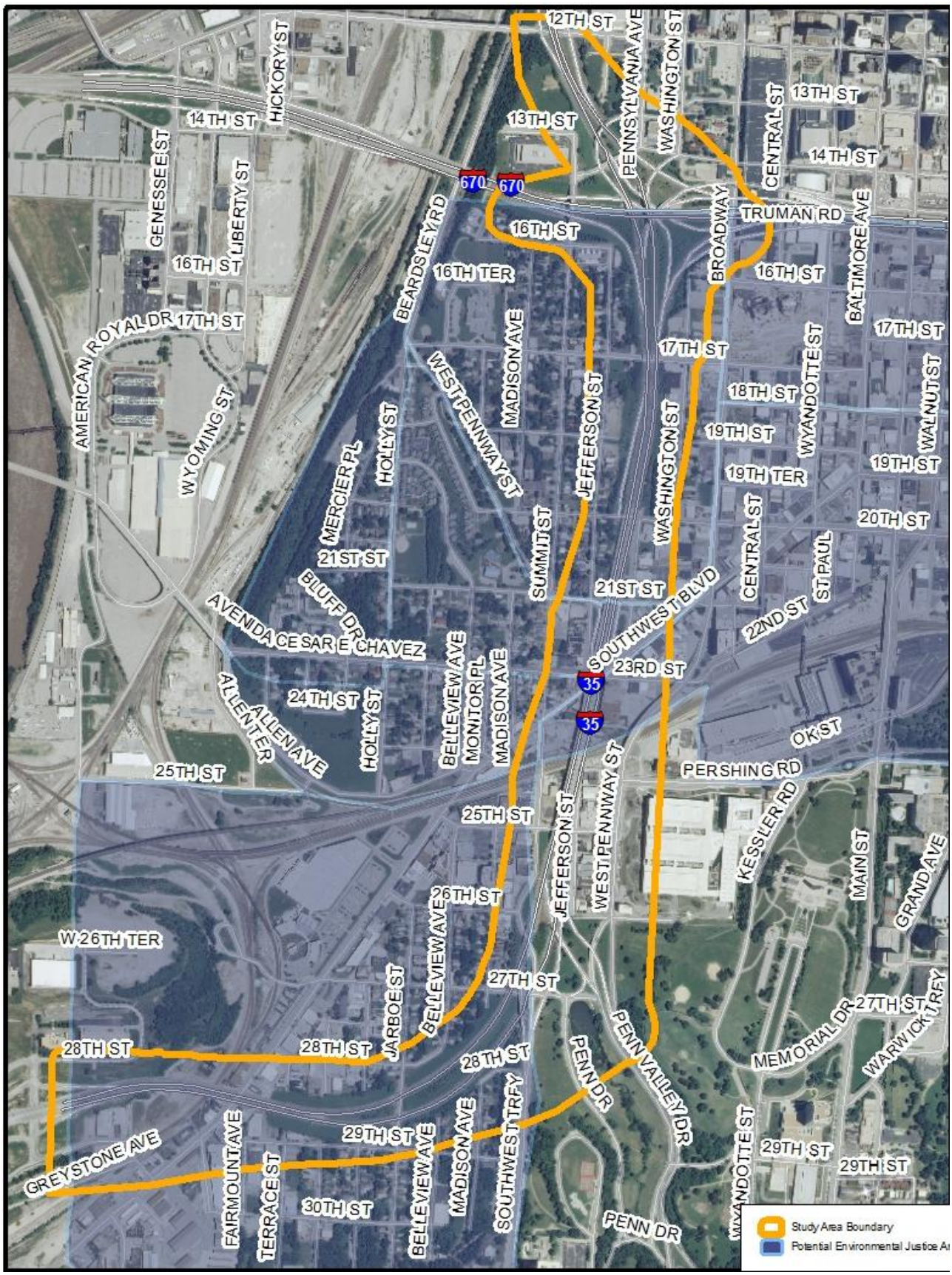
Figure 16 – Potential Environmental Justice Areas



Public Involvement Process

MoDOT values public input in the planning process, so during the study, MoDOT offered four opportunities for the public to offer comment on issues and needs and concepts. At the first meeting, neighborhood residents were asked to discuss the issues and concerns surrounding the interstate corridor. After the neighborhood meeting, an online meeting gave the public an opportunity to comment on the commute experience. MoDOT returned to the neighborhood to present a range of concepts that could be used to address the operational needs in the study corridor. The public was offered the option to participate in a second online meeting modeled after the live public meeting, as well.

Because there are potential environmental justice areas in the study area, any future concepts that include construction, such as, a new ramp or aesthetic improvements under the viaduct, will include a community outreach effort.

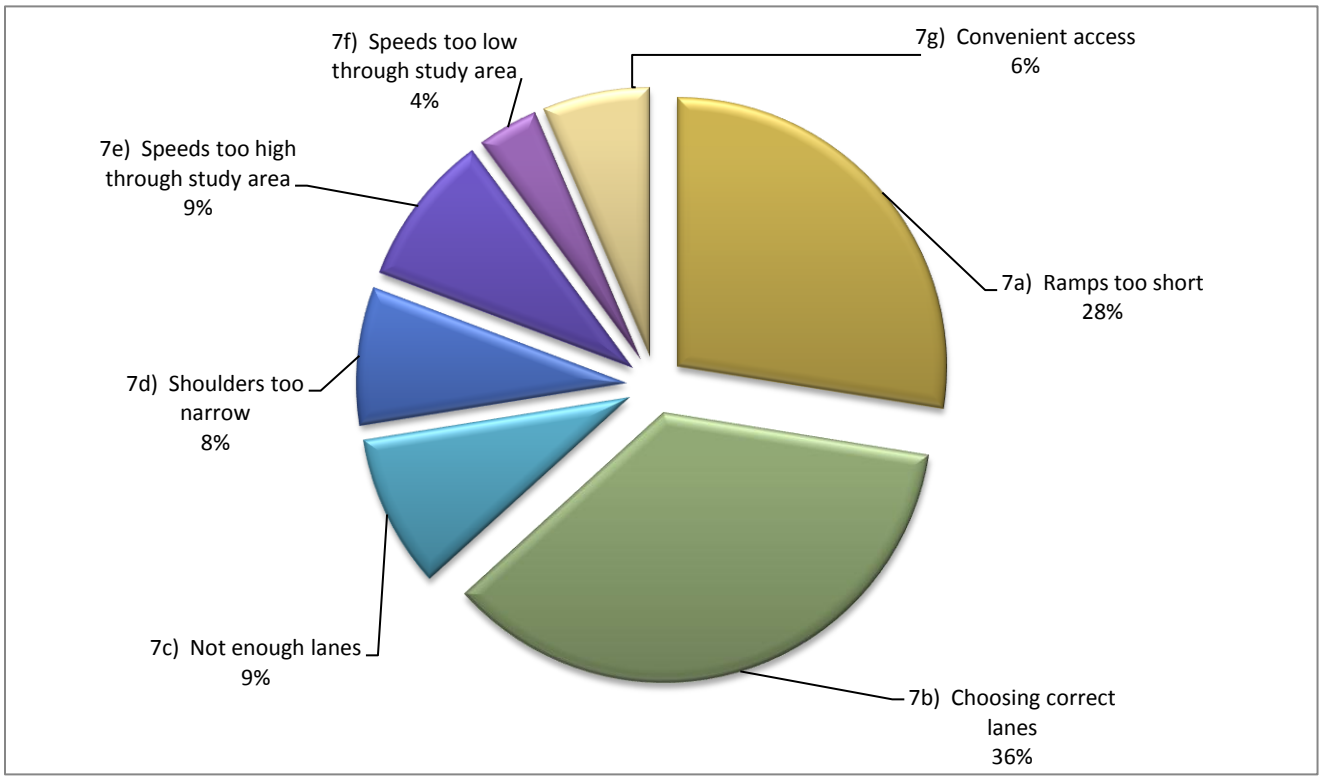
Initial Public Involvement

The first public involvement activity occurred in June 2010. MoDOT met with neighborhood groups to discuss the needs and issues related to I-35. Detailed notes from the public meetings are included in Appendix C. Approximately 20 residents attended the neighborhood meeting. MoDOT staff gave a short presentation on the review of traffic operations and facility condition for I-35. The presentation covered topics such as why MoDOT is studying this section of the I-35 corridor, how ideas become projects, an overview of the study process, the study time line and existing traffic conditions on I-35. MoDOT indicated to the group that the intention of this study is not to add general purpose lanes to I-35 in the study area. Our goal is to stay within the existing right-of-way to the extent possible.

Attendees were asked to sit at tables with maps to discuss issues and needs related to the interstate in the corridor. The four groups created a list of issues and then prioritized those issues as a final activity. The basic meeting themes from the priority list were:

1. Roadway operations
2. Protect surrounding neighborhoods
3. Improve the environment
4. Improve signage and communication

Figure 17 – Online Meeting Needs Identification in Study Corridor



First Online Meeting

MoDOT initiated an online meeting in early July for public comment on interstate operation. The online meeting ran for two weeks, and received 55 comments related to the study corridor. Since that time several additional surveys were received and incorporated into the charts. Comments are shown in Figure 17.

The online meeting was designed to collect information about commuting on the interstate in the study area. Survey takers were asked to identify where they lived in general terms, if they faced issues, where the issues occurred, major issues encountered and the issue that MoDOT should address first. Most respondents indicated that getting into the correct lane was the issue that caused the most difficulty for drivers, with the second highest response relating to the short ramps in the corridor.

Second Public Meeting

The second set of public involvement activities also occurred in two phases: a live meeting and an online meeting. MoDOT presented the proposed concepts to the public on Dec. 9, 2010. Meeting participants were asked to review, provide comment and rank the draft concepts. A meeting summary is provided in Appendix C.

Concepts were separated into three cost categories: lower, medium and higher. In the lower cost category, participants ranked restriping the interstate highest. In the medium cost category, participants ranked the Tunnel/27th Street Underpass option highest, and in the higher cost category, participants ranked rebuilding the Southwest Trafficway interchange option above a new directional ramp to I-670 West.

Some attendees wanted MoDOT to include a study to relocate I-35 in the range of concepts. Residents indicated that I-35 created a visual scar, separated parts of the city and created pollution in the neighborhood. According to citizens participating in the Westside I-35 Committee, moving I-35 would reconnect the neighborhood and open approximately 50 blocks of land for redevelopment. The group believed that the concept should be included in the operational study as a concept.

At the December 9 public meeting, MoDOT told residents that the purpose of the I-35 study was to review the operations of the existing facility only. MoDOT did not identify any structural or operational issues that suggested a need to substantially rehabilitate or rebuild the interstate. In addition, insufficient staff resources were allocated to the project to properly evaluate the relocation concept when it was brought forward by the neighborhood. Therefore, relocating the interstate was not explored during the operational study.

MoDOT also told participants that if relocation of the interstate was a priority for the city, then MoDOT recommended that the city prioritize the project and initiate a full study of the relocation concept, in which MoDOT will participate.

Second Online Meeting

The second online meeting became active on December 9th, as well. MoDOT received 16 responses, and of those, only 11 respondents ranked the concepts to indicate preference. Response was less than expected based upon the results from the first meeting. The low response rate was assumed to be a result of the time of year and the flow of the meeting on MoDOT's website. The online meeting began during the holiday season, so we assumed that this depressed the response rate. MoDOT's website content was structured to mirror the live meeting format, and participants had to choose the back button to continue reading the content. We believed that most participants did not realize there were more sections to the meeting, because most of the responses only addressed the low-cost options. Due to the low response rate, the information was inconclusive.

Response charts and comments are included in the Appendix C.

Range of Concepts

The ideas presented at the public meeting were identified as a range of solutions to address operational concerns on the interstate and connections to local streets. Because the term "solution" seemed to suggest that project ideas were being recommended for construction, in this report, the word "solution" is being replaced with the word "concept."

The range of concepts provides ideas to show how operational and design issues might be addressed in the future. The concepts can be pursued individually or in combination based upon specific site conditions and area needs. The range of concepts seemed to provide the most flexibility to choose concepts in the future as funding levels and local priorities change. When projects are proposed in the corridor, a more detailed design study will be initiated to review environmental findings from the Operational Study and examine impacts and design options in much greater detail.

The range of concepts was divided into three categories based upon potential cost of implementation and complexity. Funding for transportation projects is uncertain at the state and federal levels, so the range of concepts was structured to identify beneficial projects that were simpler or cheaper that could be implemented in the short-term, as well as, more complicated longer-term projects that address issues of access. None of the cost ranges include any estimate of right-of-way costs.

Lower Cost Concepts ($100,000 - $500,000)

Lower cost concepts are projected to cost between $100,000 and $500,000 to implement. These concepts involve minor changes to the existing infrastructure, but no major modifications to the interstate or additional access.

Restripe Lanes

This concept presents one way that the southbound lanes could be restriped and suggests guardrail should be added to northbound I-35 between 20th Street Broadway to prevent out of control vehicles from leaving the right-of-way. This location is being reviewed because this segment of the study area corresponds to the highest crash location on southbound I-35.

The I-35/I-670 interchange is a tangle of ramps that enter and exit from the right and left. Existing southbound I-35 is a two lane roadway on the west side of the loop. Before I-670, the ramp to eastbound I-670 exits to the left, and the 13th Street entrance ramp merges from the right. South of I-670, the three-lane ramp from westbound I-670 and Truman Road merges on the left. Soon after this merge the ramp from eastbound I-

670 merges on the right, and then outside lane of southbound I-35 becomes the exit lane to 20th Street, so drivers must merge left.

This concept seeks to eliminate the dropped lane on southbound I-35 and reduce required merges. The ramps from westbound I-670 westbound and Truman Road would be reduced from three lanes to two lanes before the merge with southbound I-35. This change would require vehicles from Truman Road to merge to the left, and an existing lane would be striped or barricaded to traffic for some distance so that at the merge point with southbound I-35, the through lanes would be shifted into the available lane. The eastbound I-670 ramp would be restriped to also serve as the 20th Street exit ramp. Figure 18 shows the existing lane configuration and Figure 19 shows a potential reconfiguration of the southbound lanes.

There is no expected impact to surrounding neighborhoods or additional right-of-way required. Figures 18 and 19 show there is no change to the existing number of lanes or additional right-of-way required.

Figure 18 – Current Lane Configuration for Southbound I-35

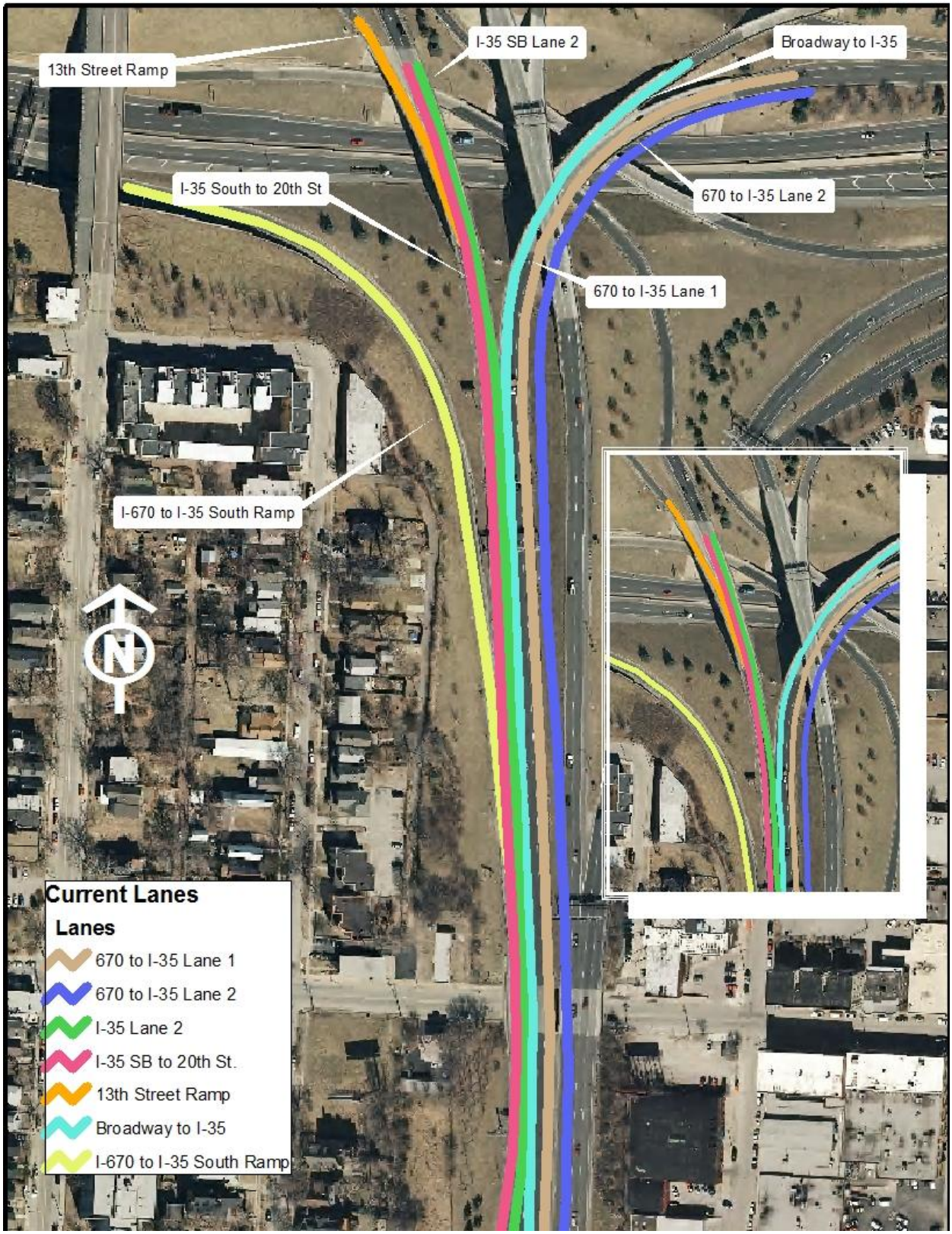
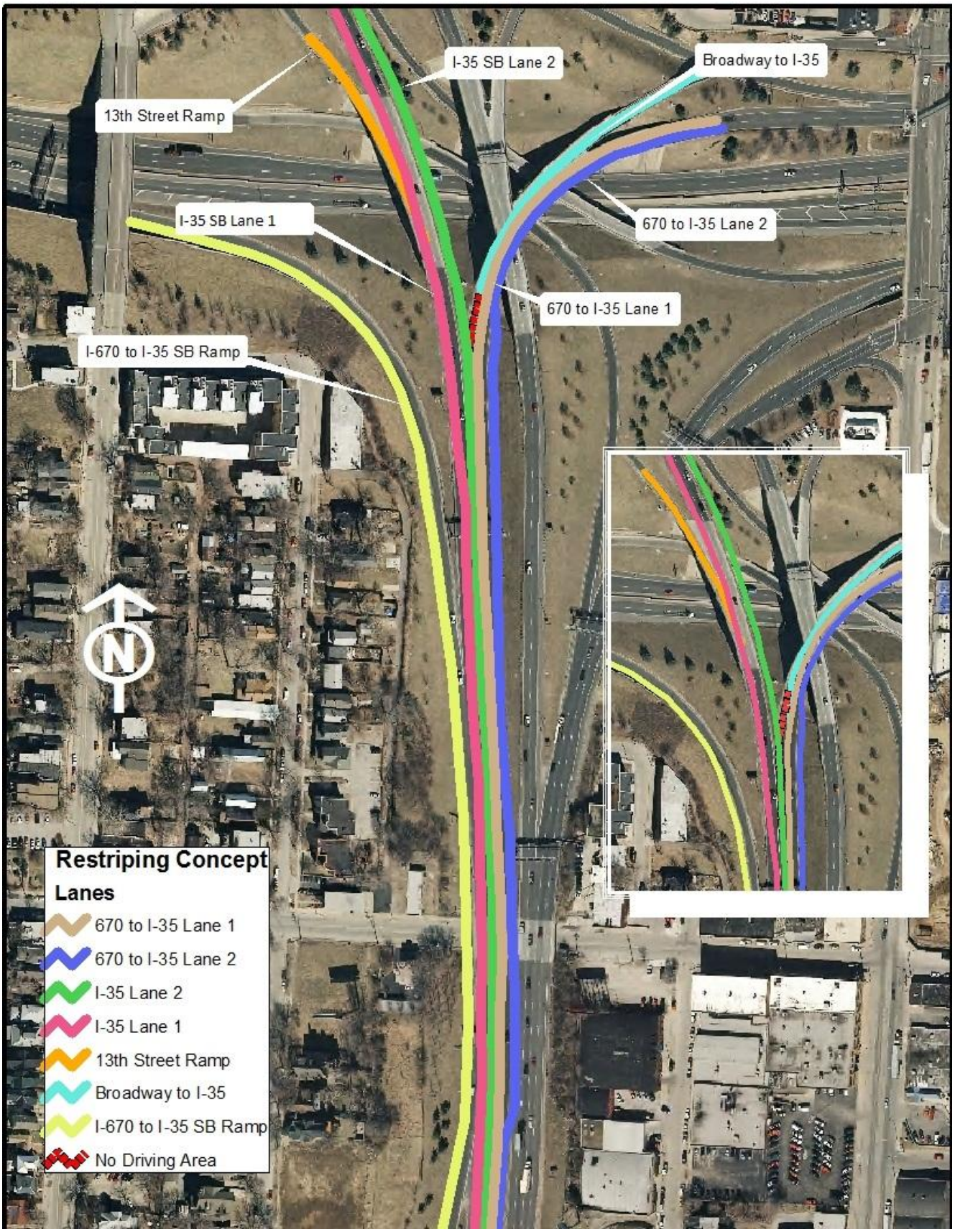


Figure 19 – I-35 Southbound Restriping Concept



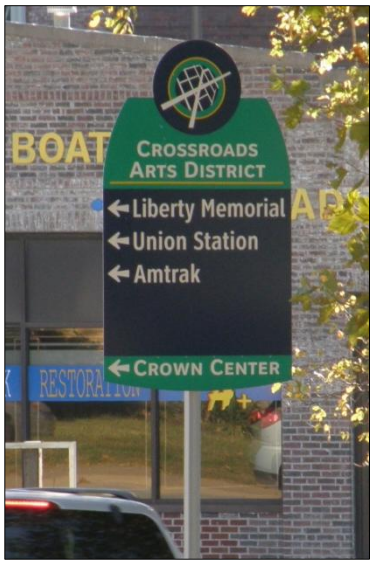
Signage

Signage can help reduce driver confusion and the traffic impacts associated with uncertainty about routing. In addition a good signage system can help commuters, tourists, freight haulers and local residents find an appropriate route to their final destinations. This concept proposes improving signage in the corridor and along alternate routes to provide clear direction to employment areas, activity centers and industrial areas to keep this traffic out of residential neighborhoods.

Picture 8 – Coordinated Wayfinding Signage Example

A coordinated wayfinding system can transition travelers from the state system to local roads. As shown in the example from Grand Rapids, these signs welcome travelers to the neighborhood, direct them to attractions and help non-motorized travelers reach attractions within the neighborhood a neighborhood.[15]

Picture 9 – Kansas City Wayfinding Signs Near Study Corridor



Kansas City, Mo., has a wayfinding signage system, and these signs should be coordinated with state signage in Kansas and Missouri to provide alternate routes to major destinations near the study corridor.

Pictures in the Neighborhood Access and Mobility Section show the current signage in the study corridor. The mixed signage shown in that section does not help travelers or residents make route decisions.

Some examples of enhanced signage in or near the study corridor could include:

- Destination signs at 7th Street Trafficway & Rainbow Boulevard or Southwest Boulevard/Mission Road for

[15] *Michigan Street Wayfinding Signs Conceptual Approach. 2008. Grand Rapids SmartZone. Grand Rapids, Michigan.*

alternate access to the Crown Center, Union Station, Crossroads, West Side, and Hospital Hill.

- Signage to help truckers and livestock haulers navigate the loop reach the West Bottoms and the American Royal via the interstate. Some signage could be placed north of the river to direct travelers to alternate routes into the West Bottoms.
- Create separate exit numbers for the three ramps on northbound I-35 to Topeka, St. Louis and Broadway, so that all three do not use number 2U.

This concept addresses driver confusion and access to the Crossroads, Crown Center, Union Station and Westside attractions and employment centers. There is no additional right-of-way required.

Ramp Meters

This concept seeks to increase space between vehicles to make lane changes easier and safer by addressing weaving problems between Southwest Trafficway and West Pennway. Ramp meters are special signals designed to control the flow of traffic onto an interstate by limiting the number of cars entering the interstate together.

According to the KC Scout site, ramp meters have the following benefits:

- Smoother and safer freeway entries.
- Minimized sudden weaving and braking.
- More consistent traffic flows.
- Improved freeway speeds.
- Decreased travel times
- Reduced rear end accidents.

Picture 10 – Ramp Meters in the I-435 Corridor

One location in the study corridor where ramp meters might be considered is at the Southwest Trafficway/Broadway entrance ramp. This is an area where two arterials merge onto a single ramp. Because this entrance ramp is close to the West Pennway exit ramp, there is very little space for vehicles entering and exiting the interstate to change lanes.

There are no impacts beyond existing MoDOT or city right-of-way.

Streetscape

Streetscape projects can be simple, small spaces or longer corridors that provide green or other aesthetic elements to create an attractive area that supports walking and other street level activity.[16] In the study area, streetscape improvements would be used to link neighborhoods separated by the interstate together.

Picture 11 – Small Street-Level Green Space

One of the unique features of I-35 in the study area is that two long sections of interstate are elevated on bridges. In most of the corridor, however, the land owned by MoDOT does not extend much farther than the bridge structure. In order to better link the neighborhoods together, streetscape projects will require a partnership between neighborhoods, the City of Kansas City and MoDOT. These partnerships will also ensure that design concepts from the Greater Downtown Area Plan and other neighborhood studies are incorporated into proposed projects.

Picture 12 – Public Art under the Aurora Bridge in Freemont, WA

Participants in the first neighborhood meeting indicated that they would like to enhance the streetscape along local streets that cross under the viaduct. Some of the sidewalks were in good condition. However, others were broken, interrupted by obstructions and littered with debris and dirt or gravel. In addition, the area under the viaduct was mostly gravel and dirt with a great deal of soil washing down the hill onto the sidewalks and dust blowing on windy days.

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[16] *Photo courtesy http://philip.greenspun.com*

This concept addresses the need to improve the pedestrian environment beneath the viaducts and strengthening connections between neighborhoods. There could be some right-of-way impacts to the neighborhoods, depending on the scope of each project. These impacts could include temporary easements for construction to permanent easements for street features.

Medium Cost Concepts ($15 - $25 Million)

Medium cost concepts are expected to range in cost from $15 to $25 million in 2010 dollars.[17] These concepts are substantially higher than the lower cost concepts because they include more significant changes to the existing infrastructure.

20TH Street Ramps

Ramps in urban areas are often too close together and tend to be shorter than current standards would require. When ramps are too short, there is no room for acceleration, so cars enter the highway at slow speeds. Drivers on the interstate have to brake or change lanes suddenly to avoid these vehicles. When ramps are too close together, drivers entering and exiting the interstate are changing lanes within the same space, which can lead to sudden braking and lane changes.

This concept addresses the spacing between ramps and weaving to get into the correct lane. To increase the distance between Southwest Trafficway/Broadway and the next interchange to the north, West Pennway ramps would be relocated north to 20th Street. A new exit ramp from northbound I-35 and a new entrance ramp to southbound I-35 would be constructed. These new ramps would give drivers from Southwest Trafficway/Broadway more distance to merge with northbound I-35 and get into the correct lane. Southbound commuters would also have more ramp length for acceleration before merging with southbound I-35.

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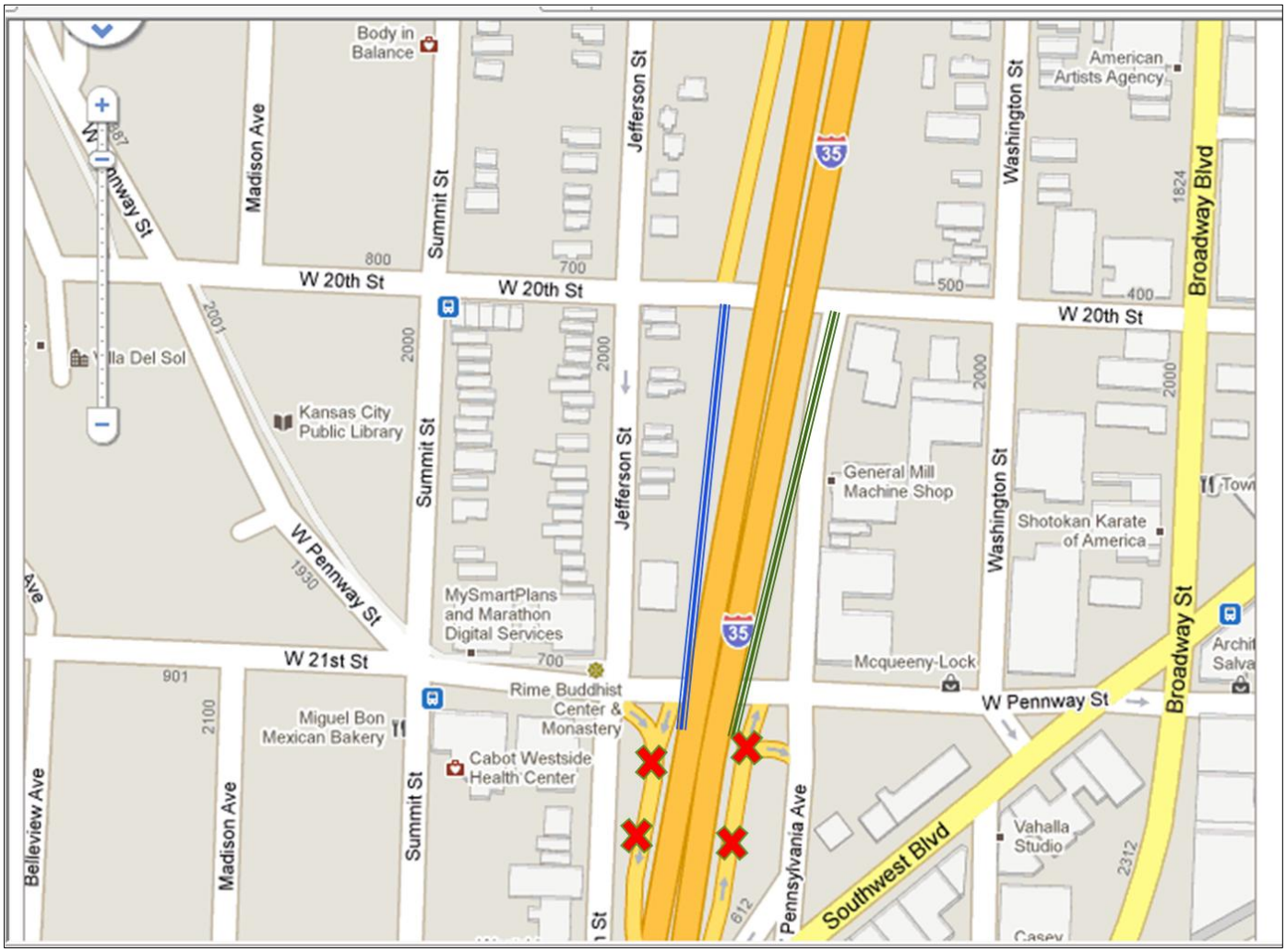
[17] *These costs do not include any right-of-way cost estimates.*

Figure 20 – 20th Street Interchange



This concept could be impactful to portions of the residential block between 20th and 21st Streets on the west side of the interstate and the fire station. MoDOT strives to minimize impacts, but exact information would require more detailed design. Figure 20 shows a map view of two new directional ramps at 20th Street.[18]

27th Street Access

The most direct access to and from the Crown Center, Hospital Hill or Crossroads areas from Kan. is via West Pennway, but the exit ramp from northbound I-35 is too close to the Southwest Trafficway/Broadway entrance ramp. During rush

[18] *Google Maps. Kansas City, MO. 2010.*

hour, the lanes between Southwest Trafficway and West Pennway become congested making merging and lane changes difficult. The West Pennway entrance to southbound I-35 does not appear to conflict with the left exits to Broadway and Southwest Trafficway, but because the entrance ramp is short, drivers cannot accelerate before entering the interstate causing safety concerns when traffic is congested.

This concept would build a modified half diamond interchange at 27th Street to provide an alternative to the West Pennway interchange. The new interchange would include an exit ramp from northbound I-35 and an entrance ramp to southbound I-35. Because the right-of-way in this area is limited on the east side of the interstate, the new ramp from northbound I-35 would exit to the left. On the west side of the interstate, the ROW is wide enough to accommodate a standard entrance ramp to southbound I-35 with no permanent impacts to the neighborhood. Figure 21 shows the new ramps at 27th Street

This concept does not have a significant right-of-way impact. However, there may be some temporary easements required to construct the southbound I-35 entrance ramp. More detailed design is necessary to precisely determine if any properties will be impacted.

27th Street Underpass

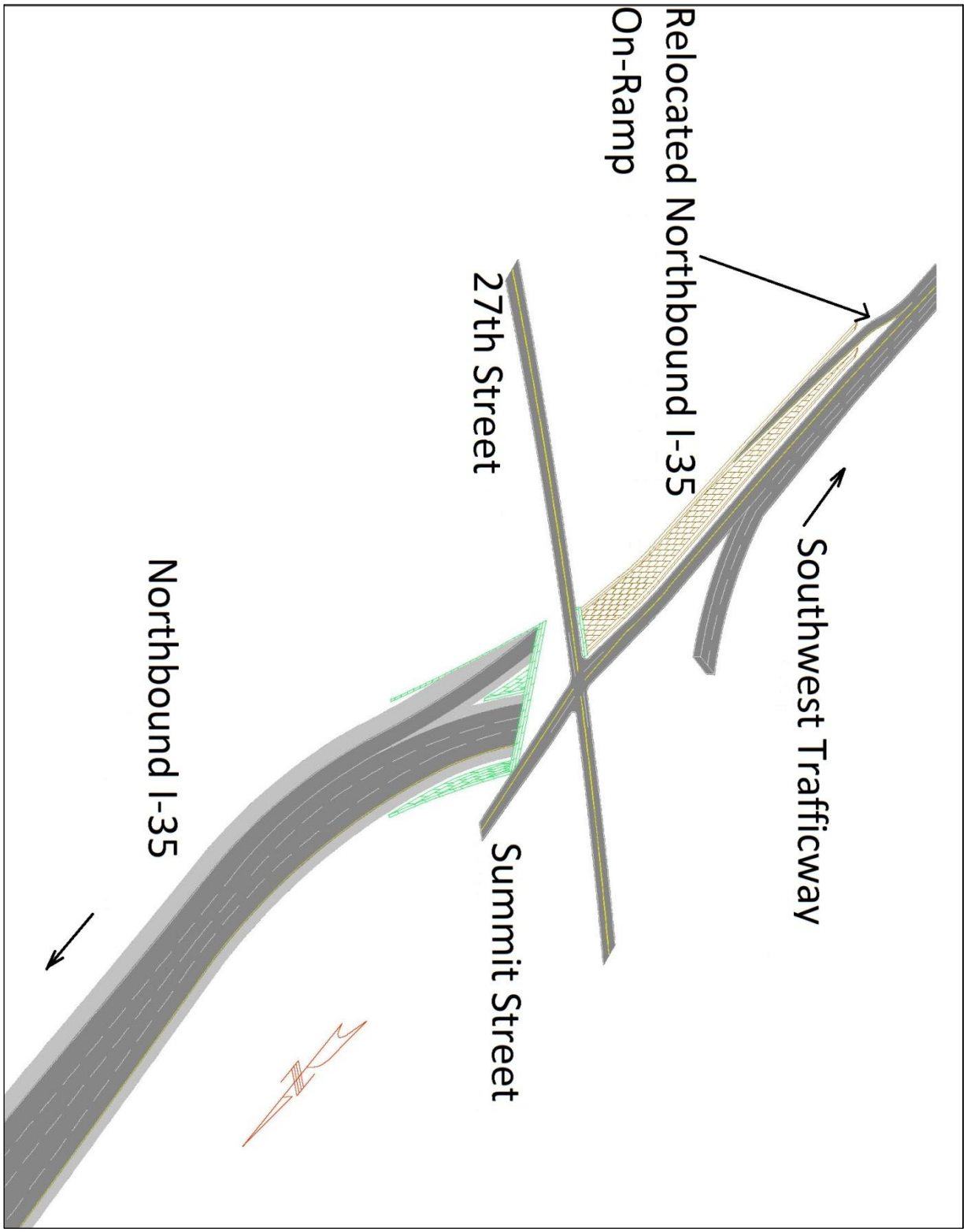
As presented in other concepts, improving traffic flow between closely spaced interchanges can be achieved by separating the ramps. This concept would separate Southwest Trafficway from Broadway to provide more distance for merging into highway traffic. A section of Southwest Trafficway would be reconstructed. Traffic entering the interstate from Southwest Trafficway would merge into a single lane on the entrance ramp. The new ramp would be built under 27th Street.

Existing intersections would be modified. The existing northbound Southwest Trafficway ramp would be removed. In addition, the 27th Street intersection at Penn Valley Drive/Broadway would need to be adjusted to allow local traffic from 27th Street or Summit Street to make a left turn onto the Broadway/Penn Valley Drive ramp to northbound I-35. Figure 22 shows the realignment of the Southwest Trafficway new entrance ramp.

This concept would shift Southwest Trafficway to the east slightly, which would impact Penn Valley Park.

Figure 21 – New Left Exit and Entrance at 27th Street

Figure 22 – 27th Street Underpass



Higher Cost Concepts ($40 - $80 Million)

Higher cost concepts costs are estimated to be between $40 and $80 million dollars without any right-of-way estimates. These projects include substantial new or reconstruction at interchanges.

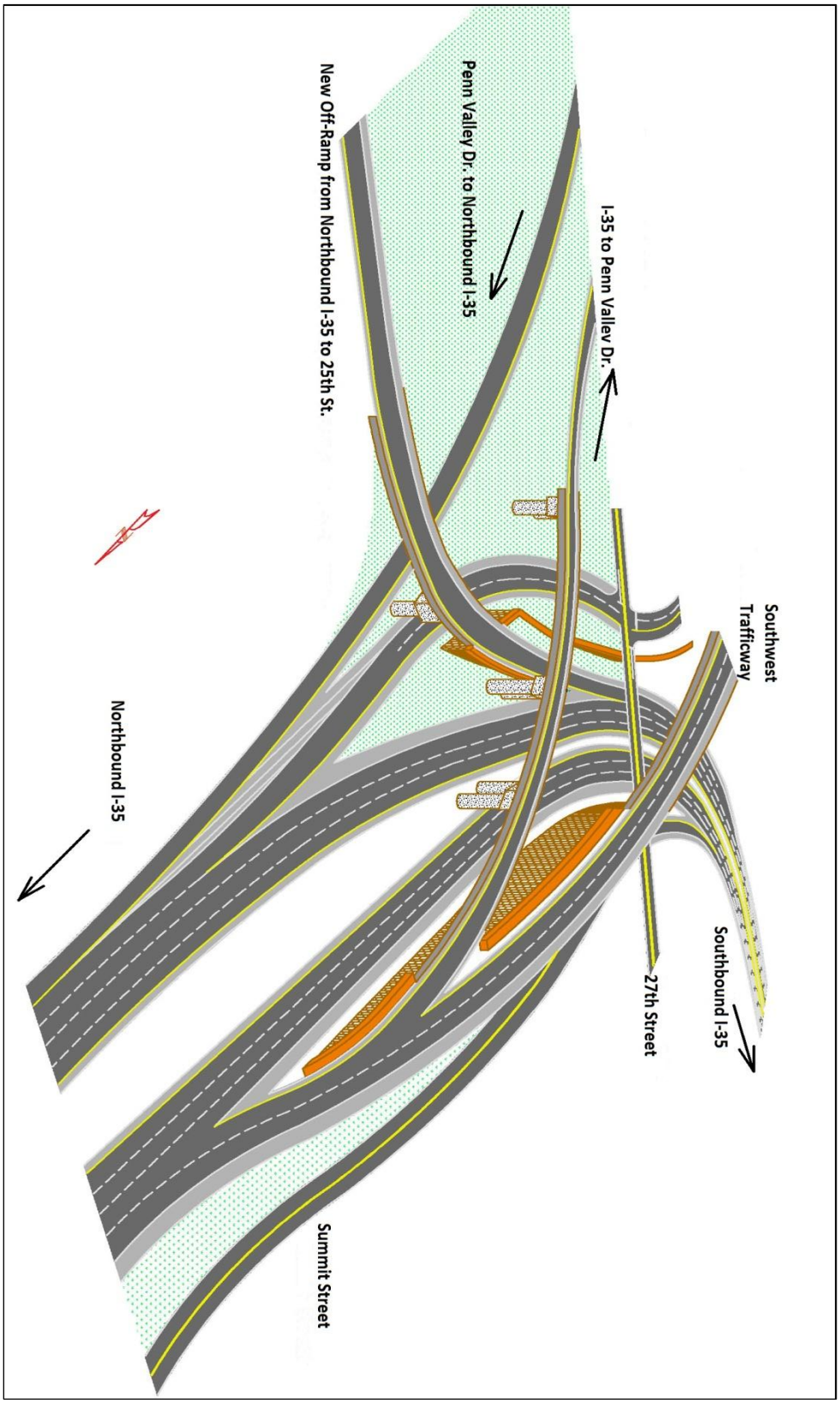
Rebuild Interchange

The Southwest Trafficway/Broadway interchange was built when traffic was moving from southern parts of Kansas City to downtown in the morning and back home at night. Today's traffic patterns are much more complicated and dispersed, making access to and from the interstate difficult from some directions. In order to improve access into the Crown Center and Crossroads areas, this concept proposes a complete rebuilding of the Southwest Trafficway and Broadway interchange from 26th to 27th Streets.

The southbound lanes of I-35 would be moved closer to the northbound lanes to provide extra right-of-way for rebuilding ramps and connections to the local system. The existing left exits to Southwest Trafficway and Broadway would be removed. In place of these ramps, a new right exit would be constructed, and Summit Street would be straightened and moved slightly to the west. A new ramp to southbound Broadway would exit from the left side of the new auxiliary lanes. Travelers could exit northbound I-35 at 26th Street to avoid the lane change at the West Pennway exit. A new entrance ramp would be added from 27th Street to southbound I-35. The Southwest Trafficway/Broadway entrance ramps would essentially stay the same. This concept is shown in Figure 23.

More detailed design is required to determine if there are any property impacts. However, initial indications are that the improvements are wholly within existing right-of-way, although there may be some construction easements required.

Figure 23 – New Interchange at Southwest Trafficway and Broadway



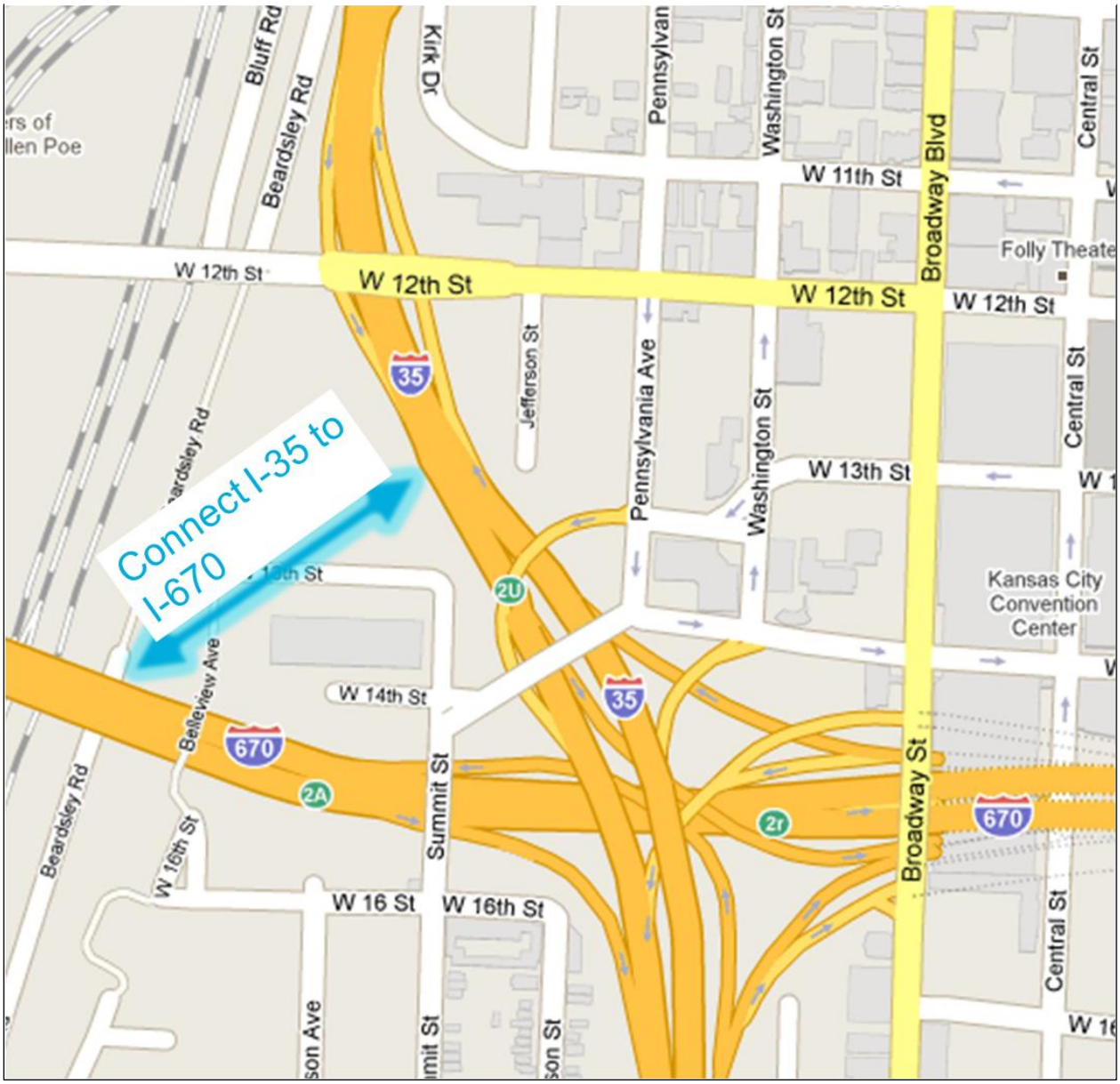
New I-670 Ramps

On the west side of the loop, the I-670 interchange with I-35 does not provide full access to both interstates. Travelers on southbound I-35 who want to go westbound on I-670 must take eastbound I-70 to westbound I-670. Likewise travelers from the West can only access northbound I-35 via eastbound I-670 and westbound I-70 on the east side of the loop. The missing ramps and the lack of directional signing north of the river can lead many travelers into the neighborhoods of the Westside as they try to find a way into the West Bottoms or a way to turn around to get back on the interstate.

This concept would look for options to add directional ramps for I-35 and I-670 so that the interchange is fully directional. This option needs a significant amount of study because it affects the operation of the entire downtown interstate loop. In order to study alternate alignments in the appropriate detail this concept will be included in the future I-70 Second Tier Environmental Studies. This concept is shown on a map in Figure 24.

There will be right-of-way impacts with this concept, however more detailed design work is necessary to identify alternatives in order to determine the amount and location of right-of-way impacts.

Figure 24 – New Directional Ramp from I-35 Southbound to I-670 Westbound



Conclusions

The Missouri Highways and Transportation Commission and MoDOT senior management have created a five-year direction to address the limited and uncertain availability of funds between 2011 -2015. The new five-year direction impacts the I-35 Operational Study conclusions and recommendations.

In the next five years, MoDOT is facing:

- Stagnant state revenues
- Uncertain federal funding
- Rising internal costs
- No more money from Amendment 3 bonds
- A construction program 2011-2015 that averages just $500 million a year - barely enough to take care of the existing system

Given the funding situation, MoDOT has pledged to complete the following activities:

- Honor our commitments
- Keep major roads in good condition
- Improve minor roads
- Hold our own on bridges
- Provide outstanding customer service

However, because the amount of funding available is limited, MoDOT will not be able to:

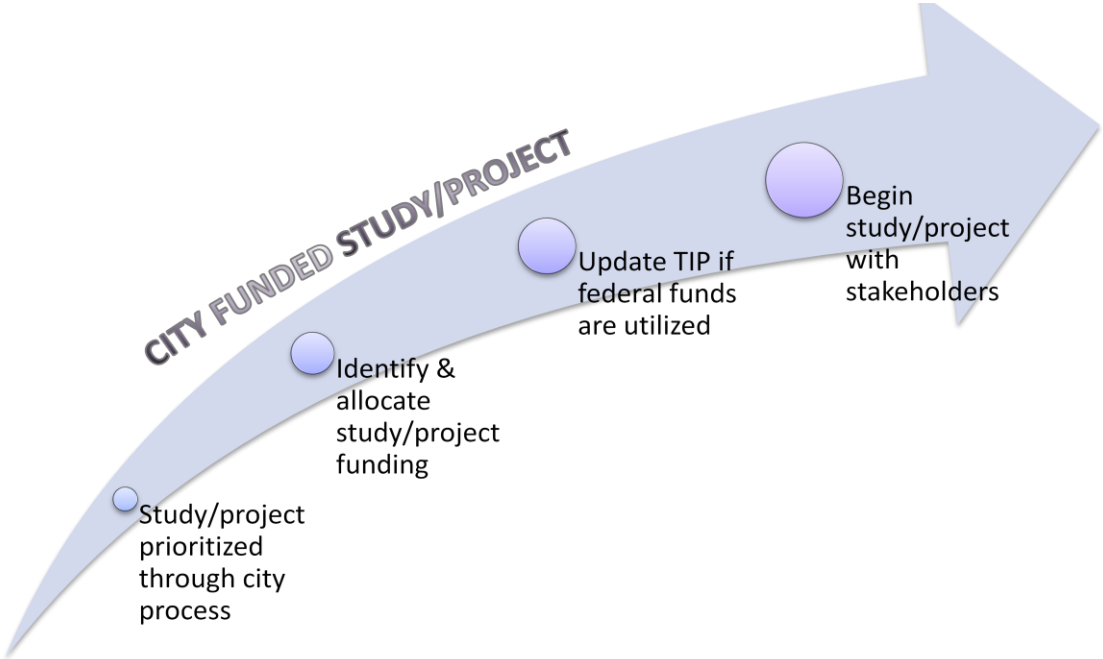
- Make significant safety improvements
- Reduce congestion
- Support economic development
- Use longer-term treatments
- Deliver corridor improvements
- Deal with major bridges

Based upon MoDOT's five year direction and uncertain funding availability, this study does not include a specific set of recommendations for the study corridor. Instead a range of concepts is presented in lower, medium and higher cost categories. This strategy is designed to provide MoDOT flexibility to mix and match options in the corridor to respond to changing conditions and community priorities over the next 20 years. For instance, lower cost concepts provide an opportunity for short-term improvements, and they can be pursued individually or in combination with any other lower, medium or higher cost concept.

In order for a project in the study corridor to come forward for study, design or construction, there are two processes for getting a new study or project started. The process depends on whether Kansas City or MoDOT funds the study/project. If the city funds a project, then the city would need to follow its internal process for project selection and prioritization. When the funding is identified and allocated, then the project would need to be included in the regional Transportation Improvement Program (TIP) if federal funding is going to be utilized. When funding is available, the city will be able to begin the study or project with stakeholders, including MoDOT, KDOT and FHWA, if changes to the interstate or interstate right-of-way are involved.

However if MoDOT funds a study/project, then there are slightly different steps to follow in

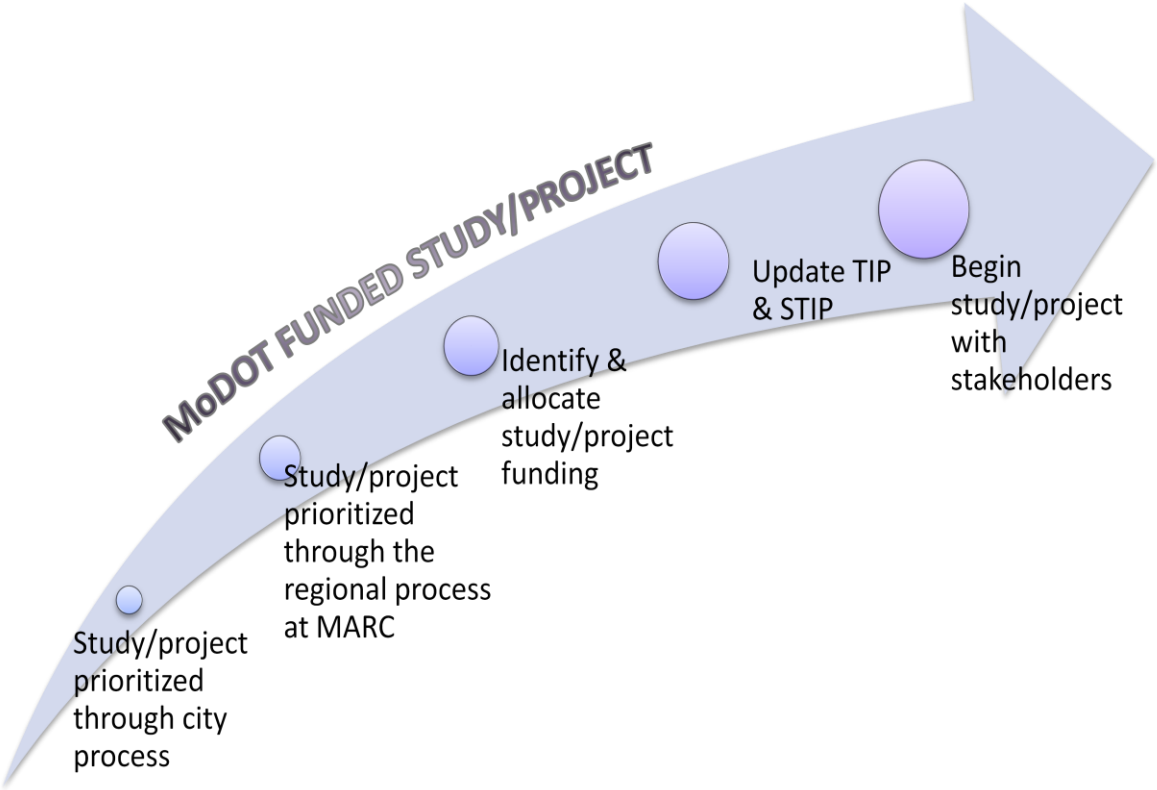
Figure 25 – Local Project Process from Concept to Construction



order to make funding available. The study/project must still be selected and prioritized through Kansas City's internal process and then be prioritized through the regional process at MARC. Once funding is identified and allocated, the study/project would be included in the TIP and the State Transportation Improvement Program (STIP). At that point, the study/project can begin with stakeholders, including MoDOT and KDOT.

As studies/projects are identified for funding in this corridor, most of them will include additional opportunities for public input and coordination. Projects such as restriping a section

Figure 26 – State Funded Project Process from Conception to Construction



of I-35 or installing guardrail may not have additional public input. However projects that impact surrounding neighborhoods, such as landscape enhancements under the viaduct or any significant change to the existing infrastructure would require more extensive public input and coordination with the city and neighborhoods.

I-35 OPERATIONAL STUDY

Appendices

A – Existing Conditions Data
B – Bridge Condition Ratings
C – Public Involvement Documents
D – Race and Ethnicity Definition

Pavement Condition Review

		TMS Review			
	Begin Log Mile	End Log Mile	Pavement Age (Yr)	Pavement Condition	History
I-35 North	0.048	1.029	14	Good	*Resurfacing/Cold Milling/Bridge Rehab-Oct. 1 1995
I-35 North	1.029	1.606	N/A	N/A	Refer to Bridge Information
I-35 North	1.606	2.025	2	Good	*Resurfacing/Cold Milling/Bridge Rehab-Sept. 1 2007
I-35 South	111.979	112.398	2	Good	*Resurfacing/Cold Milling/Bridge Rehab-Sept. 1 2007
I-35 South	112.398	112.975	N/A	N/A	Refer to Bridge Information
I-35 South	112.975	114.053	14	Good	*Resurfacing/Cold Milling/Bridge Rehab-Oct. 1 1995

* Refer to As-built Plans
J4I1039 (1995 Plans)
J4I1573 (2007 Plans)

Radii:

Curve Number	Project	Location	Measure	Desired Measure	% of standard
43	I-35-1(30)	Lane W-S	409.26	587	69.72%
10	I-IG-35-1(57)	Lane T-N	572.958	960	59.68%
12A	I-IG-35-1(57)	Ramp B-N	381.972	960	39.79%

SSD:

P.V.I. Sta.	Project	Location	Measure	Desired Measure	% of standard
7+50	I-35-1(7)	Lane S-E	310	344	90.12%
11+25	I-35-1(7)	Lane S-E	355	378	93.92%
24+75	I-IG-35-1(57)	Lane N-W	444	469	94.67%
30+50	I-IG-35-1(57)	Lane N-W	450	469	95.95%

Horizontal Sight Distance:
35N tunnel should be offset 10', currently about 7', see exhibit 3-53

Shoulder Width:

Section, Side	Log Mile Beginning	Log Mile End	Measure	Desired Measure	% of standard
670E to 35S, R			2	8	25.00%
670W/Truman North to 35S, R			2	8	25.00%
Pennway to 35S, R			0	8	0.00%
Greystone to 35N, R			4	8	50.00%
SW Trfwy to 35N, R			2	8	25.00%
Broadway to 35N, R			2	8	25.00%
35S to 20th, R			2	8	25.00%
35S to SW Trfwy, R			4	8	50.00%
35S to Greystone, R			4	8	50.00%
35N to Pennway, R			0	8	0.00%
35N to 670E/W Truman/670W, R			4	8	50.00%
35N, R	before .048	0.149	6	10	60.00%
35N, L	0.149	0.347	2	4	50.00%
35N, R	0.149	0.347	2	10	20.00%
35N, R	0.347	0.828	7	10	70.00%
35N, L	0.828	0.928	1	4	25.00%
35N, R	0.928	0.928	6	10	60.00%
35N, L	0.928	1.029	1	4	25.00%
35N, R	0.928	1.029	2	10	20.00%
35N, L	1.029	1.349	1	4	25.00%
35N, R	1.029	1.349	1	10	10.00%
35N, L	1.349	1.349	1	4	25.00%
35N, R	1.349	1.349	1	10	10.00%
35N, L	1.349	1.787	1	4	25.00%
35N, R	1.349	1.787	6	10	60.00%
35N, L	1.787	beyond 1.828	1	4	25.00%
35N, R	1.787	beyond 1.828	1	10	10.00%
35S, L	112.433	112.633	1	4	25.00%
35S, R	112.433	112.633	1	10	10.00%
35S, L	112.633	112.813	1	4	25.00%
35S, R	112.633	112.813	4	10	40.00%
35S, L	112.813	113.353	1	4	25.00%
35S, R	112.813	113.353	1	10	10.00%
35S, R	113.353	113.575	8	10	80.00%
35S, R	113.575	113.613	7	10	70.00%
35S, R	113.613	beyond 114.013	7	10	70.00%
35S, L	beyond 114.013	beyond 114.014	2	4	50.00%
35S, R	beyond 114.014	beyond 114.014	4	10	40.00%
35S, R	beyond 114.014	beyond 114.015	6	10	60.00%

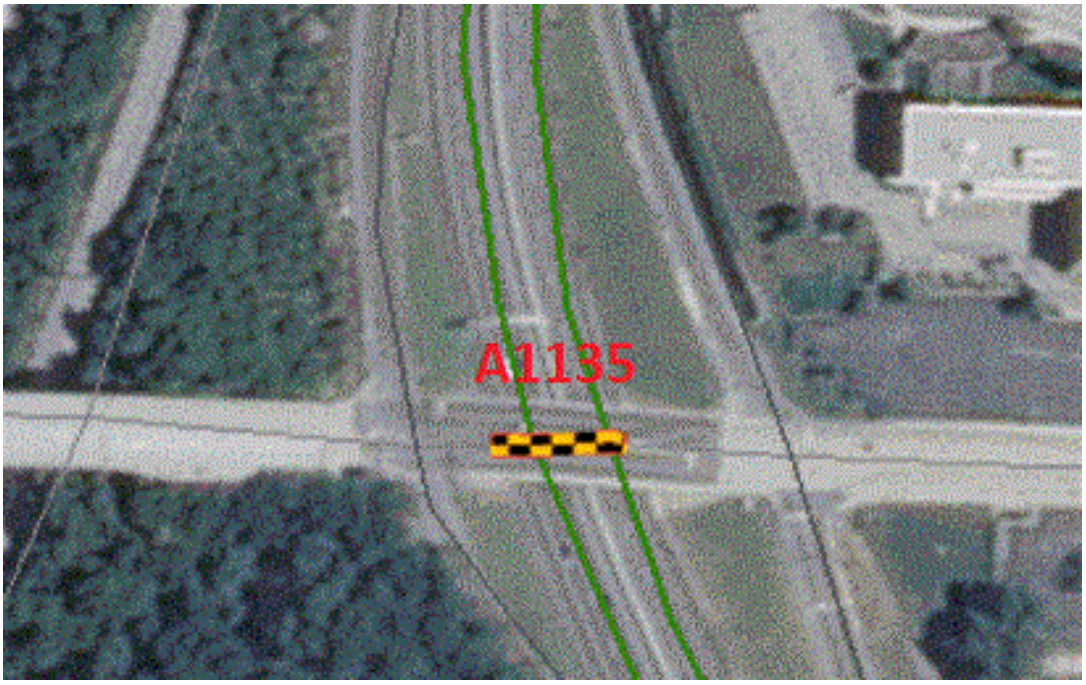
Min. Lengths for Terminals (Ex. 10-70,71,73)

Ramp	Grade	Factor: 10-71	Measure	Desired Measure	% of Standard
Pennway to I35S	2.875	1.35	650	756	85.98%

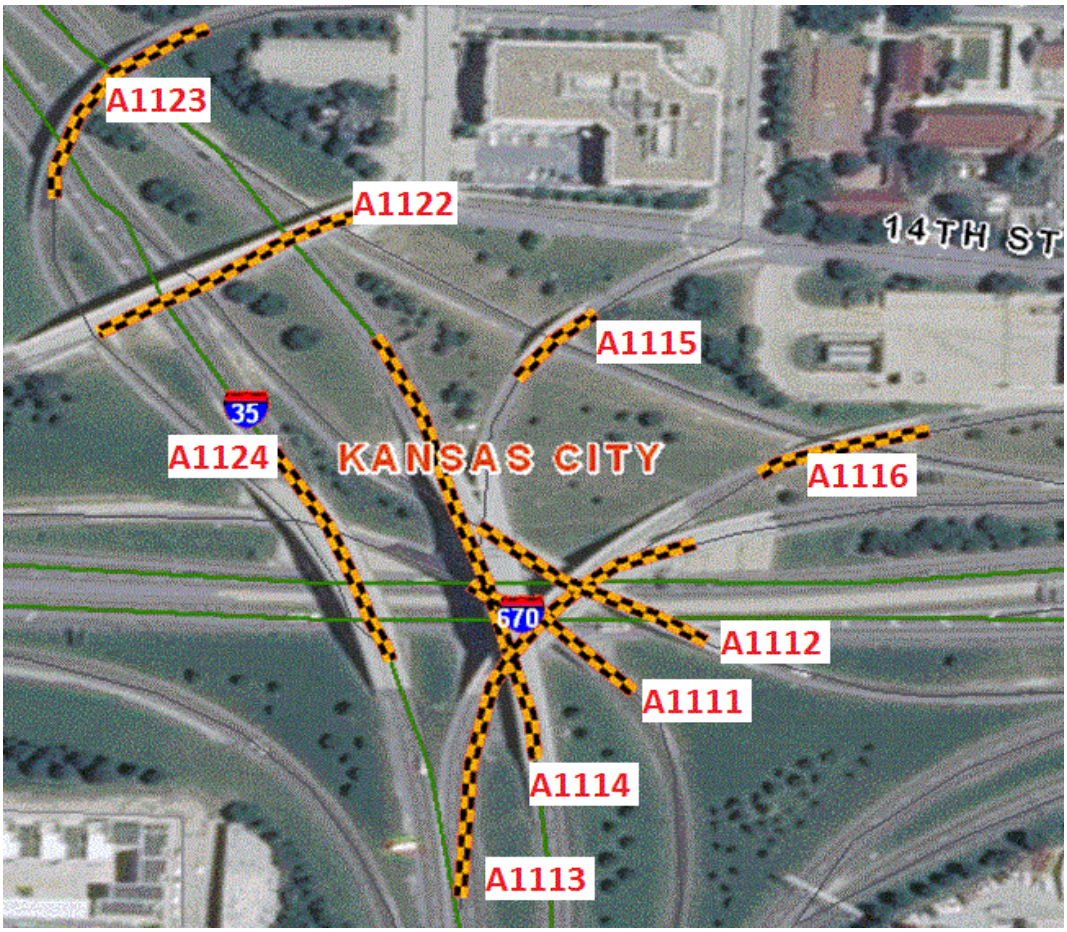
BRIDGE CONDITION RATINGS		
Code	Description	Definition
N	NOT APPLICABLE	
9	EXCELLENT CONDITION	No problems noted.
8	VERY GOOD CONDITION	No problems noted.
7	GOOD CONDITION	Some minor problems.
6	SATISFACTORY CONDITION	Structural elements show some minor deterioration.
5	FAIR CONDITION	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.
4	POOR CONDITION	Advanced section loss, deterioration, spalling or scour.
3	SERIOUS CONDITION	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	CRITICAL CONDITION	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1	IMMINENT FAILURE CONDITION	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put back in light service.
0	FAILED CONDITION	Out of service - beyond corrective action

Existing Bridges								
						Condition Ratings		
Bridge No.	Location	Type	Length (Ft.)	Width (Ft.)	Year Built	Deck	Superstructure	Substructure
SOUTHWEST BOULEVARD								
A1701	N-35	PLATGIR	1055	45.4	1967	3	5	5
A1701	S-35	PLATGIR	1055	45.4	1967	5	5	6
JARBOE STREET								
A1702	N-35	BXGRCIPMUL	137	55.3	1967	6	6	6
A1703	S-35	BXGRCIPMUL	162	55.3	1967	6	7	6
SOUTHWEST TRAFFICWAY TO 20TH AND 17TH STREET								
L0232	N-35	GIR/FBMSYS	2952	111.67	1946	6	6	5
L0232	S-35	GIR/FBMSYS	2952	111.67	1946	6	6	5
A1126	N-35	RIGFRAM	67	67.9	1965	6	6	6
A1126	S-35	RIGFRAM	67	67.9	1956	6	6	6
SOUTHWEST TRAFFICWAY/BROADWAY INTERCHANGE								
L0248	S-35	BB	186	31	1949	5	5	6
A1705	S-35	BXGRCIPMUL	156	50.8	1966	7	7	7
A1708	S-35	BXGRCIPMUL	202	67.3	1966	6	6	7
A1704	27TH ST	FRAM	232	47.5	1966	5	5	7
12TH STREET								
A1135	I-35	SLAB	166	55	1965	5	5	6
I-670 INTERCHANGE								
A1113	S-35	BB	362	44.5	1967	6	6	7
A1111	S-35	BB	277	19.5	1967	7	7	8
A1112	N-35	BB	308	18.5	1967	7	7	7
A1114	N-35	BXGRCIPMUL	464	34.2	1967	7	6	7
A1115	N-35	SLAB	91	20	1967	8	7	8
A116	S-35	BB	140	18.5	1967	6	6	6
A1122	14TH ST	BB	404	26	1965	7	6	6
A1123	13TH ST	BB	265	19.5	1967	7	7	6
A1124	S-35	BB	294	32.6	1967	8	6	6

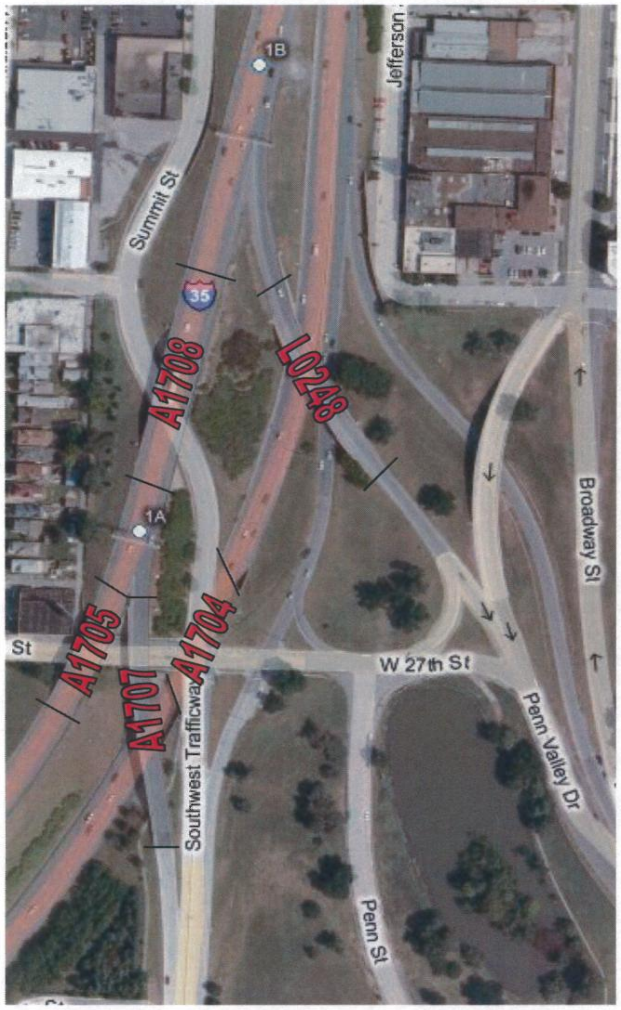
12TH St. Bridge over I-35



I-670 Interchange

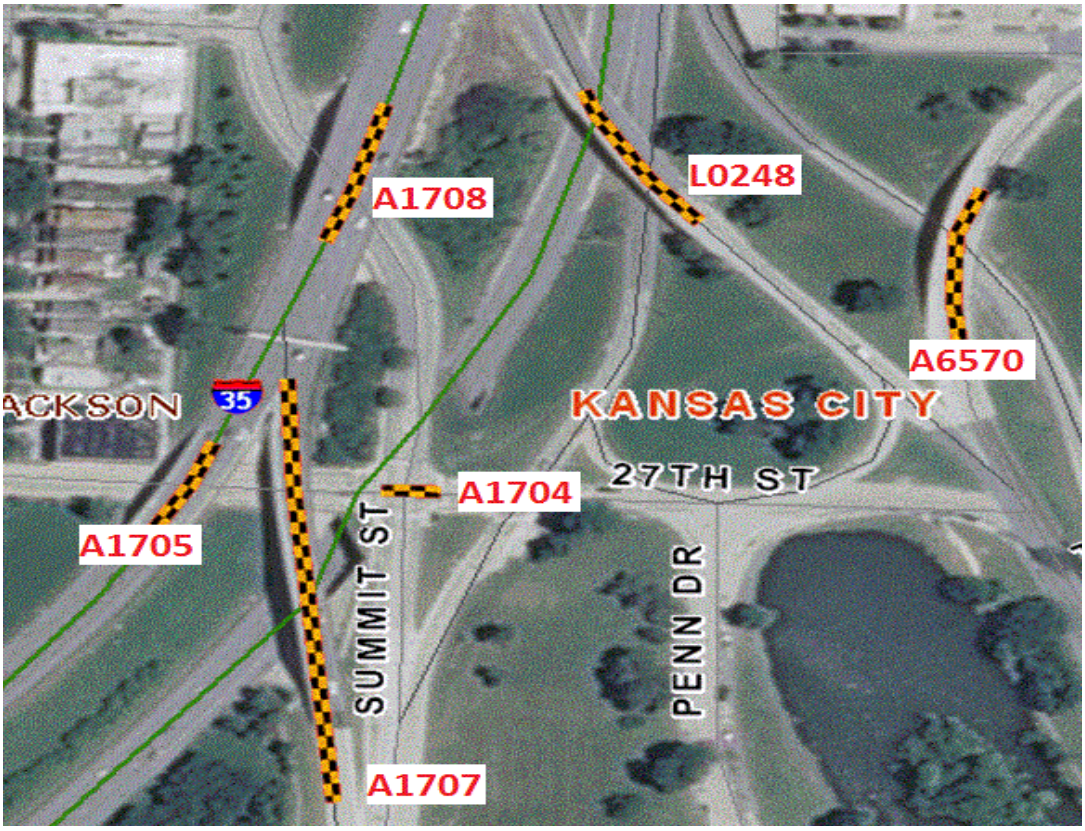


Viaduct from 20th St., Southwest Trafficway & Broadway Interchange, Jarboe St., Viaduct over Soutwest Boulevard



17th St. Bridges

Southwest Trafficway & Broadway/Pennway Interchange



I-35 OPERATIONAL STUDY

Sacred Heart Guadalupe Meeting Hall
June 22, 2010

Meeting Attendees: 20

Attendees were asked to sit at tables with maps. Missouri Department of Transportation (MoDOT) staff gave a short presentation on the review of traffic operations and facility condition for I-35. The presentation covered topics such as why MoDOT is studying this section of the I-35 corridor, how ideas become projects, an overview of the feasibility process, the study time line and existing traffic conditions on I-35. MoDOT indicated to the group that the intention of this study is not to add general purpose lanes to I-35 in the study area. Our goal is to stay within the existing right-of-way to the extent possible. For instance, if the study finds that access is an issue in this corridor, we might need some additional right-of-way to add new entry and exit ramps. To view the presentation, click the link below:

Workshop Presentation

MoDOT asked the groups to use the maps on their tables and note pads to document their concerns or needs related to I-35. From their list, participants were then asked to present their top 5 priorities for MoDOT to attempt to address. The information below comes from the maps and notes at each table.

TABLE 1 – Summary Notes

- 31st & Main there are signal timing issues at the new bank
- Better pedestrian access
- I-35 realigned through the West Bottoms
- Incident – better detour routing needed so that trucks running thru neighborhoods as a detour[1]
- 27th Street left exit – thru traffic uses the left lane and changes at the last minute*
- No more access needed
- Don't want to impact houses, businesses, parks, etc., for improvements
- More visibility at diverging points for traffic to SW Trafficway and I-35, repaint*
- Concern if more traditional access is added that there will be more traffic thru neighborhoods
- Slower speeds like those on Bruce R. Watkins Drive
- Better geometrics and signage at Broadway and 27th Street exit to address the curve – safety concern
- Weaving going into downtown
- Folks merging onto I-35 Northbound from Pennway do not yield*

[1] *Asterisk indicates that words were added or rearranged to clarify the point.*

- Traffic impacts due to the Federal Reserve Bank & IRS
- Noise and air pollution
- Landscaping/beautification of the corridor
- Better signage
- Cross Streets – roadway & sidewalks need to be cleaned up

TABLE 1 – Priorities

- Better geometrics and signage at Broadway and 27th Street exit to address the curve – safety concern
- Noise and air pollution
- Better signage
- Incident – better detour routing needed so that trucks running thru neighborhoods as a detour*
- 27th Street left exit – thru traffic uses the left lane and changes at the last minute*
- Incident – better detour routing needed so that trucks running thru neighborhoods as a detour*
- Don't want to impact houses, businesses, parks, etc., for improvements

TABLE 2 – Discussion Notes

Participants at Table 2 had specific issues with uses underneath MoDOT viaducts. Workshop staff and participants drove over and identified the issues under the bridge. The list of concerns were passed onto MoDOT staff to address any conflicts with the lease.

TABLE 3 – Discussion Notes

- Eliminate noise – Sound walls, etc.
- Jake brake
- Maintenance
- Speed limit should be lower
- Air horns
- Enforcement of laws
- Pigeons (better pedestrian connections under I-35)
- Homeless persons
- Alternatives/mass transit
- Broadway on-ramp heading north
- People concerns take priority over vehicular

TABLE 3 – From Map

- Relocate I-35 to West Bottoms
- Traffic congestion near 21st St.
- Noise from the Jake brakes on the curve between Cambridge and Summit*
- Traffic calming at Broadway and SW Trafficway interchanges*
- Better pedestrian access
- Improve space under bridges
- Improve pedestrian connections

- Crown Center access and navigation

TABLE 3 – Priorities

- No new ramps into neighborhoods
- Consolidated/redesigned ramp system to reduce traffic burden on neighborhoods
- Impacts on neighborhoods, property owners, pedestrians should be studied outside the 300 ft. study area boundary – possibly miles beyond right-of-way *
- Design roads to reduce speed/aggressive driving
- Pedestrian friendly spaces under bridges allow neighborhoods to heal/grow back together
- Noise travels for miles (not just 300 ft.)
- Mass transit
- People before cars

TABLE 4 – Discussion Notes

- Relocate I-35 to the West Bottoms
- Billboards in the corridor – (Approximately 75-80) Limit number and brightness of boards*
- Lead contamination
- Air Quality
- Noise
- Vibration
- Add trees – mix of deciduous and evergreen
- Good work keeping the right-of-way nice
- RR property maintenance – especially the fencing near 25th & Summit*
- Excess right-of-way
- Short merges/weaves not marked well – address with ramp meters or remove lane on SW Trafficway*
- Joints on the bridge over SW Boulevard are noisy*
- Guardrail at Summit & 27th St. southbound
- Short merges
- Snow plows throwing snow – especially on SW Boulevard*
- At 20th, 21st, and other locations soil erosion and mud under bridges*
- At Jarboe, roadway looks bad, especially after cutting brush*
- Redevelopment potential

TABLE 4 – Discussion Bullets

- Idling time
- Lead
- Air Quality
- Noise
- Light – too much
- Billboards – lights, noise, lumens/candle
- Underpass/Summit/25th (weeds, pulled down fences, weeds growing up poles)

- Property – sell if no crucial (MoDOT right-of-way?) *
- Broadway merge with SW Trafficway, need better signage, lines and ramp metering
- 27th / Summit St. & SW Trafficway interchange/intersections*
- Baffles on I-35 at SW Boulevard and Jefferson
- 27th & Madison Guardrail

TABLE 4 – Priorities

- General weaving (Northbound at SW Trafficway/Broadway and Northbound at the 20th St. exit)
- Environmental and aesthetics in the corridor
- Need more trees and bushes
- Work to control number of billboards and light pollution from them

The Westside CAN Center also submitted the attached list of issues for consideration

Tuesday, June 22, 2010 Sacred Heart Hall
Meeting w/ Mo-DOT

Air Quality	need to plant more trees/bushes - fir/cedar/tall burns eyes and noses, lungs; grimy soot;
Billboards	property maintenance -contact info clearly visible moratorium on billboards (35+ between Cambridge Circle & Broadway) should be restrictions of lights/lumens/candles used by BB companies in residential areas low sound emissions from lights & mechanics
Noise/Earth Tremors	need new/upgraded baffles I-35 at SWB/Jefferson - current about 10 yrs Noise - includes vibrations - houses shake with trucks what's the integrity of those berms? How often are they assessed?
Maintenance	A+ for mowing and maintenance however, cut back brush at Jarboe between 28th & 29th now litter more visible not hidden by bushes litter stays there; and soil erosion snow plows - w/ snow, sand etc - plops down on SWB or onto parking lots need to address under I-35 soil erosion, mud etc 20th Street need to address accident debris that falls down from highway 27th & Summit Debris at 20th Street exit
Trees/Bushes	need some sort of native evergreen, bushes and trees dullen sound, block light, filter air/fumes need list of appropriate trees ie bald cypress

Ollie Jane

First On-line Public Meeting Responses

QUESTIONS/RESPONSES	1	2	3	4	5	7	8	9	10
1: Do you live in the Study Corridor Yes/No? No=1 Yes=2	1	1	2	2	2	1	2	0	2
2: If no, which area do you live near	Johnson Co	Johnson Co	E. Jack. Co	E. Jack. Co	NV	Johnson Co	Midtown KC	NV	Midtown KC
3: Area I live in:	NV	NV	NV	NV		NV	NV	NV	nv
4: Do you commute through the study area?	Y	Y	Y	NO	NV	N	no	NV	nv
5: If yes, do you find any part frustrating?	No	Y	Y	N	Y	NV	nv	NV	nv
6: What is the most frustrating part of your trip?	NV	Traffic not move efficiently. Sm accidents cause lg delays	Lane weaving - No Accel. Lanes- 670 to I-35 Ramp Merge is too quick	NV	Merging NB 35 to Broadway - lots of weaving	NV	nv	NV	nv
7: List of choices								NV	
7a) Ramps too short	1	1	1	1	1	1	0	0	0
7b) Choosing correct lanes	1	0	1	1	1	1	1	0	0
7c) Not enough lanes	0	1	1	0	0	0	0	0	0
7d) Shoulders too narrow	0	1	1	0	0	0	0	0	0
7e) Speeds too high through study area	0	0	0	0	0	0	1	0	1
7f) Speeds to low through study area	0	1	0	0	0	0	0	0	0
7g) Convenient access	0	0	0	1	1	0	0	0	0
8: Where in study area do you encounter these issues?	20th St and W. Pennway off ramp & on ramp from 21st	NV	eb 670 TO SB 35 & WB 670 TO SB 35	NV	All on-ramps in corridor short - causing lots of weaving	NB I35 at W Pennway and B-way with SWT NB & SB merging at Exit 1B	SB lane changes are dangerous at I35 and B-way	NV	I-35 SB at SWT ramp lane changes
9: Ranking of issues								NV	
9a) No. 1 issue encountered	NV	Inefficient movement of traffic	Weaving	Access	safety	ramps too short	SWT local connection	NV	SWT local connection
9b) No. 2 issue encountered	NV	Merging	Congestion	Access	speed too high	weaving	driver attitude	NV	driver attitude
9c) No. 3 issue encountered	NV	NV	Ramps too short	merging	bike/ped connections	nv	Ramp speeds too high	NV	Ramp speeds too high
9d) No. 4 issue encountered	NV	NV	Lane balance	city street connections	access	nv	nv	NV	Local Street connections
9e) No. 5 issue encountered	NV	NV	Signage	Poor Aesthetics	NV	nv	nv	NV	aggressive driving
10: Which problem do you think MoDOT should address first?	Signage	Add crash investigation sites off the freeway	LANE BALANCE AND SIGNAGE	Access	Merging	#1 & #2	nv	Realign I-35	no traffic calming

QUESTIONS/RESPONSES	11	12	13	14	15	16	17	18
1: Do you live in the Study Corridor Yes/No? No=1 Yes=2	2	1	2	1	2	1	1	2
2: If no, which area do you live near	nv	Johnson Co	Dwntwn KC	Clay	Johnson Co	Platte Co	Johnson Co	Dwntwn KC
3: Area I live in:	nv	nv	nv	nv	nv	nv	nv	nv
4: Do you commute through the study area?	Y	y	y	Y	Y	n	y	nv
5: If yes, do you find any part frustrating?	Y	y	nv	Y	Y	nv	n	nv
6: What is the most frustrating part of your trip?	congestion at B-way and I-35	backups on I70 and dangerous lane chgs to 71 hwy	nv	short-fast weaves and merges thru dwntwn to SWT	exiting on W. Penn & merges from SWT and B-way	nv	nv	nv
7: List of choices								
7a) Ramps too short	0	0	0	1	1	1	1	1
7b) Choosing correct lanes	0	0	1	1	1	0	1	1
7c) Not enough lanes	0	1	0	0	0	0	0	0
7d) Shoulders too narrow	0	0	0	0	0	0	0	0
7e) Speeds too high through study area	0	0	0	1	0	1	0	1
7f) Speeds to low through study area	0	0	0	0	0	0	0	0
7g) Convenient access	1	0	0	0	0	0	1	0
8: Where in study area do you encounter these issues?	access to destinations at all ramps between Pennway and dwntwn	nv	between I35 and Penn Vly Park	DT loop to SWT	20th street onramp too short & SWT/B-way merge	nv	on-ramp I35 & Main. Access to CC & Perf Art Cntr	Viaduct area - 27th St. to B-way
9: Ranking of issues								
9a) No. 1 issue encountered	Unclear signage	nv	trash/mess under I35	merging	drivers getting into correct in	Enforcement	ramps too close together	weaving
9b) No. 2 issue encountered	poor maintenance	nv	not many other problems	speeding	ramps too short	ramps too short	access	city signals
9c) No. 3 issue encountered	weaving	nv	nv	nv	nv	nv	nv	bird droppings
9d) No. 4 issue encountered	wayfinding signage	nv	nv	nv	nv	nv	nv	bike/ped access
9e) No. 5 issue encountered	bike/ped access	nv	nv	nv	nv	nv	nv	ADA compliance
10: Which problem do you think MoDOT should address first?	signage	nv	nv	nv	changing lanes	nv	#1 & 2	traffic signals

QUESTIONS/RESPONSES	20	21	22	23	24	25	26	27
1: Do you live in the Study Corridor Yes/No? No=1 Yes=2	2	2	2	1	1	1	1	1
2: If no, which area do you live near	nv	Dwntwn KC	Dwntwn KC	midtown KC	midtown KC	Clay	Johnson Co	Johnson Co
3: Area I live in:	nv	nv	kcmo	nv	nv	nv	nv	nv
4: Do you commute through the study area?	y	y	y	y	y	y	y	y
5: If yes, do you find any part frustrating?	nv	y	y	n	y	y	y	n
6: What is the most frustrating part of your trip?	nv	merging NB I35 @ 25th w/exiting to Pennway	merging conflicts at 25th St w/SWT & Pennway	nv	Penn Valley entrances and police enforcement	I35 narrows to 1 lane in NW and SE corner of loop	congestion at rush hour	nv
7: List of choices								
7a) Ramps too short	0	1	1	0	1	0	1	0
7b) Choosing correct lanes	0	1	1	1	1	0	1	1
7c) Not enough lanes	0	0	0	0	1	1	0	0
7d) Shoulders too narrow	0	1	1	0	0	0	0	0
7e) Speeds too high through study area	0	0	0	0	0	0	0	0
7f) Speeds to low through study area	0	0	0	0	0	0	0	0
7g) Convenient access	0	0	0	0	0	0	0	0
8: Where in study area do you encounter these issues?	nv	merging NB I35 @ 25th w/exiting to Pennway	merging conflicts at 25th St w/SWT & Pennway	all on-ramps	nv	NW &SE corners of loop	Near SW Blvd area	nv
9: Ranking of issues								
9a) No. 1 issue encountered	speed of thru traffic	noise	noise	merging	nv	ITS Signage	congestion	repair work
9b) No. 2 issue encountered	nv	noise	noise	nv	nv	lane continuity	nv	nv
9c) No. 3 issue encountered	nv	noise	noise	nv	nv	nv	nv	nv
9d) No. 4 issue encountered	nv	noise	noise	nv	nv	nv	nv	nv
9e) No. 5 issue encountered	nv	noise	noise	nv	nv	nv	nv	nv
10: Which problem do you think MoDOT should address first?	Redir thru traffic to 435 to avoid dwntwn	nv	noise	Not sure. Not want to see lot of construct or encroachment in neighb.	nv	SCOUT sign	add more public transit to lower traff vol.	nv

QUESTIONS/RESPONSES	28	29	30	31	32	33	34	35
1: Do you live in the Study Corridor Yes/No? No=1 Yes=2	1	1	2	1	2	1	2	2
2: If no, which area do you live near	Dwntwn KC	Dwntwn KC	other	Platte Co	nv	Plaza/skc	other	Dwntwn KC
3: Area I live in:	nv	nv	Ray Co	nv	nv	nv	Coleman Highlands	nv
4: Do you commute through the study area?	n	n	y	n	y	y	y	no
5: If yes, do you find any part frustrating?	nv	nv	n	nv	y	n	y	nv
6: What is the most frustrating part of your trip?	nv	nv	nv	nv	congestion	interstate connections with city streets	Weaving NB/SB to & from SWT	nv
7: List of choices								
7a) Ramps too short	1	1	1	1	0	0	0	0
7b) Choosing correct lanes	1	1	1	1	1	1	1	1
7c) Not enough lanes	0	0	0	0	1	0	0	0
7d) Shoulders too narrow	0	0	0	0	0	0	0	1
7e) Speeds too high through study area	0	0	0	0	0	0	1	0
7f) Speeds to low through study area	0	0	0	0	0	0	0	0
7g) Convenient access	0	0	0	0	1	0	1	1
8: Where in study area do you encounter these issues?	nv	nv	nv	ramps entering SB in study area	between Pennway & Mission Rd.	between loop and SWT or SWBlvd	to & from SWT	access to CC area
9: Ranking of issues								
9a) No. 1 issue encountered	nv	nv	nv	nv	more lanes	bike/ped access	Ramp speed too high	Access
9b) No. 2 issue encountered	nv	nv	nv	nv	weaving	weaving	weaving	weaving
9c) No. 3 issue encountered	nv	nv	nv	nv	nv	nv	local street design	ramps too short
9d) No. 4 issue encountered	nv	nv	nv	nv	nv	nv	aggressive driving	no shoulders
9e) No. 5 issue encountered	nv	nv	nv	nv	nv	nv	parking lanes	access to CC area
10: Which problem do you think MoDOT should address first?	nv	nv	nv	extend ramps	add lanes	connections to city grid & access across interstate	driver behavior in transition area	short accel lanes

QUESTIONS/RESPONSES	36	37	39	40	41	42	43	44	45
1: Do you live in the Study Corridor Yes/No? No=1 Yes=2	1	1	2	2	2	2	2	1	2
2: If no, which area do you live near	Johnson Co	Plaza/skc	E. Jack. Co	Clay	nv	Dwntwn KC	Dwntwn KC	Johnson Co	nv
3: Area I live in:	nv	nv	nv	nv	nv	nv	nv	nv	nv
4: Do you commute through the study area?	y	y	y	y	y	y	y	y	no
5: If yes, do you find any part frustrating?	y	y	y	y	y	y	no	y	nv
6: What is the most frustrating part of your trip?	sharp curves at Mission and B-way	nb from SWT to Pennway	driver confusion	lane changes	short ramps	ramps	nv	Pennway ramps	nv
7: List of choices									
7a) Ramps too short	1	1	1	0	1	1	0	1	0
7b) Choosing correct lanes	1	0	1	1	0	1	0	1	1
7c) Not enough lanes	0	0	0	1	0	1	0	0	0
7d) Shoulders too narrow	0	0	0	1	0	1	0	0	0
7e) Speeds too high through study area	0	0	0	0	0	0	1	0	0
7f) Speeds to low through study area	0	0	0	1	0	0	0	0	0
7g) Convenient access	0	0	0	0	0	0	0	0	0
8: Where in study area do you encounter these issues?	sharp curves at Mission and B-way	nb SWT entrance & SB @ Pennway Exit	short ramps near 670/I-35	all along I-35 from Metcalf to Nland	SB @ Pennway entrance	W. Pennway ramps	0	Pennway ramps	nv
9: Ranking of issues									
9a) No. 1 issue encountered	roadway design	nv	driver confusion	semi-trailers changing lanes	ramps too short	ramps too short	truck noise	ramps too short	nv
9b) No. 2 issue encountered	nv	nv	speed too low	weaving	nv	nv	wayfinding for freight	weaving	nv
9c) No. 3 issue encountered	nv	nv	traffic law obedience	billboards	nv	nv	signage	nv	nv
9d) No. 4 issue encountered	nv	nv	nv	road design	nv	nv	nv	nv	nv
9e) No. 5 issue encountered	nv	nv	nv	no shoulders	nv	nv	nv	nv	nv
10: Which problem do you think MoDOT should address first?	not sure	nv	lane change confusion	weaving	short ramps	ramps	nv	extend ramps	nv

QUESTIONS/RESPONSES	49	51	52	53	54	56	58	59
1: Do you live in the Study Corridor Yes/No? No=1 Yes=2	2	2	2	2	1	2	n	N
2: If no, which area do you live near	nv	nv	Johnson Co	nv	Plaza/SKC	nv	Other	Johnson Co
3: Area I live in:	nv	nv	nv	nv	nv	nv	Western Ray County	
4: Do you commute through the study area?	y	y	y	y	y	y		Y
5: If yes, do you find any part frustrating?	y	nv	y	y	y	Dwntwn KC	Y	Y
6: What is the most frustrating part of your trip?	too many entrances and exits	nv	weaving to Pennway	quick lane changes & poor signage	too many short ramps	drivers merging	downtown loop	too many curves that slow traffic
7: List of choices								
7a) Ramps too short	1	0	1	0	1	0	1	1
7b) Choosing correct lanes	1	1	0	1	1	1	1	1
7c) Not enough lanes	0	0	1	0	0	0	0	1
7d) Shoulders too narrow	0	0	1	0	0	0	0	1
7e) Speeds too high through study area	0	0	0	1	1	0	0	1
7f) Speeds to low through study area	0	1	0	0	1	0	0	0
7g) Convenient access	0	0	0	0	0	0	0	0
8: Where in study area do you encounter these issues?	nv	merge at SWT	Pennway	south and west loop	670 to I35 & I35 to 670 E	12th St & SWT	nv	
9: Ranking of issues								
9a) No. 1 issue encountered	poor maintenance	poor aesthetics	merges	noise	nv	wayfinding signs	Traffic merging - too many roads converging	congestion
9b) No. 2 issue encountered	access to freeway	homeless	weaving	lane continuity	nv	land use impacts	not enough lanes	frequent accidents
9c) No. 3 issue encountered	ramps too short	puddles under I35	congestion	land use impact	nv	poor aesthetics	confusing signage	angry motorists
9d) No. 4 issue encountered	nv	pigeons and trash	potholes	homeless folks & trash	nv	high speeds	nv	inconvenient exits and entrances
9e) No. 5 issue encountered	nv	bike/ped connections	aggressive driving	nv	nv	merging	nv	too much variation in speed
10: Which problem do you think MoDOT should address first?	close some entry/exits	connections under viaduct and cleanliness of area	better SB I35 access	all 5	sep thru traffic from those exiting	Info on alt routes to attractions	Build additional lanes	congestion

MEETING #2 SUMMARY

Location: 510 Avenida Cesar Chavez

Kansas City, MO 64131

Date: December 9, 2010

Time: 5-7 p.m.

Attendance: 36

The meeting began with MoDOT staff welcoming participants to the meeting. MoDOT also thanked Eldorado Architects, Inc., for the donation of the store front space for the public meeting.

MoDOT summarized the activities completed since the June 2010 meeting and the results of the operational analysis. The operational review found that the structures in the study corridor were in good condition, with the viaducts expected to have an operational life of 25-30 years.

Traffic projections used a growth rate of 0.5-2% in various segments of the study corridor. These growth rates result in a low growth rate for the study corridor. Traffic is expected to grow by approximately 12,000 trips a day in the most heavily used portion of the corridor over the next 20 years.

Based upon traffic volumes and visual surveys, three main areas of congestion were identified in each direction. Northbound congestion areas occur at the 27th Street, Southwest Trafficway and Broadway ramp. The most congested section northbound occurs between the Southwest Trafficway entrance ramp and the West Pennway exit ramp. The most congested section of I-35 southbound occurs between 13th Street ramp and the 20th Street exit ramp.

An initial comparison of crashes in the corridor showed that the corridor exceeded the average statewide crash rate. However, further analysis showed only one location north and southbound actually exceeded the statewide crash rate. The high crash points correspond with the locations where the most congestion occurs.

All traffic crashes across the state are reported to the Misssouri Highway Patrol, and that database is transferred to MoDOT for analysis. To get the most representative sample, five years of data are averaged. For this study, data from 2004-2008 was analyzed. The data showed that most of the crashes in the study corridor resulted in property damage only or minor injury. From 2004-2008, there was one fatality accident that occurred after the driver left the car and was hit by another vehicle. Of the property damage and minor injury crashes, most were identified as rear end, passing or out of control crashes.

During the first phase of public involvement, MoDOT met with the neighborhoods and the Central Industrial Business Association in the West Bottoms. In addition, MoDOT conducted an on-line meeting for commuters, to gather input from drivers using the intestate in the study corridor. From the first phase of public involvement, four major themes were identified: improving roadway operations, protecting neighborhoods, improving the environment and improving/simplifying signage and communications.

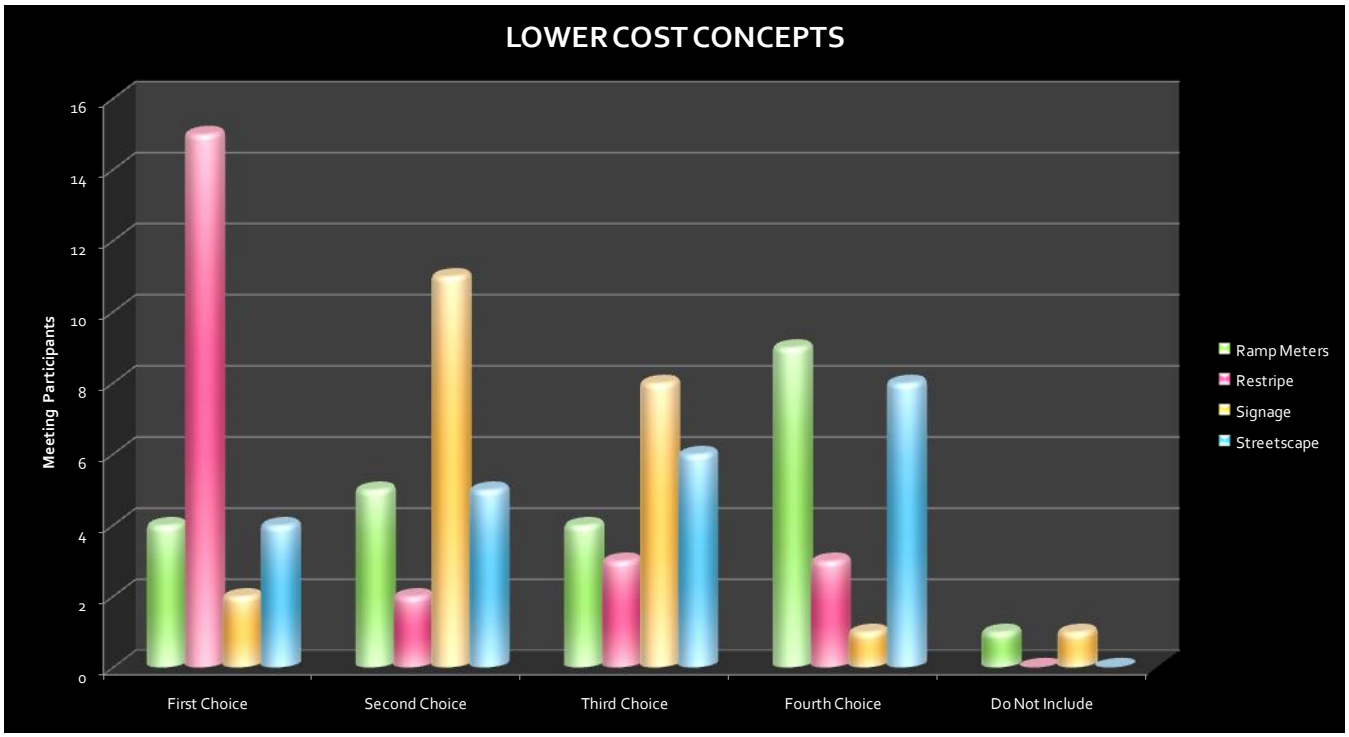
Before beginning the discussion about draft concepts, some meeting participants wanted to discuss studying the relocation of I-35 into the West Bottoms. Those participants wanted to understand why MoDOT was not including relocation as a solution when the idea was brought forward in the first public meeting and in a resolution from the city council. In response to the questions, staff indicated that relocating I-35 was not included in the Operational Study as a solution for two main reasons. First, this potential solution was outside the scope and study area of the current study. Second, and perhaps most importantly, relocating an interstate would require a very large and costly environmental study. The operational study did not include sufficient funds or personnel resources to complete such a study.

Beth Wright, the District Engineer for the Kansas City area, discussed MoDOT's position with the meeting participants. MoDOT requests that the city clarify its priorities because a study to relocate I-35 has not been included with the city's transportation priorities, to-date. If this new study is put in a prioritized list, then the city needs to work with MARC to include the study in the list of regional priorities. MoDOT will then look to the city to find funding for the necessary study and will participate in the environmental review at that time. After the discussion, a few participants were still unsatisfied with MoDOT's response and decided to leave the meeting.

The remaining participants were shown a range of concepts that address congestion, higher crash locations, neighborhood protection and access to destinations. Participants were asked to rank each of the concepts within their cost ranges. However, because the discussion of relocating I-35 was lengthy, so the group was unable to complete the entire set of ranking activities.

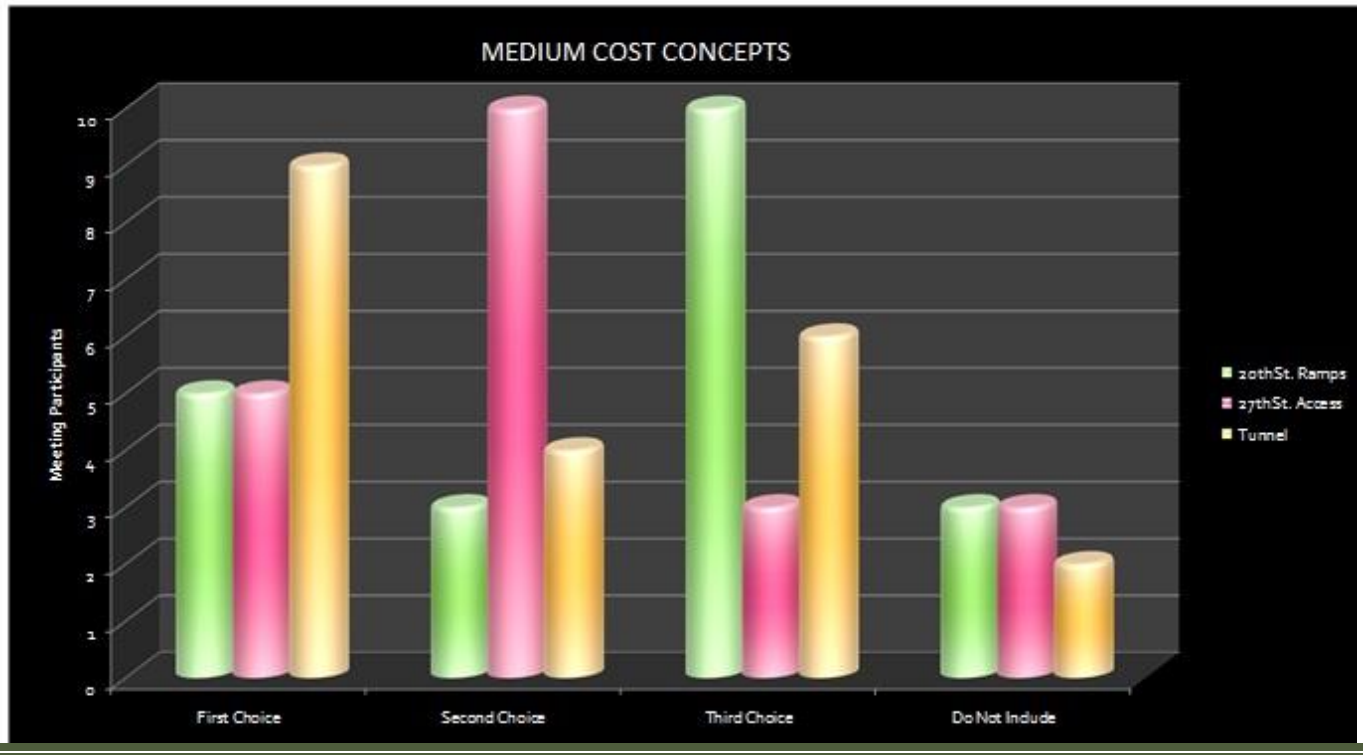
Lower Cost Concepts:

The ranking of these concepts was unexpected. A majority of participants ranked the restriping of southbound I-35 as the option they liked most. Improving and coordinating signage in the corridor received the most votes for second and third choice. Streetscape and ramp meters were nearly tied as the fourth choice of participants. Some participants indicated that they thought streetscape projects should be included in every solution, and a few participants indicated that they did not want to see ramp metering and signage moving forward as potential concepts. Please see the Lower Cost Ranking Chart for more information.



Medium Cost Concepts:

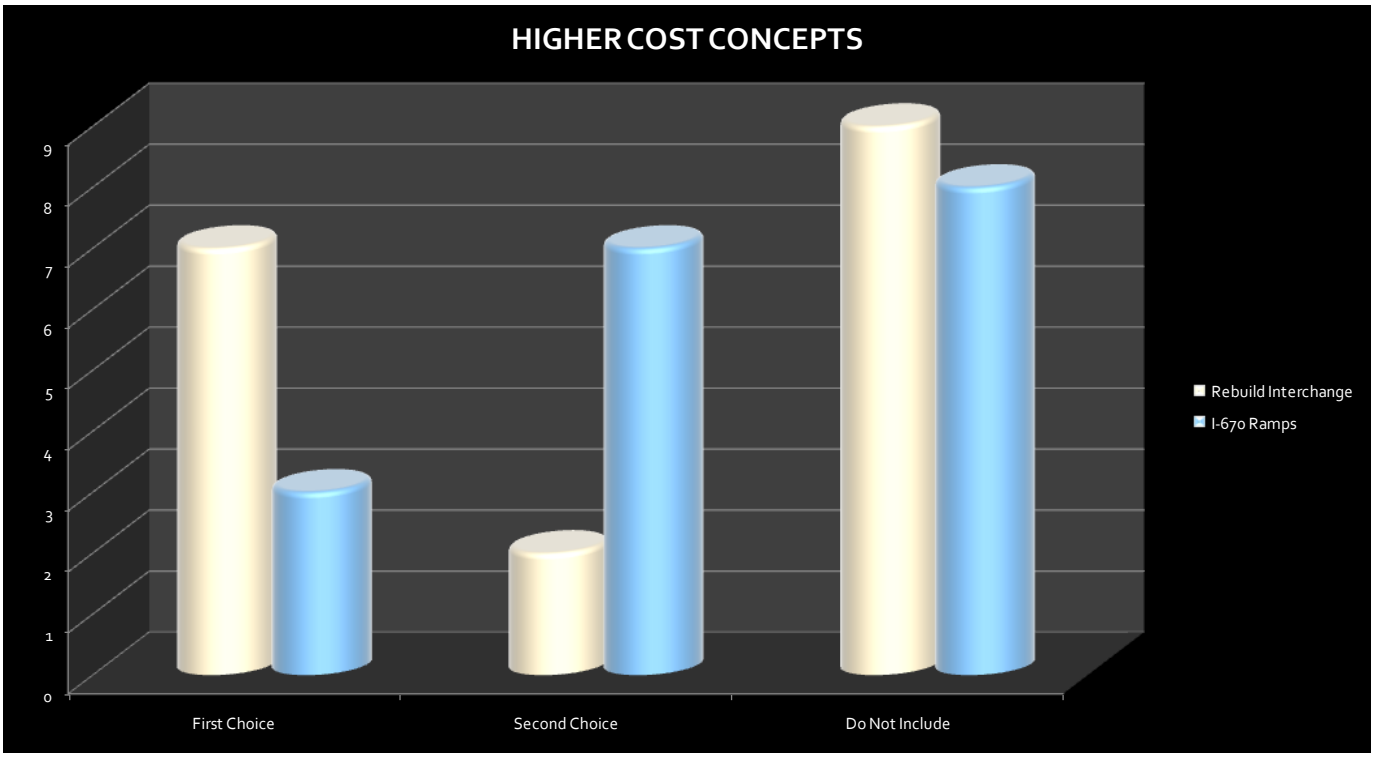
The Medium Cost concepts had more potential impacts to surrounding neighborhoods, and more respondents



indicated that that some options were unacceptable based upon the impacts. Lowering Southwest Trafficway and taking the I-35 entrance ramp under 27th Street was the first choice of participants with 9 respondents. Approximately 10 participants chose adding new ramps at 27th Street as their second choice, and nearly the same amount chose new ramps at 20th street as their third choice.

Higher Cost Concepts:

The group didn't get to the higher cost concepts until after 6:30, and participant numbers were lower, so there are fewer votes in this category. The higher cost concepts are projected to have less impact on the neighborhood, but could cause major disruptions in the traffic flow through the corridor. Eight participants indicated that building an I-670 ramp from I-35 should not be included in the range of concepts. Nine participants indicated that rebuilding the Southwest Trafficway interchange should not be included in the range of concepts. Seven participants indicated that rebuilding Southwest Trafficway interchange was their first choice, while the same number of participants chose the option of adding I-670 ramps as their second choice.



After the discussion of higher cost concepts, the group had reached the end of the scheduled meeting, so the meeting ended without completing the last prioritization of all concepts.

GROUP RANKING OF INITIAL SOLUTIONS

Response	Lower Cost Ranking				Medium Cost Ranking			Higher Cost Ranking	
	Ramp Meters	Restripe	Signage	Streetscape	20th St. Ramps	27th St. Access	Tunnel	Rebuild Interchange	I-670 Ramps
1	1	1	2	3	0	0	0	1	1
2	1	2	3	4	0	3	2	1	2
3	2	4	3	1	3	2	1	2	2
4	4	1	3	2	3	1	1	1	2
5	3	1	1	4	3	2	1	0	0
6	4	1	3	2	1	0	0	0	0
7	0	1	2	3	0	0	3	2	1
8	4	1	2	3	2	1	3	0	0
9	2	3	4	1	3	1	2	0	1
10	4	1	3	2	1	3	2	0	0
11	3	4	2	1	3	2	1	1	2
12	4	1	2	3	3	2	1	0	0
13	3	1	2	4	3	2	1	1	2
14	4	4	0	4	1	2	3	0	0
15	3	1	2	4	3	2	1	0	0
16	1	2	3	4	2	3	1	1	2
17	2	3	2	4	1	2	3	1	2
18	4	3	2	1	3	1	2	0	0
19	2	1	3	4	1	2	3		
20	4	1	2	3	2	1	3		
21	4	1	3	2	3	2	1		
22	2	1	1	3					
23	1	1	2	2					
First Choice	4	15	2	4	5	5	9	7	3
Second Choice	5	2	11	5	3	10	4	2	7
Third Choice	4	3	8	6	10	3	6		
Fourth Choice	9	3	1	8					
Do Not Include	1	0	1	0	3	3	2	9	8
WEIGHTED RANK 1	16	60	8	16	15	15	27	18	16
WEIGHTED RANK 2	15	6	33	15	6	20	8	2	7
WEIGHTED RANK 3	8	6	16	12	10	3	6		
WEIGHTED RANK 4	9	3	1	8					
TOTAL	**48**	**75**	**58**	**51**	**31**	**38**	**41**	**20**	**23**

COMMENTS WRITTEN IN RANKING SPACES

Lower Cost	
Ballot #	**Comment**
18	Restripe, Signage & Ramp Meters are for commuters. Streetscape helps community.
DTC2	Ramp meters seem feasible. Streetscape is needed. Signage is needed. Restriping should be done as needed w/maintenance budgets.
Medium Cost	
Ballot #	**Comment**
1	20th St. ramps - Bad considering capacity of 20th Street
1	27th St. Ramps - Did not understand at all
1	Tunnel - crazy bad idea
1	Graphics really need help to explain solutions/ideas
4	Combine 27th St. Ramps and Tunnel
6	North bound exits
7	20th St. ramps - NO
7	27th St. Ramps - NO NO NO!
11	20th St. Ramps - 3 (Not or North)
18	20th St. Ramps - Only NB
21	20th St. Ramps - NOT
DTC 2	20th St. on and off ramps should be enhanced. Should tie into 20th St. development and also become an ingress and egress pont for the Performing Arts theater and Crossroads District.
Higher Cost	
Ballot #	**Comment**
5	I-670 - No there are better ways to solve this problem.
5	This should be a more convetional exit to city streets, not a freeway to freeway interchange.
9	If you are going to move, take it to the West Bottoms
10	Use [dollars] for I-35 relocation.
11	No New Ramps
DTC 2	1. 20th St. Interchange 2. I--670 ramps - nice solution

WRITTEN COMMENTS SUBMITTED BY WORKSHOP PARTICIPANTS

LOWER COST CONCEPTS

Option	Like	Dislike	Other Comments
Restripe I-35 Southbound	Should be effective	Drivers may use striped out area at the end of the Broadway ramp	Consider closing ramp from Broadway and direct traffic onto 13th.
	Streetscape improvements benefits the neighborhood the most and significantly improves community image. The ramp bottoms and underneath the elevated bridges present a terrible image for visitors.		Only concern with restripe option is potential impact on trucks and increasing air braking. Can we confirm if this improves or creates movements and speeds resulting in air brake noise?
	cost effective & quick safety fixer	Street solution only - reweave really [too small] more complicated alternatives(ie, closing some access points).	
	What is there to not like? Why aren't you doing it now?		
	Reduced lane changes are good	bottlenecks	
	OK		
	Inexpensive makes merging easier	none	
	Doesn't impact neighborhoods		seems reasonable
Signage		Will only work if drivers actually read them	Consider working with KDOT to direct through freight around this area using I-435 & I-635 instead.
	Need to simplify directional signage	Should consider TDM [Travel Demand Management] options that would direct through traffic from DT[Downtown] leg. Kansas northbound traffic via I-635, southbound Missouri traffic to southbound 71.	Visual pollution issue needs to be tackled. Southwest Trafficway is a poster child for the role of billboards in diverting driver attention.
	Just do it. Add evaluation of freeway signs going southbound to Southwest Trafficway and Penn Valley Drive.		
			Clarifying signage not sure adding is a good thing.
	Needs to be coordinated with the city and neighborhoods. Provide signage opportunities for small businesses.		
			End result must be fewer, cleaner signs, not more signs.
Ramp Meters			Enforcement will be needed to be effective.
	This is great if it controls the merging traffic that never yields to through traffic at the merge.		
	Longer ramps please.		Longer ramp [at] West Pennway onto I-35. [Ramp is] too short no room to merge.
	Improvements to flow and reduction of weave complications.	Like striping, really a band-aid for a more fundamental problem of converging too many routes into an over burdened choke point.	
	[Location] of ramp metering needs to be thought through relative to other EJ/Safety inputs of SW Trafficway/Broadway on Penn Valley Park, neighborhoods, safety.		
	No - don't like [this solution] at all.		
		Seems like it would add delay to access.	
	Especially helpful on Penn Valley northbound on ramp.		
	Slows aggressive driving		Could favor commuters from Kansas and hold up local traffic.
Streetscape	Best improvement for both residents and visitors and community image!		
	Absolutely needed - should be its own alternative independent of the others, since it really facilitates non-auto and [unknown] needs.	Usually not well executed - too much eye candy, not enough in the way of functional improvement.	Should be in every scenario.
	Good idea - hard to keep birds out.		
	Makes sense	Not sure it addresses safety with crash concerns.	
	Must do this! All four [interchanges]: 23rd, Southwest Blvd., 20th, and 17th.		
	This actually contributes to the community, not just commuters.	It's still a space under a bridge. Token gesture that may not actually help.	

WRITTEN COMMENTS SUBMITTED BY WORKSHOP PARTICIPANTS

MEDIUM COST CONCEPTS

Option	Like	Dislike	Other Comments
20th St. Ramps		Could make access to Crown Center more difficult.	
	Could simplify short weave problem	Southbound entrance ramp should stay put to avoid adverse EJ impact on neighborhood.	
	Like new northbound exit but not southbound entrance - too much impact on existing housing.		
	Logical	Impact to Westside homes.	
		Encroachment onto existing properties, whether within ROW or not, is unacceptable.	
27th St. Ramps	Separation of exiting and entering traffic northbound will be of great help	Could increase traffic on Summit to get to SW Blvd and Pershing.	Work with city to modify 27th & Broadway. Could work well with next option.
	Gets to the structural problems with the existing configuration. Northbound traffic especially needs more dissemination points.		
Tunnel			Could work well with 27th St. exit northbound.
		Very costly for a bigger problem.	Broadway/Penn Valley Drive ingress/egress to I-35 needs to be reworked. Redundant with Southwest Trafficway and creates unnecessary, high-speed traffic through Penn Valley Park.
		Not going to happen. Bad idea [not legible] if federal money involved.	
	Helps with bike route planned through the area.		
			Does it really separate these exits enough to make a difference?
Rebuild Interchange	Separation of exiting and entering traffic	Northbound exit connects to dead-end street	Connecting northbound exit to Pershing Rd. instead could provide better traffic flow.
	Could be an elegant solution	Very costly alternative, if Broadway ingress/egress were eliminated, cost could be cut in half.	Could West Pennway exit be eliminated if this were done?
			Do just the closure of Penn Valley Drive northbound entrance to I-35. Tie this to in with new northbound entrance at 20th Street. Fix problem of Crown center/hospital employees cutting through park to get on I-35 north.
	It makes sense. It satisfies the safety issues, congestion and simplifies navigation. Makes it easier to get in and out of the Crossroads and	It would be a mess for a while.	
I-670 Ramps			Additional signage from north of river could accomplish same objective.
	This is a real issue.	Unfortunate that this could, at least hypothetically, lock investments (large ones at that) in the existing corridor.	Put it over/behind the FBI building.

WRITTEN COMMENTS SUBMITTED BY WORKSHOP PARTICIPANTS

HIGHER COST CONCEPTS

Option	Like	Dislike	Other Comments

No comments on higher cost solutions received.

GENERAL COMMENTS

Make least expensive, short term fixes. Improve connections under I-35 at Southwest Blvd., 20th & 17th. Look at other options as long term future solutions including relocation of I-35.
I respect what you are trying to do, but what a cluster [word deleted]. Somebody asks you how to spell a word and you tell them how to build a typewriter. COOPERATE with various divisions of the city. WORK TOGETHER 4 THE PEOPLE!!!
A new KDOT Interchange at Cambridge Circle could provide direct access over BNSF right of way (ROW) to 31st St. eastbound. This would provide a more logical and easily understood path of travel for northbound traffic to Crown Center/Union Hill/Midtown.
None of the [higher cost solutions] are acceptable. Long term strategies must consider moving the freeway to the west bluff or to Kansas, since Kansas is who this freeway serves.
Concern about ramps themselves (especially 20th)-accident rates. Survey businesses and homes. Create a large parking lot under the viaduct. Lack of yielding at Northbound Pennway.

GENERAL COMMENTS - PARKING LOT

Medium & High cost solutions must consider long-term planning - moving freeway to Kansas within 5-25 years.

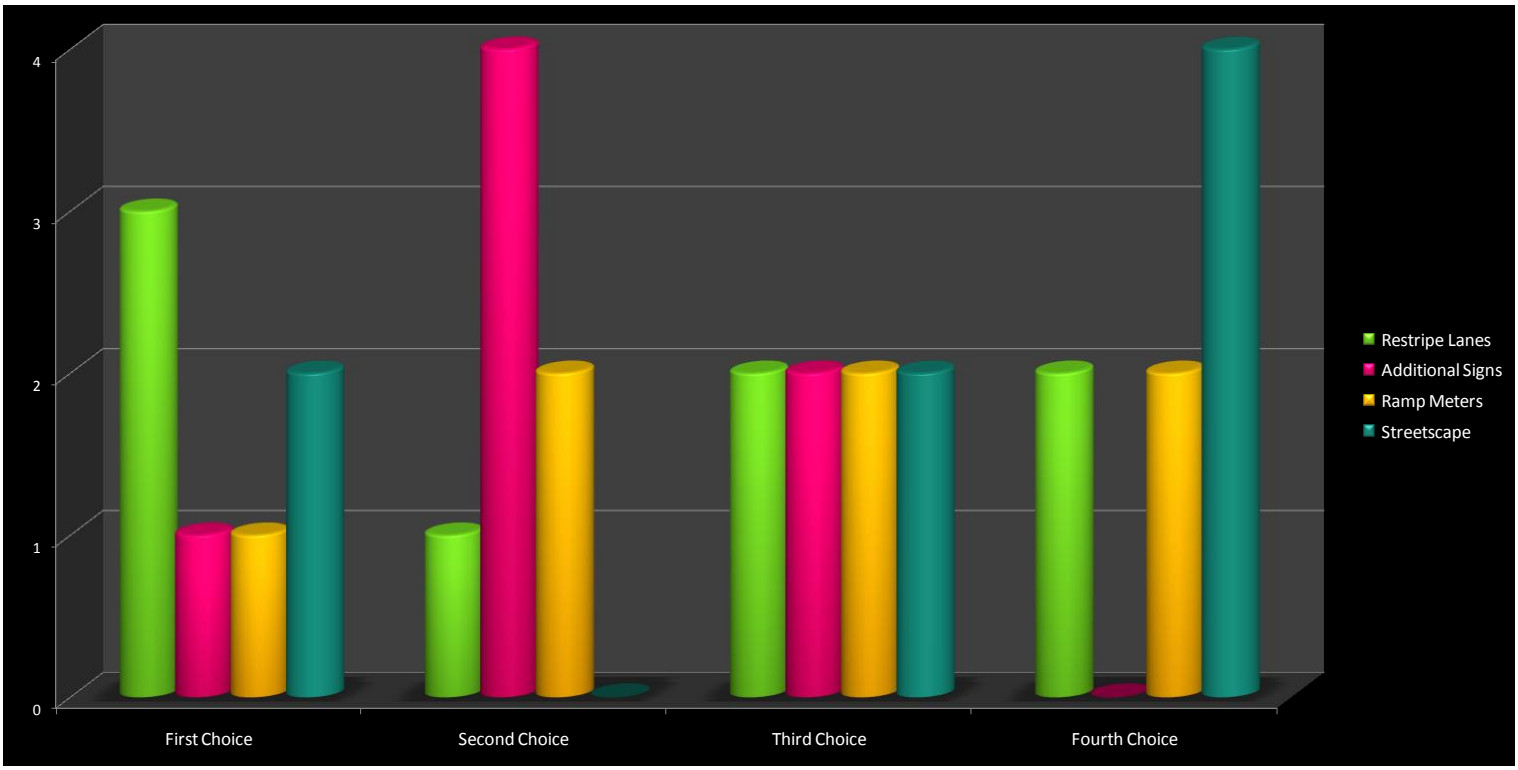
Second On-line Public Meeting

	Lower Cost				Medium Cost			Higher Cost	
	Restripe Lanes	Additional Signs	Ramp Meters	Streetscape	20th St Ramps	27th St Access	Tunnel	Rebuild Interchange	New I-670 Ramp
1								1	2
2	3	2	4	1					
3	1	2	3	4					
4	4	3	2	1					
5	1	3	2	4					
6								1	2
7	1	2	4	3					
8	2	1	3	4					
9	4	0	0	3					
10	3	2	1	4					
11								1	2
12									
13									
14									
15									
16									
First Choice	**3**	**1**	**1**	**2**	**0**	**0**	**0**	**3**	**0**
Second Choice	**1**	**4**	**2**	**0**	**0**	**0**	**0**	**0**	**3**
Third Choice	**2**	**2**	**2**	**2**	**0**	**0**	**0**		
Fourth Choice	**2**	**0**	**2**	**4**					
Do Not Include	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
WEIGHTED RANK 1	**12**	**4**	**4**	**8**	0	0	0	**6**	**0**
WEIGHTED RANK 2	**3**	**12**	**6**	**0**	0	0	0	**0**	**3**
WEIGHTED RANK 3	**4**	**4**	**4**	**4**	0	0	0		
WEIGHTED RANK 4	**2**	**0**	**2**	**4**					
TOTAL	**21**	**20**	**16**	**16**	0	0	0	**6**	**3**

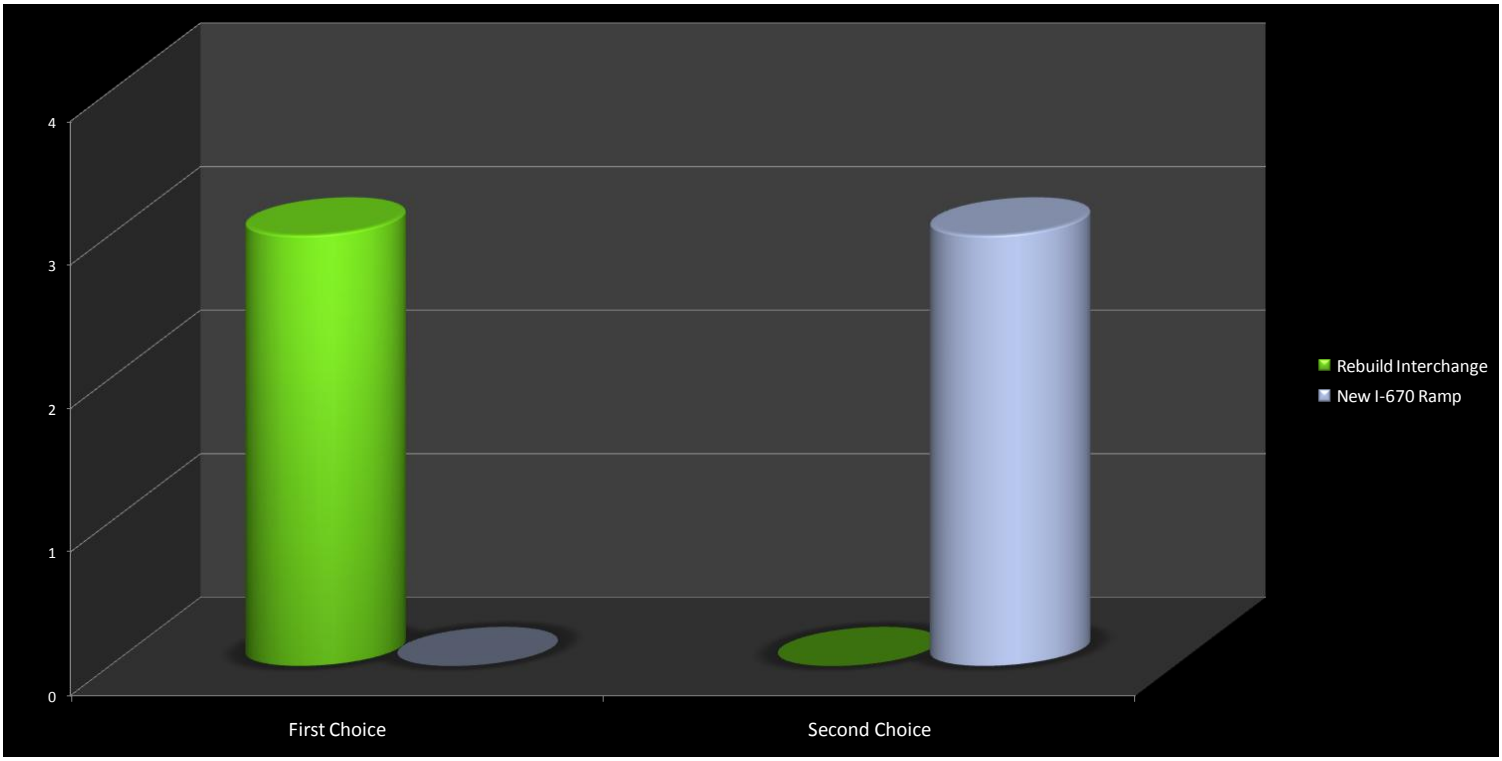
Comment from Facebook:

The only good solution is high cost solution 1. All other solutions just kick the can down the road so to speak. However with MODOT's current funding or lack thereof. I don't forsee anything getting done other than maybe some restriping here and there in this high traffic area.

Lower Cost Concepts



Higher Cost Concepts



WESTSIDE I-35 COMMITTEE

1624 Jefferson, Kansas City, Missouri 64108

Gerri A. Doyle, AICP
Sr. Transportation Planner
MoDOT—District 4
600 N.E. Colbern Road
Lee's Summit, Missouri 64086

October 1, 2010

Re: I-35 Feasibility Study — 12th Street to State Line

Dear Ms. Doyle:

Westside residents are having neighborhood meetings to discuss all the options regarding I-35 where it comes through our neighborhood. (Westside boundaries are 14th St. to 31st St. and Broadway to State Line, Kansas City.) We want to make you aware that a Westside I-35 Committee has been formed, which will soon be taking a neighborhood position on what changes to I-35 would be supported by those of us who live along I-35 and are most affected by the freeway.

The neighborhood is studying all available options, including changes to I-35 as it currently exists and moving the freeway into the West Bottoms. Clearly the number one desire expressed by residents is that MoDOT make a thorough analysis of the benefits of moving I-35 into the West Bottoms (where it would have minimal impact on residential neighborhoods and would be routed through a commercial area where it would benefit businesses). It seems clear that moving the freeway is an affordable, viable option that should be vigorously pursued.

This fall, as we complete our meeting cycle and make our final decisions, we will be ready to meet with your department. We would also welcome MoDOT staff participation in our neighborhood decision making process. At this time, we ask that:

1. MoDOT put on hold any final decisions about I-35 until Westside residents have completed their neighborhood decision-making process;
2. MoDOT make a thorough analysis of the benefits of moving I-35 into the West Bottoms;
3. Any changes to I-35 improve rather than negatively impact our neighborhood and quality of life;
4. MoDOT provide the data and conclusions from its analysis of moving I-35 to the West Bottoms to the Westside I-35 Committee; and
5. MoDOT provide the data and conclusions from its analysis of all possible changes to the current I-35 (as it passes through the Westside neighborhood area) to the Westside I-35 Committee.

Our committee contact is Michael Duffy, attorney for Legal Aid of Western Missouri, at 816-474-9868. The Westside Community would like to have complete input on development of any projects related to I-35. Many thanks for your help in this matter.

Sincerely,

Sue Bustamante

Micaela Escareno

Kathy Kirby

Mario Rojas

Doug Stockman

Pedro Zamora

cc: Councilwoman Jan Marcason; Councilwoman Beth Gottstein; Representative Mike Talboy; Senator Jolie Justus; Representative Tim Flook; Rudolph E. Farber, MoDOT Chairman; Kevin Keith, Interium MoDOT Director; Congressman Emanuel Cleaver; Congresswoman Grace Napolitano

Hispanic Civic Engagement Project

January 20, 2011

MoDOT - Missouri Department of Transportation
Central Office
105 West Capitol
PO Box 270
Jefferson City, MO 65102-0270

Re: I-35 Range of Solutions, Kansas City, Missouri.

Please accept this letter as the Kansas City Hispanic Civic Engagement Project's (HCEP) support of the recommendations presented by the Crossroads Community Association (CCA) and the Westside I-35 Committee. In accordance with the recommendations of the Greater Downtown Area Plan (GDAP), the Crossroads Community Association (CCA) and the Westside I-35 Committee are united in its support of five actions related to the I-35 transportation corridor:

1. That the "Lower Cost Solutions" option outlined in MoDOT's "I-35 Range of Solutions for Presentation to the Public" be implemented.

2. That the "Medium" and "Higher" "Cost Solutions" **not** proceed in any way until a more comprehensive study of I-35, which includes the option of relocation, as per position item no. 3 below, is completed.

3. That a study to relocate I-35 be undertaken, in support of City of Kansas City, Missouri, Council Resolution #100965.

4. That the City of Kansas City, Missouri, project #89008225 – West Pennway / 20th Street / Pennsylvania Intersection Improvements -- **not** proceed in any way without ongoing consultation throughout the design process with our neighborhoods' leadership. A scope of work and method of moving forward will be agreed upon, in writing.

5. That all City of Kansas City, Missouri, and MoDOT projects in the I-35 corridor be coordinated and include prioritization of the five principal goals of GDAP.

The Hispanic Civic Engagement Project is a consortium of Kansas City, Missouri-based not for profit organizations that has joined forces to respond to the social needs in those areas of Missouri with a growing Hispanic population such as Kansas City, Raytown, Independence, Belton, and Gladstone. Collectively, this team of service providers represents more than 300 years of experience in Kansas City with an annual budget exceeding $10 million.

The purpose of this collaboration is to maximize its impact in the community by identifying new sources of funding that will advance the mission of each organization as well as advocate on behalf of issues that improve the living conditions of Hispanics in Kansas City. Together, these community leaders seek to strengthen the viability and independence of individuals, families, and communities by targeting needs in education, employment, economic development, business development, housing, physical and mental health, cultural arts and social services for Kansas City's Hispanic population.

The members of the HCEP include: Cabot Westside Health Center, Greater Kansas City Hispanic Chamber of Commerce, Guadalupe Center, Inc., Hispanic Economic Development Corporation, LULAC National Education Service Center of Kansas City, Mattie Rhodes Center and Westside Housing Organization. If you should have any questions, please contact me at 816/471-2536.

Sincerely,

John Fierro

John Fierro,
Spokesperson

Cc: Rick Usher - Assistant to the City Manager

Appendix D – Census Demographic Grouping Definitions

Racial and Hispanic origin classifications used in this report adhere to Office of Management and Budget (OMB), Federal Statistical Policy Directive No. 15: "Race and Ethnic Standards for Federal Agencies and Administrative Reporting," Federal Register 43:19269-19270, May 4, 1978. New standards were adopted by OMB in October 1997 and will be implemented by all federal agencies no later than January 1, 2003. OMB sets the standards for federal statistics and administrative reporting on race and ethnicity. • Race is based on self-identification by the respondents (the householder or someone who may be reporting race in his or her absence) in the Current Population Survey through a question that asks for an individual race. There are four groups including: White, Black, American Indian and Alaska Native, and Asian and Pacific Islander.

Hispanic origin is based on self-identification by respondents (the householder or someone who may be reporting Hispanic origin in his or her absence) in the Current Population Survey through a question that asks for an individual's origin or descent. People of Hispanic origin are those who indicated that their origin was Mexican, Puerto Rican, Cuban, Central or South American, or some other Hispanic origin. People of Hispanic origin may be of any race.

Non-Hispanic refers to all people whose ethnicity is not Hispanic. Race and ethnicity are separate concepts, so the racial categories of White, Black, American Indian and Alaska Native, and Asian and Pacific Islander all contain some people of Hispanic origin. In this chapter and throughout most of this report, the term White non-Hispanic is used to indicate the White population minus that part of this group that is of Hispanic origin.