July 2012
PURPOSE AND NEED STATEMENT TECHNICAL MEMORANDUM

This document discusses the I-70 Second Tier Environmental Impact Statement (EIS), what the project is about, where it is located, and why improvements are needed to I-70 within the 6.8 mile Study Area.

What is the I-70 Second Tier Environmental Impact Statement?

The Missouri Department of Transportation (MoDOT) and the Federal Highway Administration (FHWA) propose improving the existing I-70 corridor extending approximately 6.8 miles from the end of the last ramp termini west of The Paseo interchange to east of the Blue Ridge Cutoff interchange to meet the current and future traffic, safety, and access needs across and to/from I-70. The Second Tier EIS is required to follow the guidelines outlined in Section 6002 of the current transportation highway law known as Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and the National Environmental Policy Act (NEPA). The I-70 Second Tier EIS will:

- Provide an overview and description of the Study Area.
- Identify the current and future needs.
- Determine potential improvement alternatives to address the current and future needs.
- Evaluate the human and natural environmental effects of the alternatives developed.
- Identify a Preferred Alternative.
- Prepare an environmental document that meets the NEPA requirements.
- Reach public and agency understanding of the overall improvement plan.
- Document approval of a Preferred Alternative for improving I-70 between The Paseo and Blue Ridge Cutoff.
- Receive a Record of Decision (ROD).

What is a Purpose and Need Statement?

A Purpose and Need Statement identifies the reasons a proposed project is needed.

What is the National Environmental Policy Act (NEPA)?

The National Environmental Policy Act (NEPA) is an environmental law that established national policy promoting the protection, maintenance, and enhancement of the environment. One of its most significant effects was to establish the requirements for evaluating and responding to the environmental impacts of federal projects and projects using federal funding.

What is a Record of Decision?

The Record of Decision is the formal approval of a selected improvement strategy by FHWA.

The proposed action for the I-70 Second Tier EIS is to seek the most effective improvement alternative in the corridor to meet the current and future transportation needs while minimizing impacts to the human and natural environment. The I-70 Second Tier EIS will evaluate alternatives that address travel demand and the overall performance of the corridor to safely move people and goods.

What is meant by improvement alternative?

Improvement alternatives are transportation improvement opportunities to address the transportation issues along I-70. Improvement alternatives may include a series of specific transportation improvements such as repairing the existing pavement and bridges, improving interchange ramps, and/or transit projects.

Why is I-70 in Kansas City Important?

The 6.8 mile I-70 corridor that is the subject of this Second Tier EIS, is vital to serving the greater Kansas City regional transportation demands including commuters, transit, and local and national freight movements. In addition to serving local needs, I-70 in Kansas City is also the main artery for traffic traveling to and from other cities and places across the state and nationwide. Some of the interstate traffic heading east and west through Kansas City is bound for major population centers in Missouri or other adjacent states and beyond.

What is a Section of Independent Utility?

A Section of Independent Utility (SIU) is a section of a larger project that can function on its own without further improvements to adjoining road sections.

How does this study differ from the I-70 First Tier EIS?

The I-70 Second Tier EIS in Kansas City is the final part of a tiered environmental documentation process. Tiering complies with requirements of NEPA and other environmental regulations. The first tier documents addressed broad programs or overall corridor strategies and issues in an initial, higher level environmental impact analysis. More specific improvement alternatives and impacts are analyzed in this second tier study. The tiered process enables a decision-making process that focuses on issues that are ready for decision and reduces repetition in environmental documentation. The first tier document frames and narrows the boundaries and scope for second tier projects. The tiered process provides a consistent strategy decision across a longer corridor which allows Sections of Independent Utility (SIU) to be studied or built without studying or building the entire corridor.

One way to visualize the tiered process is as an umbrella. In the I-70 First Tier EIS, the umbrella extended approximately 18 miles from the end of the last ramp east of the Missouri and Kansas state line to east of the I-470 interchange, including the Kansas City, Missouri Downtown Freeway Loop (Downtown Loop). An overall improvement strategy for this corridor was developed and a broad, general (high-level) evaluation was conducted.

This corridor umbrella covers and identifies future detailed second tier project level studies of shorter sections, which will have their own future environmental evaluation documents. The second tier studies will analyze shorter portions of I-70 but in greater detail.

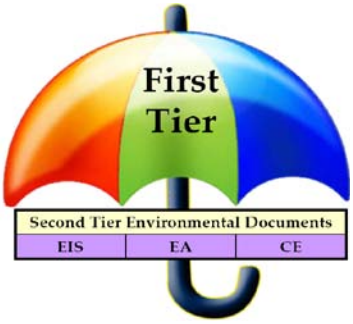


Illustration of the Tiered Environmental Process. The First Tier Study covers a corridor that will be broken down into multiple future Second Tier environmental studies.

How do the First Tier EIS and Second Tier EIS relate to each other?

The I-70 Second Tier EIS is a subset of the I-70 First Tier EIS Study Area. It is located entirely in Kansas City, Missouri and includes all land within 200 feet of the I-70 First Tier EIS Selected Strategy footprint extending approximately 6.8 miles from The Paseo interchange to the Blue Ridge Cutoff interchange. For most of this length, I-70 is a six-lane divided and fully access-controlled interstate facility. The I-70 Second Tier EIS Study Area is shown in **Figure 1**.

One of the key objectives of the First Tier EIS was to identify and prioritize SIUs in the I-70 corridor that would be studied in detail in the second tier studies. When establishing SIUs, per FHWA guidance, a SIU must meet the following criteria to ensure that piecemealing and inappropriate segmentation does not occur:

- Connects logical termini and be of sufficient length to address environmental matters on a broad scope.
- Has independent utility or independent significance. Must be usable and be a reasonable expenditure even if no additional transportation improvements are made in the Study Area.

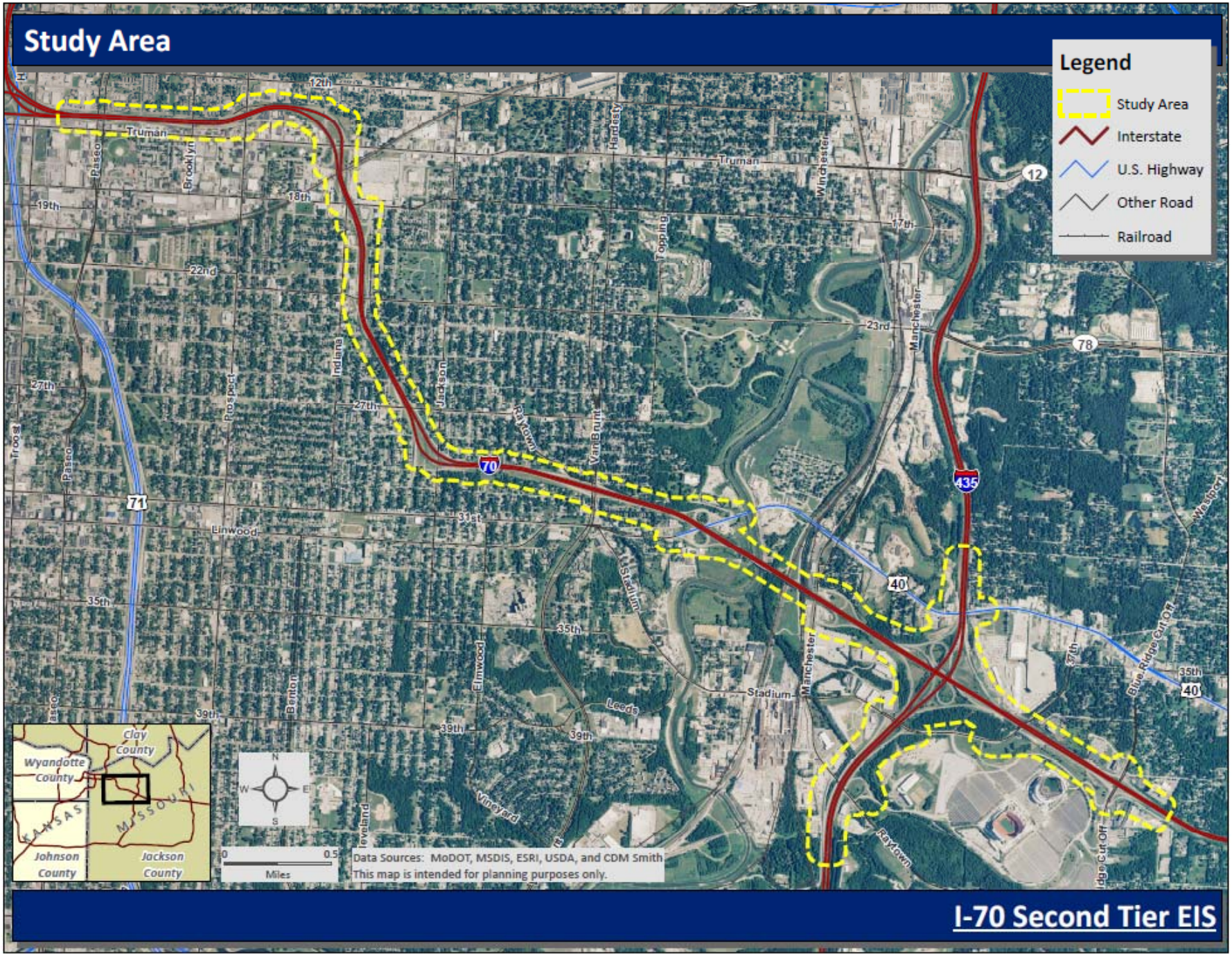
What is the Selected Strategy?

The Selected Strategy from the First Tier EIS is the Improve Key Bottlenecks Strategy from west of The Paseo to east of I-435.

What are logical termini?

Logical termini are rational beginning and ending points for a transportation improvement and for a review of the environmental impacts.

Figure 1: Study Area



- Does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.
- Avoids creating further improvements with unforeseen impacts. A proposed improvement may cause a related improvement beyond the proposed termini.

The following are the five SIUs approved in the First Tier EIS:

1. **Downtown SIU** - Downtown Loop to The Paseo
2. **Urban SIU** – The Paseo (including the interchange) to U.S. 40
3. **I-435 Interchange SIU** - U.S. 40 (including the interchange) to Blue Ridge Cutoff (including the interchange)
4. **Suburban SIU** - Blue Ridge Cutoff to Lee's Summit Road (including the interchange)
5. **I-470 Interchange SIU** - Lee's Summit Road to east of I-470 and I-470 from 39th Street interchange to the U.S. 40 interchange

The I-70 Second Tier EIS Study Area is a combination of the Urban and I-435 SIUs, each of which have independent utility. The combination of the two SIUs will also have independent utility. MoDOT combined these two SIUs because they both had the same selected improvement strategy from the First Tier EIS; both require the same level of environmental analysis, an EIS, in the second tier evaluation process; and both have similar improvement issues and needs. MoDOT, in consultation with regional stakeholders also determined these sections were the highest priority to move forward.

The width of the Study Area reflects the maximum potential area that improvements might have right of way impacts to homes, businesses, and resources. The impacts could be acquisition or construction impacts. However, effects such as noise level changes, air quality, and the effects of access changes may occur outside of this immediate Study Area. All of these effects will be considered in the I-70 Second Tier EIS.

What Studies Were Completed for the Corridor before the Second Tier EIS?

I-70 Major Investment Study - In 2000, MoDOT, the Mid-America Regional Council (MARC), and the Kansas City Area Transportation Authority (KCATA) began the I-70 Major Investment Study (MIS) that evaluated the challenges and opportunities associated with I-70 in Jackson County. The I-70 MIS established a planning horizon from 2003 to 2025, and involved a planning process to evaluate long-term transportation needs in the I-70 corridor. The purpose of the MIS was to identify the challenges, needs, goals, and objectives for the corridor as well as to develop and analyze potential major transportation system improvement strategies. The I-70 MIS was completed in November 2004.

What is a bottleneck?

A bottleneck is a section of a road where movement of traffic is limited by the road design. This is often a section of road with fewer lanes, a sharp curve, or traffic joining the road at an interchange. A bottleneck is the most vulnerable point for congestion in a road network and is also referred to as a chokepoint.

I-70 First Tier Environmental Impact Statement - In July 2008, MoDOT in partnership with the FHWA initiated the I-70 First Tier EIS process for approximately 18 miles of I-70 corridor from the end of the last ramp termini east of the Missouri and Kansas state line to east of the I-470 interchange, including the entire Downtown Loop. Its purpose was to determine an improvement strategy for the corridor to address the following needs - improve safety, reduce congestion, restore and maintain existing infrastructure, improve accessibility, and improve goods movement.

What is a Record of Decision?

Record of Decision (ROD) is a public document formalizing the final course of action to be taken by the Lead Agency at the end of an Environmental Impact Statement Study. The ROD outlines all of the environmental alternatives/strategies considered in the EIS process, provides the rationale for the alternative or strategy selected, and explains why the other alternatives or strategies were not chosen.

After analysis and public review, the First Tier EIS identified a Selected Strategy to improve the I-70 corridor. The Selected Strategy is the Improve Key Bottlenecks Strategy from the Downtown Loop to east of I-435 and either the Improve Key Bottlenecks Strategy or the Add General Lanes Strategy from east of I-435 to I-470. The I-70 First Tier EIS concluded with a Record of Decision in April 2011.

I-70 Statewide Environmental Study - In August 2009, MoDOT in partnership with the Federal Highway Administration completed a Supplemental Environmental Impact Statement across the state incorporating truck-only lanes on I-70 between Kansas City and St. Louis. The study area included 9 miles of I-70 in Jackson County from east of the I-470 interchange to the State Routes F/H interchange in Oak Grove.

Why are improvements needed along I-70 in Kansas City?

The overall purpose of the I-70 Second Tier EIS is to determine an improvement alternative for this portion of the corridor, including future improvements and mode choices, which address the following items.

- *Improve Safety:* Reduce crash rates and crash severity on I-70.
- *Reduce Congestion:* Remove key bottlenecks; reduce the potential for ramp back-up onto the freeway; and improve multi-modal travel times in coordination with plans put forward by local and regional agencies.
- *Restore and Maintain Existing Infrastructure:* Improve bridge and pavement conditions on I-70 and implement cost-effective investment alternatives.
- *Improve Accessibility:* Provide travel options for all residents; increase safe access across I-70 for non-motorized travel; support local and regional land use plans.
- *Improve Goods Movement:* Improve the efficiency of freight movement on I-70.

I-70 Eastbound at the Jackson Curve

Each of the above elements of the purpose and need for improvements is discussed in further detail in the paragraphs below.

What Safety Improvements are Needed?

Improving safety on I-70 should be a key element of improvement alternatives. Traffic crashes are a cost to the travelers of I-70 in a variety of ways. Some crashes result in property damage, cause severe injury, and even loss of life. Traffic crashes also create congestion from blocked travel lanes resulting in increased gas consumption and lost time. Study Area improvements are intended to reduce the crash rates and to reduce the crash severity.

Vehicle Damage from a Crash

Crash data were obtained from MoDOT for the five year period from 2006 to 2010. Please review the crash and safety data disclaimer in the **Appendix**. The crash data were evaluated and five year crash rates were developed across the

corridor. In the five year period from 2006 to 2010, eight crashes on I-70 involved a fatality within the Study Area. The locations of those fatal crashes are shown in **Figure 2**.

Figure 2: Fatal Crashes in the Study Area 2006 to 2010

Sections with crash rates that exceed 150 percent of the statewide average rate of 112.82 crashes per 100 million vehicle miles of travel indicate a higher need for improvements. Sections with crash rates between 100 percent and 150 percent of the statewide average also indicate a need for improvements, but are less of an improvement priority. Sections with crash rates equal to or less than the statewide average of 112.82 crashes per 100 million vehicle miles traveled were categorized as adequate, although improvements in crash rates are always a goal. The Study Team will investigate potential improvements that will reduce crash rates throughout the Study Area. The westbound sections with a higher need for improvements between 2006

and 2010 are westbound at The Paseo, 23rd Street, Manchester Avenue, and I-435 interchange areas. The eastbound sections with a higher need for improvements are in the Benton curve and from the Jackson curve through the I-435 interchange. The crash rate summary is shown in **Table 1**.

Table 1: Summary of Crash Analysis for the Period 2006-2010

	Analysis Sections	Length (miles)	2006 to 2010 Crash Rate (Crashes Per 100 Million Vehicle Miles of Travel)		5 Year Crash Rate versus Statewide Average Crash Rate* (112.82)	
			Eastbound	Westbound	Eastbound	Westbound
1	Paseo Interchange	0.87	92.99	175.86	82%	156%
2	Benton Curve	1.20	211.75	126.64	188%	112%
3	23rd Street Interchange	0.67	107.91	174.59	96%	155%
4	Jackson Curve	0.90	279.62	80.37	248%	71%
5	Van Brunt Interchange	0.73	244.47	143.28	217%	127%
6	U.S. 40 West Interchange	0.59	201.65	161.76	179%	143%
7	Manchester Interchange	0.57	229.42	170.92	203%	151%
8	I-435 Interchange	0.96	223.25	309.11	198%	274%
9	Blue Ridge Cutoff Interchange	1.28	132.42	90.98	117%	81%

*Statewide average crash rate for urban interstates.
Shading indicates sections which exceed the statewide average crash rates by more than 150 percent and have a higher need for improvements.

The majority of the crashes are rear end (48 percent) followed by out of control (20 percent) and passing (16 percent). Rear end collisions occur more frequently in congested areas and interchange areas as drivers fail to adjust for the slower moving traffic. Improvements on I-70 that address two of the other identified needs, reduce congestion and modernize the overall roadway condition, may help reduce these rear end collisions. Approximately 76 percent of the total crashes cause only property damage while approximately 24 percent cause injury. Approximately 27 percent of all crashes occur in dark conditions and approximately 22 percent occur in icy, snow, or wet pavement conditions.

Disabling Injury Crashes

In review of the 32 disabling injury crashes that have occurred in the Study Area between 2006 and 2010, the following potential contributing circumstances were noted. The crash records can identify more than one probable contributing factor per crash event therefore the percentages could add to more than 100 percent. The primary probable contributing

factors for the disabling injury crashes included excessive speed or driving too fast for conditions (40 percent), inattention (25 percent), improper lane usage/change (19 percent), and following too close (19 percent). Alcohol was a probable factor in two of the 32 disabling injury crashes.

The majority of the disabling injury crashes were rear end crashes (37 percent) and out of control crashes (31 percent) accounting for over two thirds of the disabling injury crashes. Weather does not appear to play a significant role as the pavement condition was dry in over 70 percent of the disabling injury crashes. One of the disabling injury crashes involved a pedestrian.

Fatal Crashes

In review of the eight fatal crashes occurring in the Study Area between 2006 and 2010, the following potential contributing circumstances were noted. The crash records can identify more than one probable contributing factor per crash event; therefore, the percentages could add to more than 100 percent. The primary probable contributing factors for the fatal crashes included improper lane usage/change was cited in five (63 percent) of the fatal crashes, alcohol was cited in two (25 percent) of the fatal crashes, excessive speed or driving too fast for conditions was cited in two (25 percent) of the fatal crashes, and inattention in two (25 percent) of the fatal crashes.

The pavement condition was dry for all of the fatal crashes. A total of eight persons lost their lives; one person suffered a disabling injury; and five persons received minor injuries in the eight fatal crash events in the study area between 2006 and 2010. One of the fatal crashes involved a pedestrian.

Why is there Congestion on I-70?

I-70 has outlasted its original design life of 20 years and has carried traffic volumes of both cars and heavy trucks that have far exceeded original expectations. Traffic growth on I-70 is the result of population and economic growth in the Kansas City Metropolitan Area and the increase in travel through the region by cars and trucks. The Kansas City Metropolitan Area has experienced population growth of 28 percent between 1970 and 2000. The population growth from 2000 to 2010 was

just over 11 percent based on U.S. Census data. MARC forecasts an additional 41 percent population growth in the metropolitan area by 2040. The total Jackson County population growth is expected to be nearly 21 percent between 2010 and 2040. The population growth most likely to impact the Study Area is focused around Independence, Blue Springs and downtown.

The Kansas City Metropolitan Area has a number of locations that generate and attract trips along I-70 in the Study Area. An understanding of these locations can help to more fully understand travel needs along the corridor, as well as assist in locating freeway interchanges and transit stops.

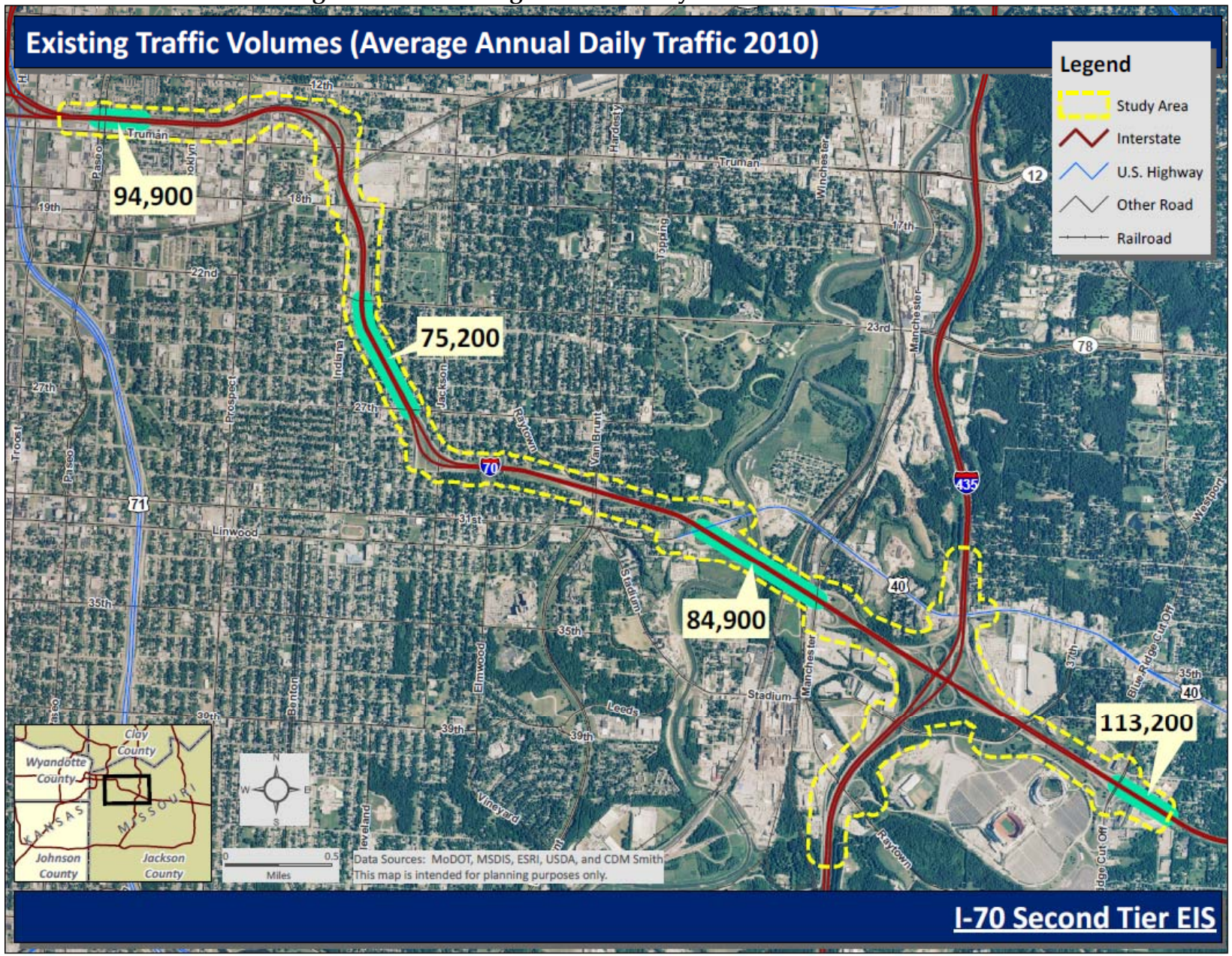

I-70 Eastbound at Lister

The key residential centers affecting I-70 traffic are generally in the middle portions of the Study Area along with those outside the Study Area in locations such as Independence, Blue Springs, Lee's Summit, and the Country Club Plaza area. The major employment centers affecting I-70 traffic are generally located between downtown Kansas City and the Country Club Plaza. The major shopping areas are the Country Club Plaza, Blue Ridge Crossing, Independence Center and other developments near the I-70 and I-470 interchange.

As a result of population growth, where people live, locations of jobs, and the shopping and entertainment areas, the I-70 traffic volumes have been steadily increasing over the past 30 years. The completion of regional highway projects (Bruce R. Watkins and Three Trails Crossing) in the early 2000s resulted in some traffic diversion away from I-70. More recently, the economic slowdown and gas price fluctuations have contributed to average daily traffic volumes remaining relatively constant on I-70. **Figure 3** illustrates 2010 average annual daily traffic (AADT) volumes within the Study Area.

Commuter traffic in the study corridor is highly directional with approximately 70 percent of traffic destined towards the Kansas City Central Business District (CBD) during the morning and away from the CBD during the afternoon peak periods.

Figure 3: 2010 Average Annual Daily Traffic Volumes

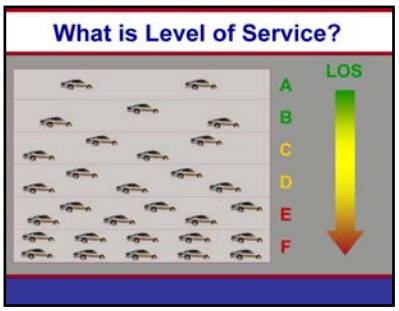


A level of service analysis (LOS) was completed in the First Tier EIS for forecast 2030 traffic and showed relatively severe congestion exists on portions of I-70 corridor during the two hours a weekday with high commuter traffic (peak periods). Approximately, 2.3 miles of I-70 west of I-435 was operating at LOS F across several small spot locations. This analysis also showed that most of this congestion was a result of sub-standard merge, diverge, and weave areas within the Study Area. The LOS analysis can be found in the **Appendix**. The LOS and traffic analysis will be updated as the I-70 Second Tier EIS proceeds.

What is Level of Service Analysis?

Level of service (LOS) is a measure by which transportation planners determine the quality of service on roadway. LOS is a measure of traffic density or a measure of congestion. The transportation LOS system uses the letters A through F, with A being best and F being worst.

Traffic volumes in the corridor have remained relatively constant between 2006 and 2010. However, there has been a lot of construction on this corridor over the last several years. In 2008 and 2009, maintenance work was completed on the Manchester Bridges. In 2010, bridge resurfacing work was completed on the eastbound bridges from Downtown to I-435. In 2011, work was completed on the Sterling Avenue and U.S. 40 bridges and bridge resurfacing work on the westbound bridges from I-435 to downtown. All of this construction activity may have encouraged travelers to take alternative routes.



Peak period volumes have not changed significantly even though the daily traffic volumes are increasing as the corridor's population grows and shifts to the east. This is likely due to drivers changing their trip time, destination, and/or route to avoid I-70 during the peak periods. If capacity is added to the corridor, peak period traffic volumes are likely to increase as travel times are reduced and drivers adjust their travel decisions to account for the improved conditions. This assumption is consistent with observed conditions on similar freeways elsewhere in the U.S.

What are geometrics?

Geometrics relate to the curves, hills, and valleys of a road. In addition, geometrics include the width of the road defined by the number of lanes, shoulders, and median.

What Congestion Reductions are Needed?

Certain Study Area conditions that appear to be major corridor bottlenecks are described below.

Benton/Jackson Curves: These curves have substandard interstate operations and geometrics due to poor sight

distance and substandard 45 mile per hour curves in the roadway. The Jackson curve is an area of higher than average crash rates.

Interchange Spacing: The Study Area has 15 full or partial interchanges across 6.8 miles which averages to an interchange every half mile or less. FHWA guidance is one mile between urban interchanges.

Interchange Merge and Weave Areas: There are several interchanges that do not meet the current standards for merge lane lengths and weave areas.

Measuring Existing Congestion: The Study Team calculated levels of services for basic freeway sections, ramp merges and diverges, and weaving sections based on 2008 traffic data. This analysis allowed the Study Team to identify which sections of the Study Area had the worst congestions. Sections comprised of LOS E or worse were deemed undesirable. The complete analysis is provided in the **Appendix**.

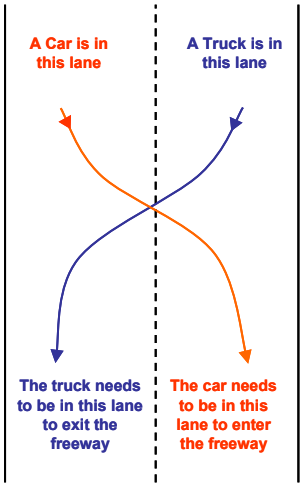
The following locations have capacity and level of service in the undesirable range:

- Downtown Loop to Jackson Curve: The traffic congestion through this section, both eastbound and westbound, is currently undesirable. The levels of service for the basic freeway sections, weaving sections, and ramps are predominantly in the range of LOS E to LOS F. Improper lane balance contributes to the capacity problems in this section.

- Jackson Curve to I-435: The congestion level through this section, both eastbound and westbound, is either undesirable or approaching undesirable conditions. The levels of service for some of the basic freeway sections, weaving sections, and ramps are LOS E.

- I-435: The congestion levels in both directions through the I-435 interchange are undesirable, with levels of service predominantly in the range of LOS E to LOS F. Recently, MoDOT completed improvements that allow 6 lanes to continue through the interchange. An

What is a weaving section?



The car and truck must cross the other traffic to get to the lane they want to be in.

I-70 Eastbound at the Jackson Curve

updated traffic evaluation will be completed during the I-70 Second Tier EIS.

- I-435 to Blue Ridge Cutoff: The congestion levels through this remaining section of the project corridor are either undesirable or approaching undesirable conditions. The levels of service for some of the basic freeway sections, weaving sections, and ramps are LOS E.

<u>*Congestion and Transit Service*</u>: Traffic growth and congestion in the I-70 corridor affect bus services that operate on I-70. Currently, travel options along the I-70 corridor include primarily motor vehicles along with limited transit opportunities. There are currently three fixed bus transit routes with nearly 40 buses per day that travel on I-70 in the Study Area between downtown Kansas City and other communities. Enhanced modal options in the corridor could have the potential to shift some traffic away from passenger vehicles and thus reduce congestion and environmental impacts such as air quality.

KCATA Bus

SmartMoves Regional Transit Vision is the metropolitan Kansas City's vision for expanded and enhanced public transportation services. It is a regional plan identifying future transit service in seven of the metropolitan area counties. *SmartMoves* builds on prior transit plans and studies, reflects residents' and businesses' desires for a public transit system, and incorporates models and best practices from across the country for modern, effective, and efficient public transportation services. The benefits include increased mobility options for residents through new routes and technologies and a strengthened economy as a result of connecting major Kansas City employment and activity centers. MARC has completed the Downtown Corridor Alternative Analysis and reached a locally preferred alternative to advance the modern streetcar alternative from the River Market to Crown Center.

The improvements developed for the I-70 First Tier EIS coordinated with the 2008 *SmartMoves* update. The *SmartMoves* vision identified the I-70 corridor and the Rock Island corridor as high priority commuter corridors in the

region. MARC has initiated the Jackson County Commuter Corridor Alternatives Analysis (JCCCAA) to evaluate these two corridors which could impact the roadway traffic on I-70. The Second Tier EIS is coordinating with the JCCCAA.

<u>*Regional Congestion Reduction Measures*</u>: As the I-70 Second Tier EIS proceeds, coordination with Kansas City Scout and Operation Green Light will be required. These initiatives were implemented to maximize travel efficiency and reduce congestion along I-70 and parallel routes.

ITS Changeable Message Board

The Kansas City Scout is an Intelligent Transportation System (ITS) designed to monitor and respond to traffic incidents and to provide traffic and roadway information to motorists in the Kansas City Metropolitan Area. It functions by using sensors, cameras and large easy to read, changeable message boards to inform motorists about traffic problems, delays, collisions, and other real-time information. Kansas City Scout has the potential to work with all aspects of the region's transportation system and helps keep the interstate traffic moving smoothly.

In 1998, MARC, along with several other agencies in Kansas and Missouri, initiated Operation Green Light, a study of the potential congestion mitigation and air quality impacts of enhanced arterial traffic signal systems to improve coordination of traffic signals on regional traffic corridors. This effort established a link between the operation of regional freeway management systems and the operations of regional signalized arterial roadways. Operation Green Light is an on-going effort since 2008. The OGL system includes three corridors that cross I-70 (The Paseo, U.S. 40/31st Street and Blue Ridge Cutoff). For I-70, this could result in reduced congestion on ramps between the freeway and local arterial roads and greater flow of traffic on parallel roadways. This could reduce congestion at interchanges and reduce the number of local trips on I-70 as local roads move traffic more efficiently.

What Existing Infrastructure Needs to be Restored and Maintained?

Other than short reconstructed portions, most sections of the Study Area are approximately 40 to 50 years old. Due to

proper maintenance, the I-70 facility has outlasted its original design life of 20 years. Since the original construction, some interstate design standards have been revised and leave I-70 with some undesirable design features. Improvements proposed, as part of the I-70 Second Tier EIS, need to modernize the freeway.

A variety of data was gathered for the existing corridor's physical characteristics. Four categories were established for the organization and evaluation of this data:

1. Cross section elements (lane widths, shoulder widths, medians)
2. Alignment (horizontal and vertical)
3. Physical condition (pavement and bridge conditions)
4. Roadway layout

The subsequent discussion briefly describes the thresholds established for these categories.

Cross Section: Lane width, shoulder width, and median width were the three primary cross section elements evaluated.

Lane Width: Based on MoDOT standards, the Study Team defined lane widths of less than 12 feet as undesirable. For a freeway such as I-70, 12-foot lanes are important to maximize safety and capacity of I-70.

Shoulder Width: The Study Team defined any shoulder widths of less than ten feet as undesirable. Ten foot shoulders are necessary on both sides of the freeway to provide room for emergency pull offs, including trucks, given the high truck percentage in the project corridor. Insufficient room for emergency pull offs is detrimental to both the safety and capacity of a roadway, particularly as minor crashes or incidents can cause unnecessary lane blockages and substantial congestion.

Median Width: The Study Team defined median widths of 26 feet as preferable. Since ten foot shoulders are required on the inside of the traveled way, and since a median barrier two feet in width is required to separate the opposing directions of traffic, 22 feet is the minimum acceptable median width.

The majority of shoulders are less than the standard ten feet in width; the majority of median sections are less than 22 feet in width. The existing 12 foot lane widths along I-70 are sufficient. To the extent feasible, Study Area improvements should address the insufficient shoulder and median widths.

Alignment: The Study Team has evaluated horizontal curvature, vertical curvature, and vertical grades of the existing I-70 alignment in order to identify undesirable conditions. For clarity, the horizontal and vertical curvature has been described in terms of the speeds that the curves comfortably permit. For example, a curve is described as a 50 mph curve rather than a six degree curve.

What is a vertical grade?

Vertical grade is the slope of the road. A four percent grade means the road rises or falls four feet for every 100 feet of length.

Horizontal Curvature - It is not reasonable to classify every curve below 65 mph as undesirable in this dense, urban corridor. The existing geometrics, combined with the dense development along the corridor, are simply too restrictive. Therefore, the Study Team classified curves as undesirable below 60 mph between the downtown loop and I-435.

What is a sight distance?

Sight distance is the length of the road ahead that is visible to the driver.

Vertical Curvature and Grade - The vertical curvature follows the same categorization as the horizontal curvature. For vertical grades, any grade steeper than four percent was categorized as undesirable.

Locations with Alignment Issues - Geometric characteristics were measured using MoDOT and the American Association of State Highway and Transportation Officials (AASHTO) guidance. There are undesirable geometrics at the following locations:

- The Paseo to Jackson Curve - Both eastbound and westbound travel directions have undesirable vertical curvature and sight distance issues slightly east of The Paseo, at Brooklyn Avenue, at Chestnut Avenue, at 23rd Street, and at Cleveland Avenue. There is an undesirable horizontal curve at Benton Boulevard. Only the eastbound direction has vertical curvature and sight distance issues at Truman Road and 18th Street.

Westbound I-70 at the Benton Curve

- Jackson Curve to I-435 - Both eastbound and westbound travel directions have undesirable vertical curvature and sight distance issues through the I-435 interchange and undesirable horizontal curvature at Jackson Avenue.

Physical Condition: The Study Team recognizes I-70 is an aging facility which requires annual maintenance to the pavement and bridges. The on-going maintenance needs of the pavement and bridges are not a determining factor in evaluating alternatives. The specific pavement and bridges that are currently in poor condition will require replacement or maintenance work regardless of the alternative selected by the Second Tier EIS process. The I-70 Second Tier EIS needs to seek solutions that modernize the freeway and reduce the need for the frequent regular maintenance that is needed today. The opportunity exists to enhance aesthetics along the corridor while improving the overall physical condition.

Roadway Layout: The Study Team conducted a system configuration evaluation based on AASHTO Principles of Good Urban Freeway Planning and Design. The following are key system configuration principles that Study Area improvements need to address where feasible:

- Provide lane balance and continuity.
- Improve interchange spacing.
- Improve ramp lengths.
- Improve the weaving areas within interchanges along the mainline.

The Study Area locations that do not fully meet these AASHTO principles are listed below.

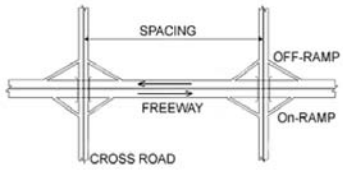
Improper Lane Balance - Improper lane balance contributes to the congestion problems in the corridor. The locations that represent bottlenecks, creating significant congestion due to improper lane balance are on eastbound I-70 approaching The Paseo and eastbound I-70 at Prospect Avenue.

Improve Interchange Spacing – There are 15 full or partial interchanges within the 6.8 mile Study Area which is approximately one full or partial interchange every half mile.

What is lane balance?

Lane balance occurs at an exit ramp when the number of through lanes before the exit ramp is equal to or greater than the sum of the mainline lanes and ramp lanes.

What is interchange spacing?



Interchange spacing is the distance between two grade-separated interchanges. Current interchange spacing guidelines call for interchanges to be spaced one mile apart within urban areas.

Current interchange spacing guidelines call for interchanges to be spaced one mile apart within urban areas.

Interchange Ramp Issues – There are a number of interchanges in the Study Area that do not provide full access to all directions of traffic.

- Downtown Loop to Jackson Curve - Brooklyn Avenue, Chestnut Avenue, Benton Boulevard, Truman Road, 18th Street, 27th Street, and Jackson Avenue all provide only partial access; the configurations can be confusing and counter-intuitive to driver expectations. There are undesirable eastbound exit ramp lengths and westbound entrance ramp lengths at The Paseo, Brooklyn Avenue, Indiana Avenue, and 27th Street. Eastbound 23rd Street also has undesirable entrance and exit ramp lengths.

- Jackson Curve to I-435 - This section has short ramp lengths at the eastbound entrance ramp and the westbound exit ramp lengths at Van Brunt Boulevard. U.S. 40 and Manchester Avenue also have short ramp lengths.

What is partial access?

27th Street Interchange

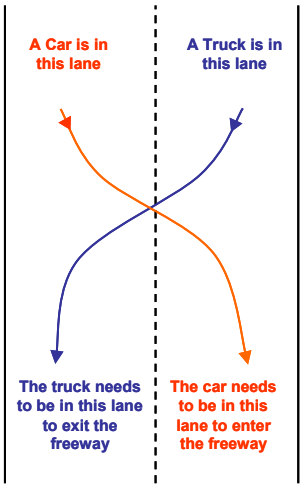
Partial access is when one or more movements at an intersection or interchange are not allowed or unavailable.

Improve Weaving Areas - A number of locations in the project corridor have weaving areas of concern.

- Downtown Loop to Jackson Curve - This section is characterized by short weaving sections, short ramp lengths, and undesirable lane balance. There are undesirable weaving sections between The Paseo and Brooklyn Avenue, as well as the area between 18th Street and 23rd Street in both directions.

- Jackson Curve to I-435 - This section has short weaving sections, short ramp lengths, and undesirable lane balance. The eastbound entrance ramp and the westbound exit ramp lengths at Van Brunt Boulevard are both undesirable. U.S. 40 and Manchester Avenue have short weaving sections and, short ramp lengths. An undesirable weaving area exists at the westbound I-70 between U.S. 40 and Van Brunt Boulevard. Both the eastbound and the westbound directions have

What is a weaving section?



The car and truck must cross the other traffic to get to the lane they want to be in.

undesirable weaving sections between Manchester Trafficway and I-435.

What Accessibility Improvements are Needed?

Often major linear features such as rivers and transportation corridors act as barriers to pedestrians, bicyclists, and those without motor vehicles. The I-70 Second Tier EIS will work to improve connections across I-70 and reduce the barriers to non-motorized travelers.

Sidewalk crossing under I-70

Crossing I-70: The Study Area has 19 roadway bridges or underpasses and two pedestrian bridges crossing I-70 which provide opportunities for enhancement. Some I-70 bridges and underpasses are connected to interchanges while others only provide access across the freeway. In either case, it is important to provide facilities for bicyclists and pedestrians. These crossing are at:

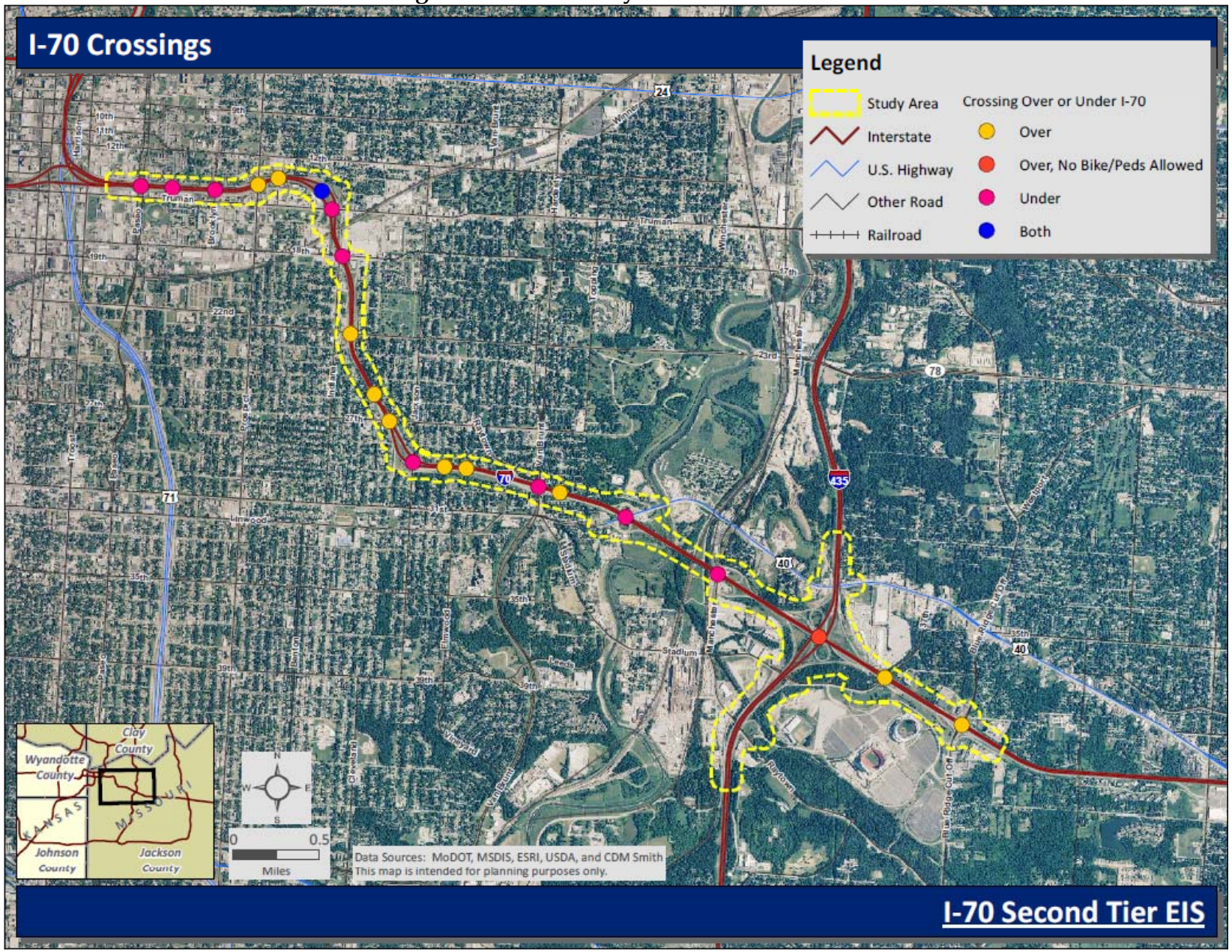
- The Paseo
- Woodland Avenue
- Brooklyn Avenue
- Prospect Avenue
- Chestnut Avenue
- Benton Boulevard
- Truman Road
- Indiana Avenue
- 18th Street
- 23rd Street
- Cleveland Avenue
- 27th Street
- Jackson Avenue
- Lister Avenue
- Van Brunt Boulevard
- U.S. 40
- Manchester Trafficway
- Stadium Drive
- Blue Ridge Cutoff


Pedestrian bridge near Van Brunt Boulevard

Each crossing provides aesthetic opportunities to create neighborhood specific identity or aesthetic improvements on the bridges, retaining walls, or other structures.

Pedestrian Facilities: Most of the bridges and underpasses have sidewalk accommodations on at least one side of the street. However, there are three locations, Manchester Trafficway; U.S. 40 West and Stadium Drive, without sidewalks. To supplement the roadway crossings of I-70, there are two pedestrian bridges – one east of the Van Brunt Boulevard interchange at Oakley Avenue, and the second east of the Jackson Avenue interchange at Cypress Avenue. These crossing of I-70 are shown on **Figure 4**.

Figure 4: Accessibility Across I-70



Bicycle Facilities: The Kansas City Metropolitan Area does not currently have a regional network of fully interconnected bicycle facilities. There are three identified on-street bike lanes available throughout the Study Area according to the MARC Bikeway and Trail Map. These on-street bike lanes are along Woodland Avenue, Benton Boulevard and Blue Ridge Cutoff. However, additional non-motorized transportation system improvements within the Study Area and on routes paralleling or crossing the I-70 corridor may still be needed. Individual projects have been constructed to various standards, some of which offer potential for future inclusion as part of a comprehensive regional bikeway system.

Since most of the existing projects were planned and designed as recreational trails, they primarily meet recreation needs and may need to be upgraded or extended to become effective transportation routes.

Transit Routes: Kansas City Area Transit Authority (KCATA) has 8 bus routes that cross and 3 bus routes that or travel on I-70 within the Study Area. In addition, 6.6 percent of the households in Study Area census tracts have no vehicles available. One of the ten census tracts in the Study Area has 20 percent or more of their households with no vehicle. This indicates that public transit needs are an important aspect of the Study Area.


KCATA Bus

Improvement of accessibility across I-70 for pedestrians, bicyclists, and those without motor vehicles, is needed to serve and support the wide variety of land uses adjacent to the freeway. The land uses within the Study Area vary drastically from Kansas City's Central Business District to residential neighborhoods to major regional retail areas. Even within individual land use categories the Study Area varies greatly. For example, residential land uses include suburban neighborhoods, urban neighborhoods, and downtown neighborhoods.

Together with a diverse land use, the Study Area contains schools, churches, parks, and recreational areas such as Grove Park and Cypress Park. It is important that improvements are sensitive to the needs of the local neighborhoods and

businesses to access these key destinations located on either side of the freeway.

Why are Goods Movement Improvements Needed?


Trucks on I-70

As a national freight center, Kansas City's mid-continent location makes the region a key location for the movement of goods. National cargo passes through the region by truck, rail, water, and air. I-70, I-35, I-29, and U.S. 71 are the primary truck routes in the region with 27 percent of the pass through freight movements exiting the region on I-70 eastbound based on the *2008 Kansas City Regional Commercial Vehicle Origin and Destination Survey.* Additional survey results show the top destinations for freight trips passing through the region are Colorado, Iowa, Texas, Minnesota, Nebraska, and southwest Missouri.

Shippers engaging motor carriers to transport goods to the next destination or as a connection with other modal providers, e.g. railroad intermodal yards, airports, waterway ports, expect the interstate to provide efficient movement. Without an efficient interstate system, carrier costs reflect higher costs due to delays and congestion related to lost productivity. Lost productivity costs are typically passed onto the consumer of the transportation services, raising the cost of goods and negatively impacting future economic growth of the area. Increasing from 16 hours annually in 1982 to 62 hours in 2010, TTI's *Urban Mobility Report* cites total hours of delay as a significant effect on truck movement, directly associated with profitability, in the top 75 metropolitan areas. The I-70 Second Tier EIS improvements need to support goods movement by providing less congested, more reliable travel. This will lead to improved freight travel times and reduced operating costs for moving goods.

Trucks are an important component of the traffic stream in the Study Area. Approximately 11 percent of the daily vehicles in the corridor are trucks. Truck percentages during the peak periods (7:00 a.m. - 9:00 a.m. and 4:00 p.m. - 6:00 p.m.) are higher in the direction opposing commuter traffic due to the increase in the peak hour traffic volumes as shown in **Table 2**.

Table 2: Truck Percentages on I-70

		AM	PM	Daily
Eastbound I-70	Downtown Loop to I-435	9%	4%	11%
Westbound I-70	I-435 to Downtown Loop	3%	8%	11%

Source: I-70 First Tier EIS

Trucks impact the freeway operations in two significant ways. First, truck operations impact traffic flow. While the percentage of trucks on I-70 is relatively low in the peak direction during the peak periods, (three to four percent of the overall traffic flow) it has been observed that the mixture of slow traffic and grades on the corridor often causes trucks to accelerate slowly, impeding traffic flow.

Acceleration rates by trucks, though varying by specific type, were measured from a static stop in *Acceleration Lane Design for Higher Truck Volumes*. **Table 3** illustrates the significant distance to meet free flow conditions required by commercial vehicles.

Table 3: Average Truck Acceleration (in mph)

	At 1,000 feet	At 2,000 feet	At 3,000 feet
Uphill grade	34	48	53
Downhill grade	38	51	60

Source: *Acceleration Lane Design for Higher Truck Volumes,* Mack-Blackwell Transportation Center, 2008

Secondly, the major truck generators throughout the corridor have a significant impact on the operations at some of the corridor's interchanges. Typically, it is not the interstate itself causing bottlenecks for truck traffic but the ramps and over/underpasses that are causing operational issues. With ramp lengths of 500-600 feet in length, truck acceleration concerns exist.

The largest generators of truck traffic near the study are Front Street between I-35 and I-435, west bottoms/UPS, Crown Center, the Lipton Tea factory on Noland Road, and the major retail centers at I-470 and I-70 as displayed in **Table 4**. These locations are shown in **Figure 5**.

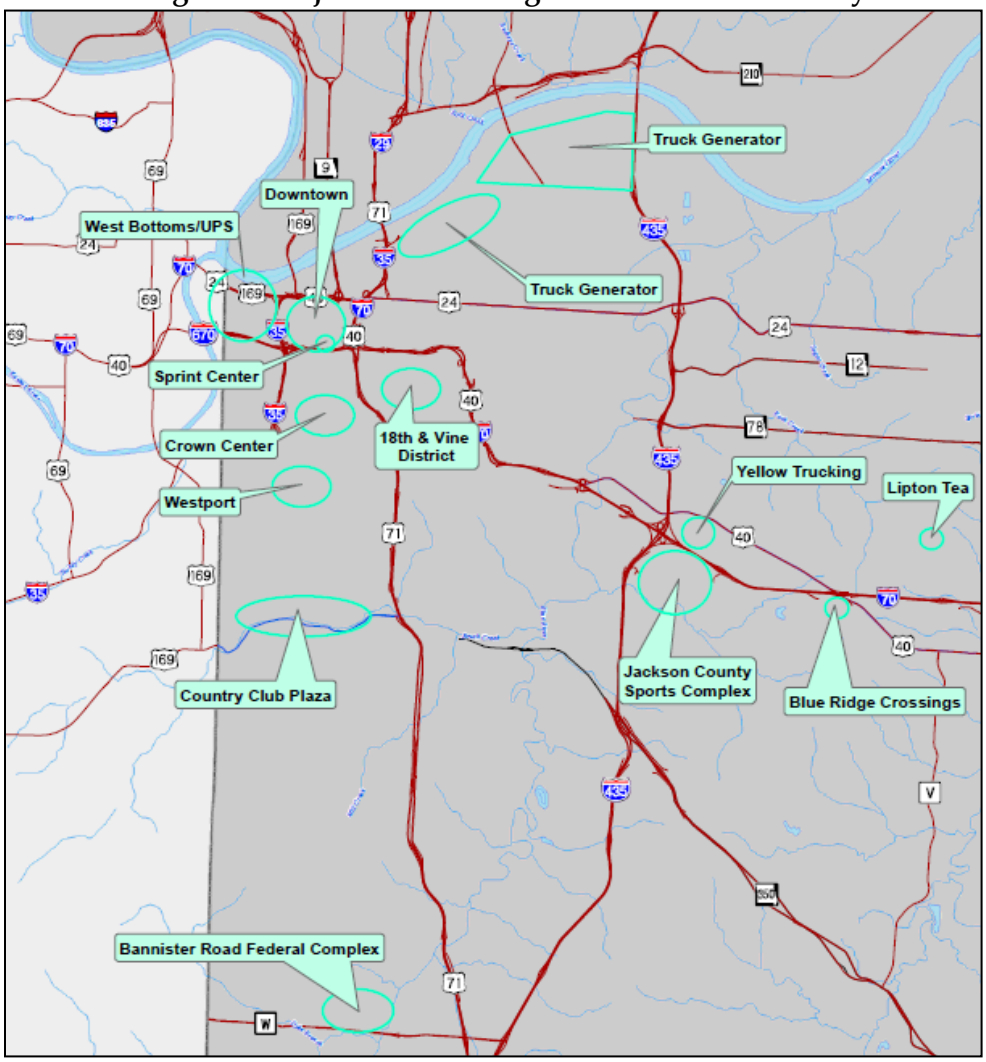
Table 4: Major truck traffic generators near the Study Area- Year 2000

General Location	Number of Daily Trips*
Kansas City, Front Street west of I-435	2,177
Kansas City, Bannister Road Federal Complex	1,728
Kansas City, West Bottoms/UPS	1,446
Kansas City, Front Street east of I-29/35	1,272
Kansas City, Crown Center	1,243

* Daily vehicle-trips by light-duty and heavy-duty trucks

Source: I-70 First Tier EIS

Figure 5: Major truck traffic generators near the Study Area



Summary

The purpose of the I-70 Second Tier EIS is to determine an improvement alternative for the corridor, including future capacity and mode choices, that addresses the key needs outlined in this document. The Second Tier EIS has identified the five purpose and need goals as:

1. Improve Safety
2. Reduce Congestion
3. Restore and Maintain Existing Infrastructure
4. Improve Accessibility
5. Improve Goods Movement

The Study Team will develop, refine, and evaluate potential I-70 corridor alternatives based on the needs outlined in this document while seeking to minimize impacts to the human and natural environment.

APPENDIX

Crash and Safety Data Disclaimer
Traffic Data and Level of Service Analysis

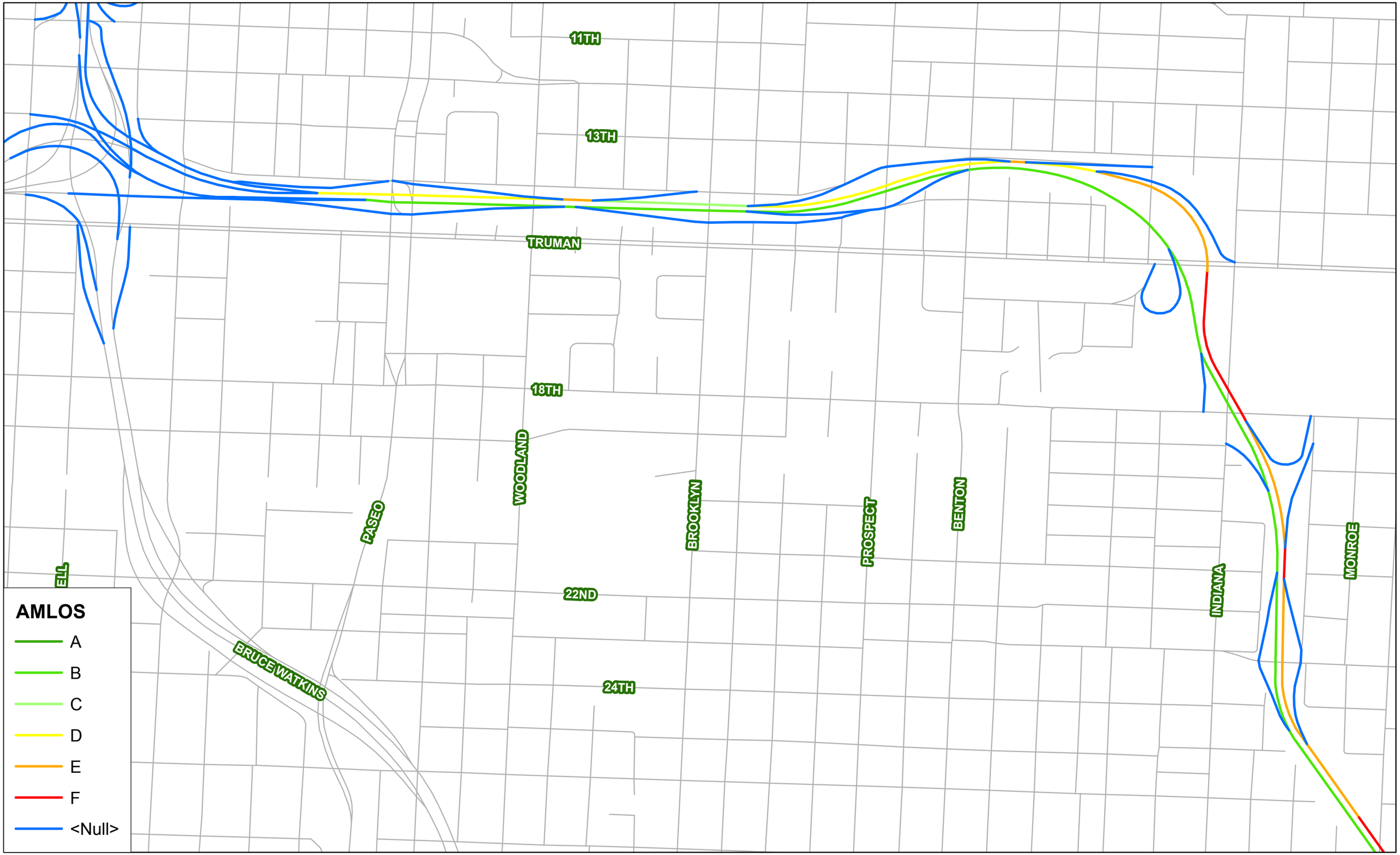
Traffic and Safety Data Disclaimer

The National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321-4370f, requires that this analysis of the proposed project must consider and discuss its effects and impacts on mankind, and its effects and impacts on plants, animals, resources, and the natural world in general. One of the key elements to be discussed in any NEPA analysis of a proposed highway project is its effects and impacts on the safety of those who use those highways. However, Congress has recognized that even while this document summarizes and presents traffic accident and safety information for the general benefit of the public, pursuant to federal law, some people may attempt to use the information to establish federal, state or local liability in lawsuits arising from highway accidents. Congress has enacted a law, 23 USC Section 409, which prohibits the discovery or use, in litigation, of highway accident and safety data, developed under federal law to make highway safety improvements. Congress's rationale is obvious: the safety data was compiled and collected at their request, to help prevent future accidents, injuries and death on our nation's highways. If that information can be used in expensive damage suits, then the millions of dollars that litigation may cost the Missouri Department of Transportation (MoDOT) and local governments will not be available for their use to make Missouri's highways safer. The collection of this safety data should be encouraged, not discouraged.

Traffic accident statistics and safety data are compiled, presented and summarized in portions of this NEPA document. Where noted in an introductory footnote to a segment of this document, the discussions, reports, lists, tables, diagrams and data presented throughout that chapter, unit, section or subsection were compiled or collected for the purpose of identifying, evaluating or planning the safety enhancement of potential accident sites or hazardous roadway conditions pursuant to federal law. Thus, that information and its supporting reports, schedules, lists, tables, diagrams and data are not subject to discovery, and they are prohibited by federal law (23 USC § 409) from being admitted into evidence in a federal or state court proceeding, or from being considered for other purposes, in any action for damages arising from an occurrence on the highways, intersections or interchanges discussed in this document.

Order ID	Interchange	GIS ID	Segment Type	Dir	No. of lanes (2008)	Roadway capacity (vphpl)	Existing 2008		I-70 No Build	
							AM final	PM final	AM final	PM final
1	Paseo	7147-8662	Basic	EB	4	1,800	2,200	5,475	2,475	6,175
2		8667-8662	On Ramp			1,800	100	250	125	300
3		8662-7145	Weave	EB	5	1,800	2,300	5,725	2,600	6,475
4	Brooklyn	7145-7143	Off Ramp			1,800	125	150	125	150
5		7141-7139	Diverge	EB	4	1,800	2,175	5,575	2,475	6,325
6	Prospect	7139-7137	Off Ramp			1,800	250	450	325	500
7		7139-7135	Basic	EB	3	1,800	1,925	5,125	2,150	5,825
8		7139-7137	On Ramp			1,800	175	250	175	250
9		7135-7133	Merge	EB	3	1,800	2,100	5,375	2,325	6,075
10		7135-7133	Diverge	EB	3	1,800	2,100	5,375	2,325	6,075
11	Truman	7127-7125	Off Ramp			1,800	250	400	225	350
12		7123-7121	Diverge	EB	3	1,800	1,850	4,975	2,100	5,725
13	18th	7121-7119	Off Ramp			1,800	100	75	100	50
14		7121-7117	Basic	EB	3	1,800	1,750	4,900	2,000	5,675
15		7119-7117	On Ramp			1,800	200	225	275	300
16		7117-7115	Weave	EB	4	1,800	1,950	5,125	2,275	5,975
17	23rd	7115-7113	Off Ramp			1,800	100	425	100	350
18		7115-7111	Basic	EB	3	1,800	1,850	4,700	2,175	5,625
19		7113-7111	On Ramp			1,800	50	75	50	100
20		7111-7109	Merge	EB	3	1,800	1,900	4,775	2,225	5,725
21		7111-7109	Diverge	EB	3	1,800	1,900	4,775	2,225	5,725
22	27th	7109-7105	Off Ramp			1,800	50	75	50	100
23		7106-7103	Diverge	EB	3	1,800	1,850	4,700	2,175	5,625
24	Jackson	7103-7102	Off Ramp			1,800	150	150	125	125
25		7103-7101	Basic	EB	3	1,800	1,700	4,550	2,050	5,500
26		7102-7101	On Ramp			1,800	125	175	150	200
27		7101-7097	Merge	EB	3	1,800	1,825	4,725	2,200	5,700
28		7101-7097	Diverge	EB	3	1,800	1,825	4,725	2,200	5,700
29	Van Brunt	7097-7095	Off Ramp			1,800	150	125	150	125
30		7097-7096	Basic	EB	3	1,800	1,675	4,600	2,050	5,575
31		7095-7096	On Ramp			1,800	175	325	175	375
32		7096-7091	Merge	EB	3	1,800	1,850	4,925	2,225	5,950
33		7096-7091	Diverge	EB	3	1,800	1,850	4,925	2,225	5,950
34	Hwy 40 West	7091-7089	Off Ramp			1,800	50	475	50	375
35		7091-7090	Basic	EB	3	1,800	1,800	4,450	2,175	5,575
36		7089-7090	On Ramp			1,800	75	350	125	425
37		7090-7084	Merge	EB	3	1,800	1,875	4,800	2,300	6,000
38		7090-7084	Diverge	EB	3	1,800	1,875	4,800	2,300	6,000
39	Manchester	7084-7083	Off Ramp			1,800	125	75	125	100
40		7084-7085	Basic	EB	3	1,800	1,750	4,725	2,175	5,900
41		7083-7085	On Ramp			1,800	50	250	50	175
42		7085-7079	Weave	EB	4	1,800	1,800	4,975	2,225	6,075
43	I-435	7079-7077	Off Ramp			1,800	525	850	575	925
44		7079-24594	Diverge	EB	3	1,800	1,275	4,125	1,650	5,150
45		24594-24595	Off Ramp			1,800	225	325	275	350
46		24594-7078	Basic	EB	2	1,800	1,050	3,800	750	4,050
47		24598-7078	On Ramp			1,800	1,175	2,600	1,425	3,150
48		7078-7073	Weave	EB	4	1,800	2,225	6,400	2,175	7,200
49	Blue Ridge Cutoff	7073-7071	Off Ramp			1,800	400	500	625	750
50		7073-7072	Basic	EB	3	1,800	1,825	5,900	2,175	7,200
51		7071-7072	On Ramp			1,800	150	450	250	675
52		7072-7065	Merge	EB	3	1,800	1,975	6,350	2,425	7,875
53		7072-7065	Basic	EB	3	1,800	1,975	6,350	2,425	7,875
54		7072-7065	Diverge	EB	3	1,800	1,975	6,350	2,425	7,875
55	Sterling	7072-2528	Off Ramp			1,800	200	425	225	450
56		7072-7065	Basic	EB	3	1,800	1,775	5,925	2,200	7,425
57		7072-7065	Diverge	EB	3	1,800	1,775	5,925	2,200	7,425
58	Hwy 40 East	7065-7066	Off Ramp			1,800	150	450	200	650
59		7065-7067	Basic	EB	3	1,800	1,625	5,475	2,000	6,775
60		7066-7067	On Ramp			1,800	175	375	225	500
61		7058-7061	Merge	EB	3	1,800	1,800	5,850	2,225	7,275
62	Blue Ridge Blvd	7059-7061	On Ramp			1,800	275	375	300	400
63		7061-7054	Merge	EB	3	1,800	2,075	6,225	2,525	7,675
64		7061-7054	Basic	EB	3	1,800	2,075	6,225	2,525	7,675
65		7061-7054	Diverge	EB	3	1,800	2,075	6,225	2,525	7,675
66	Noland	7054-7053	Off Ramp			1,800	375	675	375	700
67		7054-7055	Basic	EB	3	1,800	1,700	5,550	2,150	6,975
68		7053-7055	On Ramp			1,800	250	550	325	750
69		7055-7048	Merge	EB	3	1,800	1,950	6,100	2,475	7,725
20		7055-7048	Basic	EB	3	1,800	1,950	6,100	2,475	7,725
71		7055-7048	Diverge	EB	3	1,800	1,950	6,100	2,475	7,725
72	Lees Summit	7048-7047	Off Ramp			1,800	225	775	250	850
73		7048-7049	Basic	EB	3	1,800	1,725	5,325	2,225	6,875
74		7048-7049				1,800	1,725	5,325	2,225	6,875
75		7047-7049	On Ramp			1,800	175	450	225	625
76		7049-7041	Merge	EB	3	1,800	1,900	5,775	2,450	7,500
77		7049-7041	Basic	EB	3	1,800	1,900	5,775	2,450	7,500
78		7049-7041	Diverge	EB	3	1,800	1,900	5,775	2,450	7,500
79	I-470	7041-24569	Off Ramp			1,800	475	1,025	625	1,325
80		7041-24571	Basic	EB	3	1,800	1,425	4,750	1,825	6,175
81		24570-24571	On Ramp			1,800	250	475	375	700
82		24571-24566	Weave	EB	4	1,800	1,675	5,225	2,200	6,875
83		24566-24565	Off Ramp			1,800	275	550	275	550
84		24566-7043	Basic	EB	3	1,800	1,400	4,675	1,925	6,325
85		7042-7043	On Ramp			1,800	425	825	550	1,150
86		7043-7036	Merge			1,800	1,825	5,500	2,475	7,475

Order ID	Interchange	GIS ID	Segment Type	Dir	No. of lanes (2008)	Roadway capacity (vphpl)	Existing 2008		I-70 No Build	
							AM final	PM final	AM final	PM final
87	Paseo	8663-7146	Basic	WB	4	1,800	6,650	3,325	7,400	3,675
88		8663-8664	Off Ramp			1,800	100	75	150	100
89		7144-8663	Weave	WB	5	1,800	6,750	3,400	7,550	3,775
90	Brooklyn	7142-7144	On Ramp			1,800	325	225	350	250
91		7138-7140	Merge	WB	4	1,800	6,425	3,175	7,200	3,525
92	Prospect	7134-7138	On Ramp			1,800	175	225	175	225
93		7136-7138	Basic	WB	4	1,800	6,250	2,950	7,025	3,300
94		7136-7134	Off Ramp			1,800	125	150	150	150
95		7132-7136	Weave	WB	5	1,800	6,375	3,100	7,175	3,450
96	Benton	7130-7132	On Ramp			1,800	475	325	525	350
97		7126-7128	Merge		4	1,800	5,900	2,775	6,650	3,100
98	Truman	7124-7126	On Ramp			1,800	325	300	300	275
99		7120-7122	Basic	WB	3	1,800	5,575	2,475	6,350	2,825
100		7120-7122	Merge	WB	3	1,800	5,575	2,475	6,350	2,825
101	18th	7118-7120	On Ramp			1,800	50	75	50	75
102		7116-7120	Basic	WB	3	1,800	5,525	2,400	6,300	2,750
103		7116-7118	Off Ramp			1,800	175	100	275	150
104		7114-7116	Weave	WB	4	1,800	5,700	2,500	6,575	2,900
105	23rd	7112-7114	On Ramp			1,800	475	175	425	150
106		7110-7114	Basic	WB	3	1,800	5,225	2,325	6,150	2,750
107		7110-7112	Off Ramp			1,800	75	50	100	75
108		7108-7110	Diverge	WB	3	1,800	5,300	2,375	6,250	2,825
109		7108-7110	Merge	WB	3	1,800	5,300	2,375	6,250	2,825
110	Jackson	7104-7108	On Ramp			1,800	125	150	150	175
111		7099-7100	Basic	WB	3	1,800	5,175	2,225	6,100	2,650
112		7099-7100	Basic			1,800	5,175	2,225	6,100	2,650
113		7099-7098	Off Ramp			1,800	325	175	375	200
114		7094-7099	Diverge	WB	3	1,800	5,500	2,400	6,475	2,850
115		7094-7099	Merge	WB	3	1,800	5,500	2,400	6,475	2,850
116	Van Brunt	7092-7094	On Ramp			1,800	125	175	150	175
117		7093-7094	Basic	WB	3	1,800	5,375	2,225	6,325	2,675
118		7093-7094	Basic			1,800	5,375	2,225	6,325	2,675
119		7093-7092	Off Ramp			1,800	525	275	600	275
120		7088-7093	Weave	WB	4	1,800	5,900	2,500	6,925	2,950
121	Hwy 40 West	7086-7088	On Ramp			1,800	600	150	475	150
122		7087-7088	Basic	WB	3	1,800	5,300	2,350	6,450	2,800
123		7087-7086	Off Ramp			1,800	100	50	125	100
124		7081-7087	Diverge	WB	3	1,800	5,400	2,400	6,575	2,900
125		7081-7087	Basic	WB	3	1,800	5,400	2,400	6,575	2,900
126		7081-7087	Merge	WB	3	1,800	5,400	2,400	6,575	2,900
127	Manchester	7080-7081	On Ramp			1,800	75	125	100	175
128		7082-7081	Basic	WB	3	1,800	5,325	2,275	6,475	2,725
129		7082-7080	Off Ramp			1,800	200	75	250	100
130		7076-7082	Weave			1,800	5,525	2,350	6,725	2,825
131	I-435	24599-7076	On Ramp			1,800	1,375	650	1,650	800
132		24596-7076	Basic	WB	2	1,800	4,150	1,700	5,075	2,025
133		24596-24597	Off Ramp			1,800	875	625	1,125	800
134		7075-24596	Diverge	WB	3	1,800	5,025	2,325	6,200	2,825
135		7075-24593	Off Ramp			1,800	1,350	1,300	1,650	1,575
136		7070-7075	Diverge	WB	4	1,800	6,375	3,625	7,850	4,400
137		7070-7075	Merge	WB	4	1,800	6,375	3,625	7,850	4,400
138	Blue Ridge Cutoff	7068-7070	On Ramp			1,800	625	525	675	550
139		7069-7070	Basic	WB	3	1,800	5,750	3,100	7,175	3,850
140		7069-7068	Off Ramp			1,800	225	250	275	325
141		7063-7069	Diverge	WB	3	1,800	5,975	3,350	7,450	4,175
142		7063-7069	Basic	WB	3	1,800	5,975	3,350	7,450	4,175
143		7063-7069	Basic			1,800	5,975	3,350	7,450	4,175
144		7063-7069	Merge	WB	3	1,800	5,975	3,350	7,450	4,175
145	Hwy 40 East	7062-7063	On Ramp			1,800	825	575	925	675
146		7064-7063	Basic	WB	3	1,800	5,150	2,775	6,525	3,500
147		7064-7062	Off Ramp			1,800	300	500	300	525
148		7052-7060	Diverge	WB	3	1,800	5,450	3,275	6,825	4,025
149		7052-7060	Basic	WB	3	1,800	5,450	3,275	6,825	4,025
150	Noland	7052-7060	Merge	WB	3	1,800	5,450	3,275	6,825	4,025
151		7051-7052	On Ramp			1,800	300	600	300	625
152		7050-7052	Basic	WB	3	1,800	5,150	2,675	6,525	3,400
153		7050-7051	Off Ramp			1,800	175	425	225	525
154		7045-7050	Diverge	WB	3	1,800	5,325	3,100	6,750	3,925
155		7045-7050	Basic	WB	3	1,800	5,325	3,100	6,750	3,925
156		7045-7050	Merge	WB	3	1,800	5,325	3,100	6,750	3,925
157	Lees Summit	7044-7045	On Ramp			1,800	625	400	700	425
158		7046-7045	Basic	WB	3	1,800	4,700	2,700	6,050	3,500
159		7046-7045				1,800	4,700	2,700	6,050	3,500
160		7046-7044	Off Ramp			1,800	225	475	275	575
161		7039-7046	Diverge	WB	3	1,800	4,925	3,175	6,325	4,075
162		7039-7046	Basic	WB	3	1,800	4,925	3,175	6,325	4,075
163		7039-7046	Merge	WB	3	1,800	4,925	3,175	6,325	4,075
164	I-470	24574-7039	On Ramp			1,800	425	550	425	550
165		24572-7039	Basic	WB	3	1,800	4,500	2,625	5,900	3,525
166		24572-24573	Off Ramp			1,800	750	625	1,125	800
167		24567-24572	Weave	WB	4	1,800	5,250	3,250	7,025	4,325
168		24568-24567	On Ramp			1,800	800	650	1,050	850
169		7040-24567	Basic	WB	3	1,800	4,450	2,600	5,975	3,475
170		7040-7038	Off Ramp			1,800	475	400	750	650
171		7033-7040	Diverge			1,800	4,925	3,000	6,725	4,125



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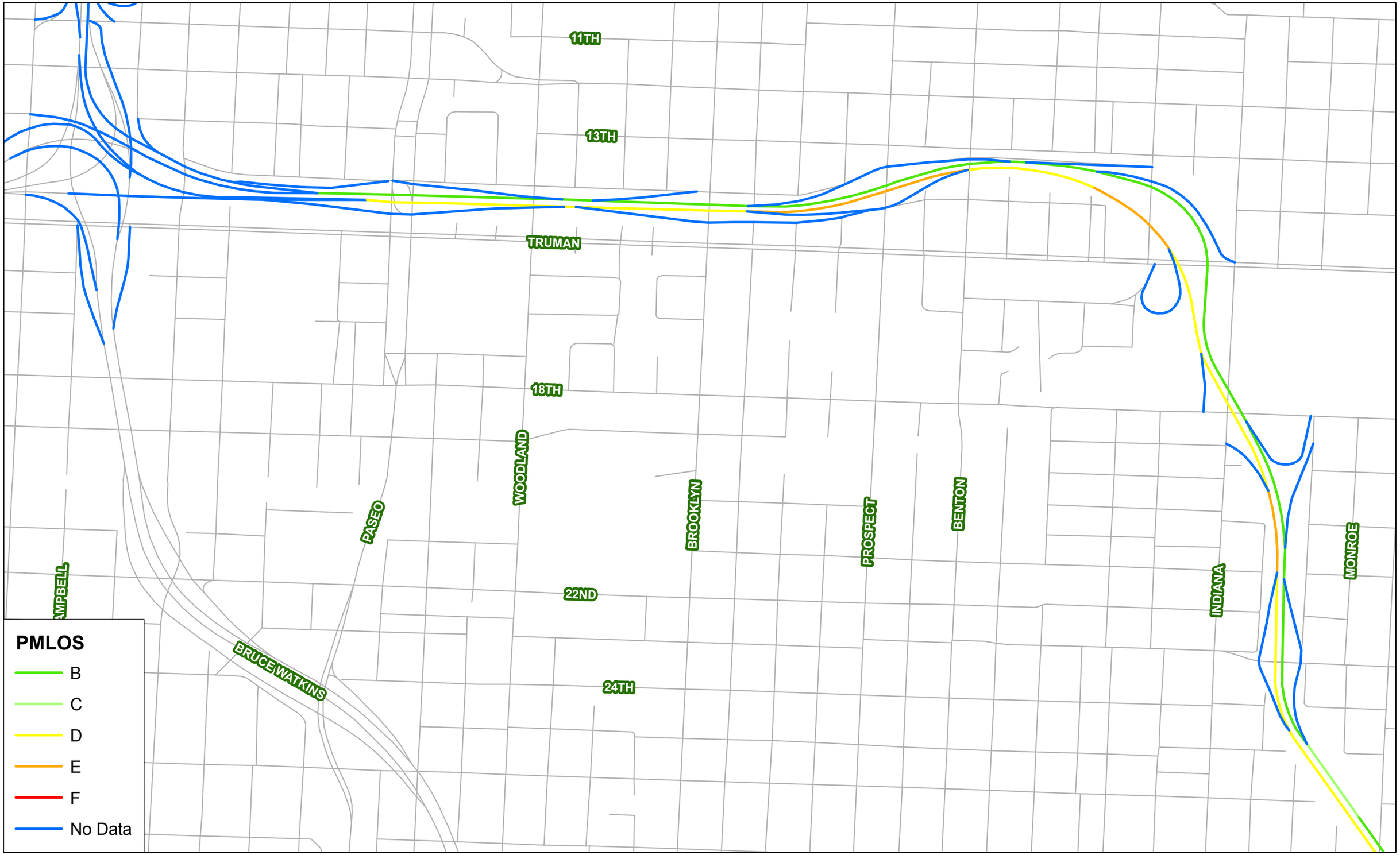

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