JACKSON COUNTY

COMMUTER CORRIDORS

ALTERNATIVES ANALYSIS

DRAFT PURPOSE AND NEED

November 11, 2011

MARC
Mid-America Regional Council

ESTABLISHED 1826 JACKSON COUNTY MISSOURI

CITY OF FOUNTAINS
HEART OF THE NATION
KANSAS CITY
MISSOURI

kcATA
Kansas City Area Transportation Authority

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EXECUTIVE SUMMARY

Purpose and Need Executive Summary

The Mid-America Regional Council (MARC), the Kansas City Area Transportation Authority (KCATA), the City of Kansas City, Missouri, and Jackson County, Missouri are sponsoring an Alternatives Analysis (AA) for two Jackson County Commuter Corridors originating in downtown Kansas City, Missouri and extending east of the downtown area. The East corridor generally parallels Interstate 70, crossing downtown Kansas City (MO), Independence, and Blue Springs. The Southeast corridor generally parallels Missouri Highway 350, serving downtown Kansas City (MO), Raytown, and Lee's Summit. MARC is a nonprofit association of city and county governments and the Metropolitan Planning Organization (MPO) for the Greater Kansas City metro region. The metropolitan area includes two states, nine counties and nearly 2 million people. The Kansas City Area Transit Authority (KCATA) provides transit service within the Kansas City metropolitan area.

Overview of the Purpose and Need Document

The Purpose and Need Statement is a critical initial step in the Jackson County Commuter Corridors Alternatives Analysis (JCCCAA) process. It establishes the transportation and mobility problems that need to be addressed; serves as the basis for project goals, objectives, and evaluation measures; and provides a starting point for identifying and evaluating alternative strategies and investments in the two study corridors. The document also serves as an introduction for local decision makers and the Federal Transit Administration (FTA) to the study area and its mobility and other related challenges and needs.

Project Study Area

The JCCCAA will examine transportation alternatives for East and Southeast corridors, connecting downtown Kansas City with communities to the east of downtown. The term ***"study area"*** refers to the geographic area encompassing the two corridors being studied. The boundaries were delineated to capture areas that could generate transportation trips within the study corridors. For the purpose of the JCCCAA, the study area encompasses all of Jackson County (MO), the northern portion of Cass County (MO), the northwest portion of Johnson County (MO), and the western portion of Lafayette County (MO). The physical boundaries are the Kansas state line to the west, the Missouri River to

the north, Missouri Highway 131 to the east, and Missouri Highway to on the south.

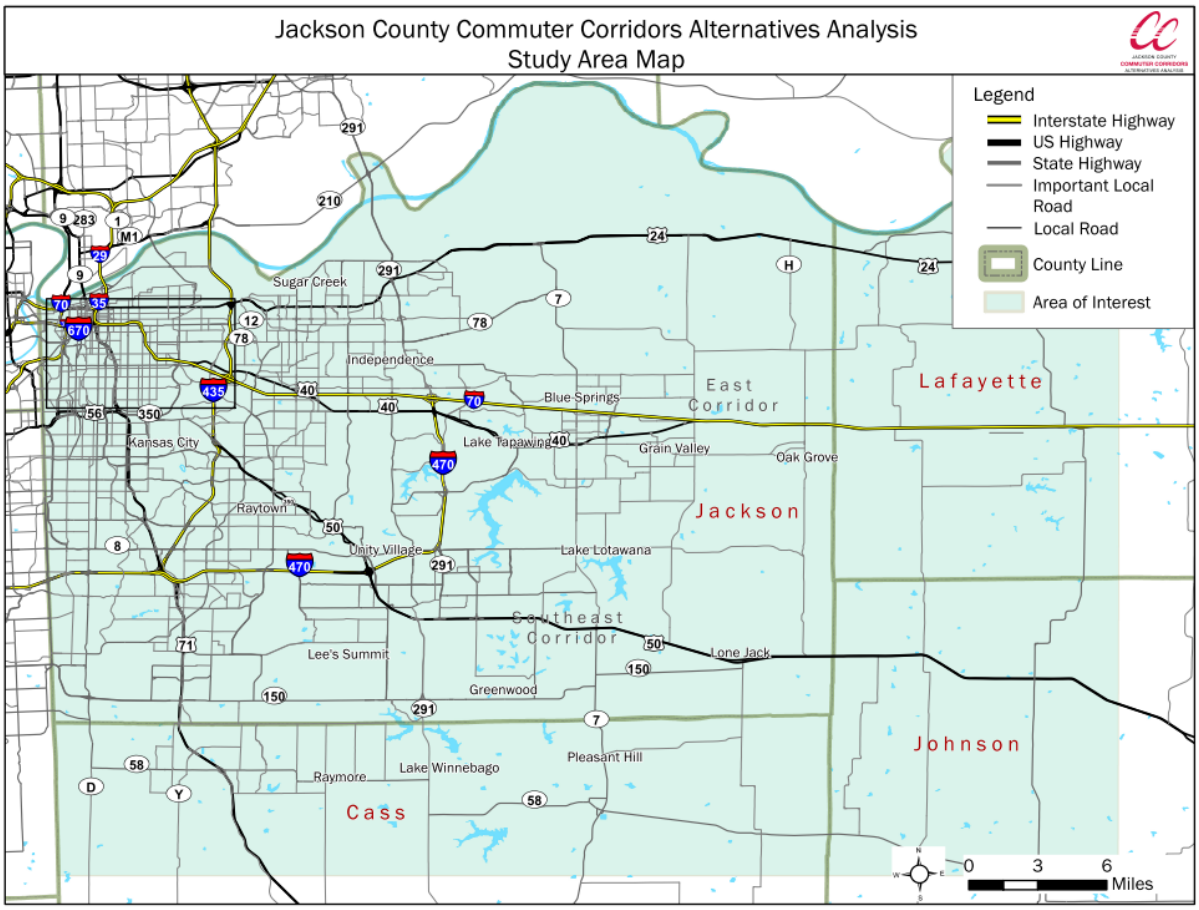

Figure 3 shows the study area (shaded in light blue).

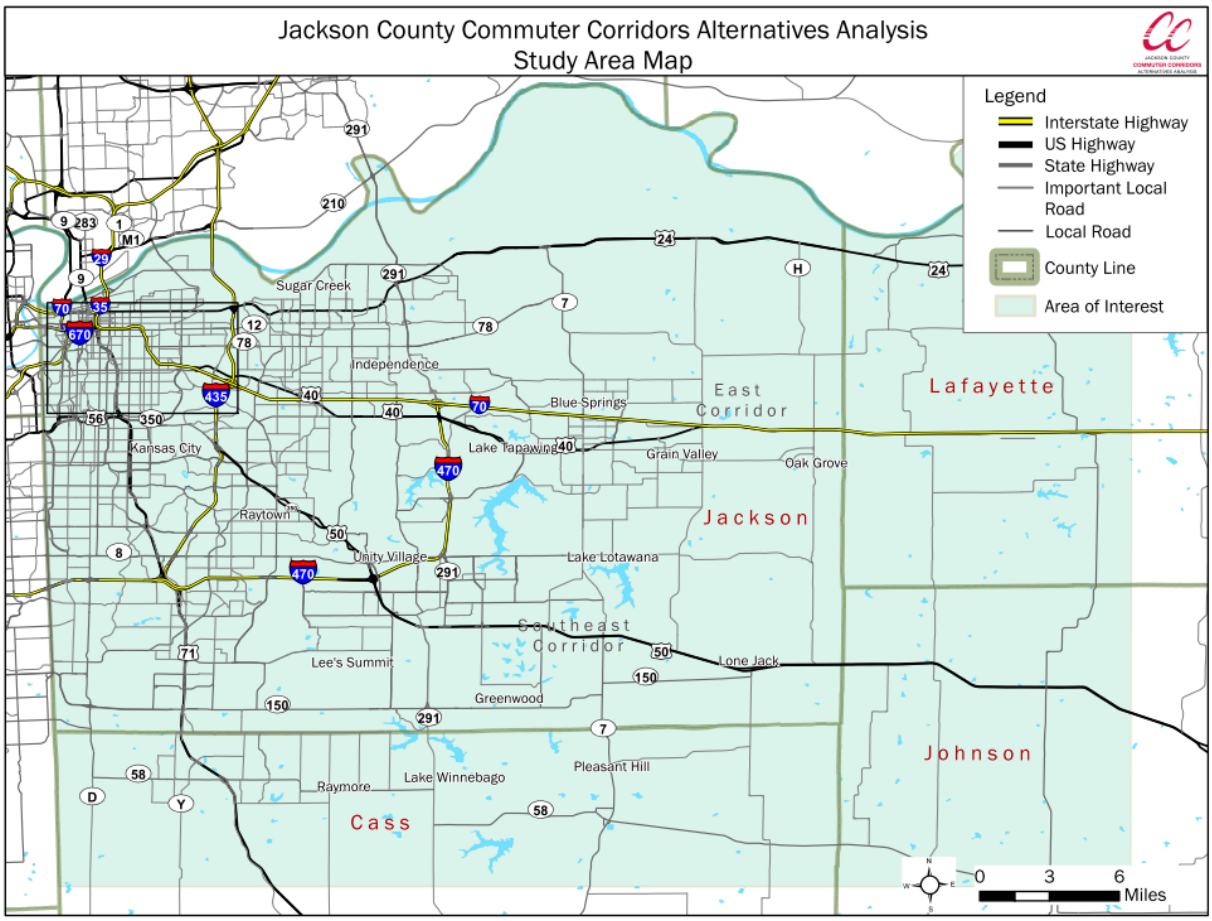

Figure 1 – Jackson County Commuter Corridors Study Area

Project Background

The need for transit improvements along the two corridors has been identified in numerous planning documents, dating back as far as the 1970s when commuter express bus service started in the corridors. In recent years, four distinct planning processes have identified these corridors as priorities for enhanced transit service:

- Commuter Rail Feasibility Study (Mid-America Regional Council, 2002)
- I-70 Corridor Transit Alternatives Analysis (Mid-America Regional Council, 2007)
- Smart Moves Regional Transit Vision (Mid-America Regional Council, 2002 & 2008)
- Kansas City Regional Rapid Rail Project

The **Commuter Rail Feasibility Study** analyzed eight commuter rail corridors radiating from downtown Kansas City, including the two corridors that are being analyzed in this study. The study was conceptual in nature but was considered the first step in evaluating enhanced commuter transit service in the Kansas City area. The study's purpose was to determine whether existing rail corridors or rights of way could effectively serve the region's mobility needs and to

identify strategies to assess commuter rail feasibility and development and implementation steps if necessary. The 2002 study identified the two corridors being analyzed in the JCCCAA.

The **I-70 Corridor Transit Alternatives Analysis** (Mid-America Regional Council, 2007) studied high capacity transit solutions in the I-70 corridor east of Kansas City (the "East" corridor for the JCCCAA). The study identified several transportation-related problems and needs for the I-70 corridor including congestion and decreasing mobility, low level and quality of existing transit services, limited accessibility to the transportation system, need for sustainable development, need to maintain good air quality as travel and congestion increases, and financial constraints for providing transportation projects. The analysis examined two Build Alternatives, Express Bus and Commuter Rail, along with No Build and Transportation System Management Alternatives, and screened them based on a number of criteria, including ridership and cost. The analysis determined that the express bus and commuter rail alternatives drew nearly the same ridership and both provided a better level of service than the Transportation System Management alternative. The study did not identify a Locally Preferred Alternative.

The **Smart Moves Regional Transit Vision** (Mid-America Regional Council, 2002 & 2008) serves as the defining transit vision for the Kansas City Metropolitan Area. MARC initially developed the Smart Moves vision in 2002, with a substantial update in 2007/2008 as part of the region's long range transportation plan. The Smart Moves Regional Transit Vision and its implementation plans envision a transit system offering three categories of service:

Urban Corridors - Designed to move people across long corridors while also providing access to local destinations and activity centers along the length of the corridor. Recommended transit improvements included a seven corridor regional Bus Rapid Transit (BRT) network.

Commuter Corridors – Designed to provide less local access along the corridors with stops restricted to increase speed. Recommended transit improvements included commuter rail service along seven corridors utilizing rail assets to the extent possible.

Major Fixed-Route Service – Designed to provide connections to and extensions of urban and commuter corridors.

The Smart Moves system conceptual map, *Figure 4*, identifies the two corridors being analyzed in this study as Commuter Service Corridors. Smart Moves also identified current and future park and ride locations and activity centers along the corridor. The public involvement process identified the two corridors being analyzed in this study as the two top-priority corridors for service enhancements because they have high levels of roadway congestion, available right-of-way, non-competitive travel times, and low cost per mile.

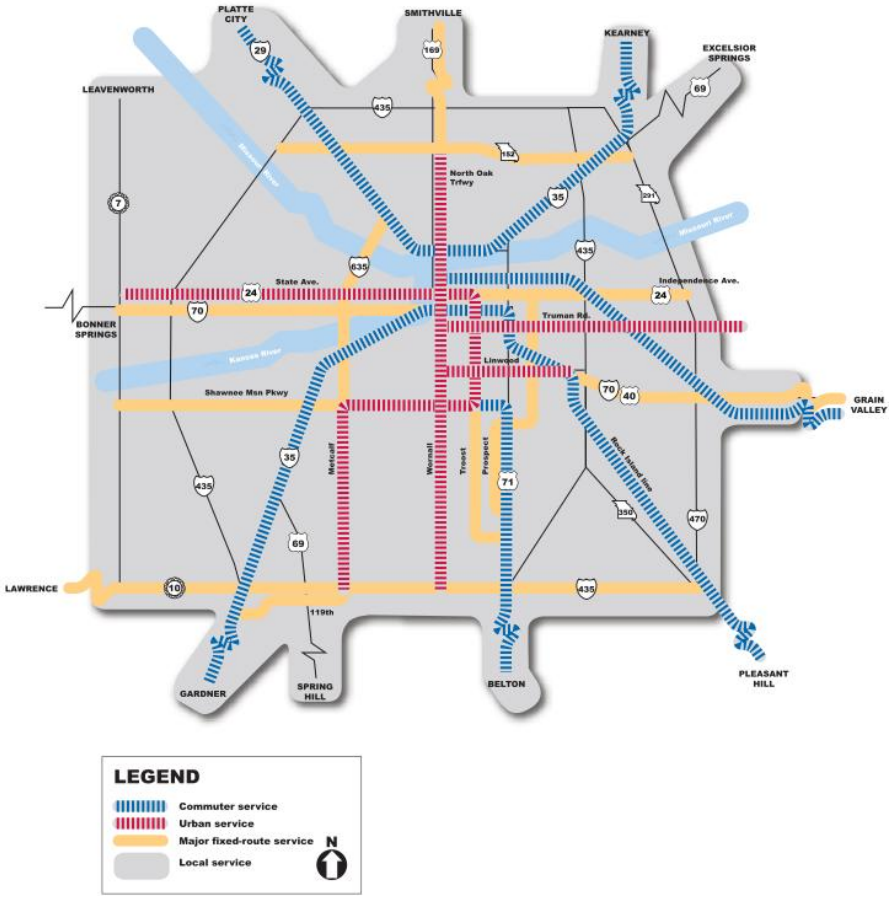

Figure 2 - Smart Moves Conceptual Map

Source: Mid-America Regional Council

TranSystems initiated the **Kansas City Regional Rapid Rail Project** to identify potential routes and existing rail lines for development of an interconnected regional rapid rail system. The study recommended a concept called "Regional Rapid Rail," capitalizing on existing, out of service or abandoned rail or right of way and using transit technologies characterized by relatively high speeds and short headways linking central cities to suburban centers. It is envisioned that the regional rapid system would make the Kansas City region competitive by providing alternative means of low cost transportation connecting people with jobs. Goals of the regional rapid rail system include transporting people to employment, supporting event center transportation, promoting localized economic development, creating a system that is affordable and accessible, and developing environmentally friendly transit. The project reaffirmed the two corridors under this study as top-priorities for regional rail service because of potential ridership and availability of underutilized rail lines.

The Regional Rapid Rail concept was well received by citizens, elected officials, and local governments. While this was a feasibility planning effort testing the concept of a complete regional commuter rail network, the positive support for the concept demonstrated the depth of the local desire for connectivity through transit. In part, the local support shown for this concept encouraged

agency action to undertake further work on rapid transit projects, such as the Jackson County Commuter Corridor Alternatives Analysis.

Planning efforts undertaken since 2002 have consistently identified the two study corridors for the JCCCAA as regional priorities for a major transit investment.

Purpose and Need Statement

Below is drafted language of the Purpose and Need Statement from the second draft of the report.

Purpose of the Project

The purpose of a proposed transit investment within the JCCCAA study area is to improve transit system performance and usage, thereby addressing the identified transportation needs in the two study corridors. The project should provide a viable alternative to operating transit vehicles on increasingly congested roadways, improve system reliability, reduce transit trip durations, and increase speed resulting in increased desirability and competitiveness of transit services for commuting and other trip purposes and added mobility options for the region. This project should also catalyze redevelopment in and near transit centric activity centers (current and future) and increase the regional transit mode share fulfilling the goals and objectives of MARC and its partners as they seek to implement the Adaptive Land Use and Growth Scenarios articulated in *Transportation Outlook 2040*.

Need for the Project

Project stakeholders have identified three categories of need for a major transit investment in the JCCCAA study area: Transportation, Land Use and Economic Development, and Sustainability/Livability. Each category and related needs is described in greater detailed below.

Transportation

The Kansas City metropolitan area is expected to add 500,000 people by 2040. This new growth is expected to generate increased demand on the existing and increasingly congested transportation system and the transportation needs focus on accommodating this new growth and meeting the current and future mobility needs within the corridor.

Need to increase time-competitiveness of transit service relative to the automobile. Travel times of the current transit system do not present an attractive alternative to the automobile. As is characteristic of conventional bus service, KCATA's current line-haul routes have frequent, closely spaced stops and the routes operate in mixed traffic, all of which combine to contribute to longer end-to-end travel times and limit the maximum operating speeds of buses. Further, circuitous routing through commercial and residential centers in some cases also increase travel times and makes traveling by bus less efficient than automobile for many trip-making purposes. Existing commuter services in the study area from Independence, Raytown, Lee's Summit, and Blue Springs to the Central Business District, on average, are 15 minutes longer than comparable trips via auto.

As shown in the 2005 Trip Characteristics Table, a high percentage of existing transit riders are from transit-dependent groups – 67 percent of riders in 2005 were from low-income groups and 47 percent were from zero-car households. Medium and higher income groups comprise a much lower share of existing transit riders, indicating that when given a choice, riders tend to choose auto over transit. Accommodating increased demand on the transportation system through 2035 will require developing transit alternatives that can attract riders who could otherwise drive.

Need to improve reliability of the current transit system as roadway congestion increases. Existing KCATA service operates in mixed-traffic and service reliability is thus subject to prevailing roadway conditions and often delays. As indicated by previous studies summarized in the Study Context chapter as well as the data presented in the existing and future conditions chapter of this report, congestion is expected to worsen on the key region roadways within the highway network. For example, I-70 and I-435 are currently experience Level of Service D and worse in both the AM and PM peak periods in both directions, and that is expected to further deteriorate through 2035. This will directly impact the reliability of existing commuter routes 28x, 170, and 152. Currently, KCATA is able to improve on-time performance by adding extra time in the schedules for delays. However, this presents another challenge for service reliability – buses running ahead of schedule in uncongested conditions due to the padded timetables. Still, given the anticipated demand on the roadway network, adding time to bus schedules will become more difficult over the next 25 to 30 years. The reliability and competitiveness of bus-based transit travel in the region is likely to decline.

Need to enhance mobility for the largely underserved reverse commute market as well as the high concentration of transit-dependent populations. The reverse commute market is largely underserved by existing fixed-route transit services. Continued proliferation of employment and educational opportunities in suburban locations will make it increasingly important for the study corridors to offer reverse commuting options for a variety of trip types. This becomes particularly important for transit-dependent populations, which are primarily concentrated in the western portion of the study area. Accessing employment opportunities in the eastern half of the study area is challenging as the existing transit service is better aligned to serve the traditional suburban to CBD commuter pattern. Expanding the capability to make the reverse trips easier and more reliable will help the region achieve more balance and make trip making easier for low income residents, job seekers, students and others who live in the more urbanized areas and seek opportunities in largely suburban locations.

The study area is largely characterized by low-density, auto-centric, and sprawling development patterns. Serving this sprawling region with transit is challenging. In a recent Brookings Institute report titled “Missed Opportunity: Transit and Jobs in Metropolitan America,” ranked metropolitan areas based on the availability of transit to take people to jobs. The Kansas City region was rated 90 out of 100 metro areas for metropolitan area wide transit coverage and access to jobs by public transit. While the report found that the urban core was well served by transit, service outside of Kansas City, Missouri was seen to be limited, especially for those who live in the urban core and work or seek to work elsewhere in Jackson County. Between 2000 and 2010 alone, the population living within ¼ mile of fixed-

route transit decreased by just over 5 percent (*Source: Transportation Outlook 2040, Performance Measures, Progress Report Summary, June 2011*).

In addition, while the Kansas City metropolitan area is generally an affordable place to live with housing costs 10.8 percent lower than the national average, savings in housing are off-set by the higher costs of personal transportation in the region. Transportation costs, which generally are around 10 percent of the cost of living, are higher than the national average in the Kansas City metropolitan area (*Source: Mid-America Regional Council, www.KCEconomy.com*). One explanation for the high cost of transportation is the distance between a person's home and their place of employment or business. For most residents of the Kansas City metropolitan area, driving a personal vehicle is the only available option for regional mobility, if they can afford it. Given the high concentration of persons living below poverty and not owning cars, transportation costs are likely a significant burden for residents of the study corridors.

Land Use & Economic Development

The Kansas City Metropolitan Area is not as densely populated as some of its eastern and western counterparts. This is largely because the city does not have natural boundaries or policies that can restrain outward growth or mitigate decentralization and urban sprawl. Similar to other American cities, the decline of streetcars, rise of the automobile, and advent of the Interstate Highway System resulted in decentralization and a sprawling, automobile-oriented landscape. Currently, the Kansas City Metropolitan Area has one of the highest ratios of freeway lane miles per capita in the United States. (*Source: Texas Transportation Institute, http://www.aaroads.com/forum/index.php?topic=349.0*) The corollary to the suburban growth and decentralization of urban areas is the high consumption of land in the Kansas City region relative to the population growth. In the 1980s and 1990s the region converted nearly 200 square miles of open lands to new suburban uses, more than double its rate of population growth.

Regional planning efforts recognize that continuing this growth pattern is unsustainable due to the financial strain of maintaining new infrastructure as well as the ensuing degradation of the natural environment. For example, MARC forecasts indicate that if current growth patterns continue, 275 square miles of additional "greenfields" will be developed raising infrastructure development and maintenance costs to $8.8 billion. Curbing this trend by focusing growth along existing centers and corridors will reduce new land consumption by 43 percent and save the region an estimated $2.1 billion in infrastructure costs. (*Source: Transportation Outlook 2040, Adopted Forecasts, Mid-America Regional Council*). Conventional bus service will not influence land use and development patterns to the extent needed to help reverse the dominant growth trends in the study area. The region is currently developing policies and plans that set a framework for more sustainable growth, but an investment in a higher quality, higher capacity transit option, likely something beyond a bus system, that has demonstrated ability to influence compact growth patterns and stimulate economic development is critical for the region to realize these objectives. Land use and economic development needs center on supporting these regional planning efforts and better integrating transit with land use.

Need to support local planning initiatives and land use strategies that aim to strengthen communities, foster economic development, and fulfill long range growth goals. The East

and Southeast corridors under study in the JCCCAA are the focus of several transportation and land use planning efforts. Transportation plans seek to develop an integrated transit system that maximizes use of available resources and provides sustainable alternatives to increasingly congested roadways. Future land use plans in the region generally allow for greater densities to take place in specific areas that are targeted for mixed use redevelopment. Some plans, such as those for the downtowns in Kansas City, Missouri, Blue Springs and Raytown, specifically identify how future transit enhancements would support redevelopment.

Existing plans and ongoing planning efforts need improved public transportation services as a means to achieving the long range growth and development patterns.

Need for improved connectivity between existing and emerging activity centers as well as redevelopment sites. Regional planning initiatives aimed at development or redevelopment of activity centers and corridors and using transit oriented development strategies benefit from enhanced transit to catalyze future economic growth and maximize public investment. The MARC 2040 plan specifically outlines improving access to jobs, education centers, shopping and entertainment and improving connectivity between these activity centers and existing transportation resources as objectives for improving accessibility and economic vitality. The current transit system does not connect enough of the origins and destinations in the study corridors. Activity centers that are in close proximity to the Central Business District are located near existing bus routes, but the local conventional bus services will likely not be enough to catalyze redevelopment of these centers and cause needed shifts in commuting patterns, mode choice or investments by the private sector.

In addition, the nature of the travel demand for the study corridors and the locations of key activity centers are changing. As shown by travel demand patterns presented in this report, key employment and other types of activity centers are no longer concentrated solely in downtown Kansas City CBD but extend eastward into such areas as Independence and Raytown. An analysis of travel demand recently commissioned by MARC found that by 2030 population growth is expected to continue in Traffic Analysis Zones further from the central core of the city. (*Source: Travel Market Analysis, Initial Demographic Review, MARC*) In addition, MARC and its sponsor communities have identified activity centers in both corridors where redevelopment should be focused in order to be consistent with the MARC 2040 Regional Forecast. These target areas expand into burgeoning communities such as Lee's Summit and Pleasant Hill.

Outside of downtown, the current transit system offers a limited number of, although fairly heavily used peak period express bus options. These peak services, however, tend to focus on the traditional commute patterns that bring people from suburban areas into downtown Kansas City with limited service to intermediate destinations. Improved connectivity between activity centers and redevelopment sites is critical for realizing long-term economic development goals.

Sustainability/Livability

The Kansas City metropolitan region is committed to creating quality places for people to live, work, and play. As discussed under the land use and economic development category of needs, current land use growth trends are unsustainable due not only to the financial strain of maintaining new infrastructure as well as the ensuing degradation of the natural environment. Air quality is an important consideration for the Kansas City metropolitan area and the two JCCCAA study corridors. The sprawling landscape is difficult to serve with conventional bus service and requires greater use of the automobile, which in turn results in increased vehicle pollutants. In addition to fostering more sustainable development patterns as discussed under the land use and economic development category of needs, a consideration for sustainability and livability is improving regional air quality.

Need to improve the region's air quality and foster environmentally sensitive travel alternatives. The Kansas City metropolitan area is currently designated as an attainment area for one-hour and eight-hour air quality standards but has in the past been designated as a maintenance area. In addition, the Environmental Protection Agency strengthened the national air quality standards for ground-level ozone in 2008 and is expected to designate the Kansas City region as a nonattainment area after the agency issues more stringent eight-hour standards in 2011. Although not currently required to develop a maintenance plan, local government officials, business leaders, and community group representatives have committed themselves to a serious effort to reduce emissions voluntarily. As noted in the 2011 Clean Air Action Plan, implementing land use policies that foster sustainable growth and development and emphasizing development on a truly multi-modal system that reduces reliance on the automobile and transportation-related greenhouse gas emissions is critical for the region to meet its air quality goals.

Daily vehicle miles traveled is one measure that can be used as an indicator of vehicle emissions – as vehicle miles traveled increases, there is generally increased congestion and decreased vehicle speeds, both of which can result in higher vehicle emissions. Regionally, daily vehicle miles traveled has increased more than 13 percent since 1995 and daily vehicle miles traveled per capita has increased 32 percent since 1989. However, recent trends indicate a decline in daily vehicle miles traveled, likely attributable to rising gas prices that resulted in less travel in 2008. (*Source: Transportation Outlook 2040, Performance Measures, Progress Report Summary, June 2011*) Still, declining air quality due to increased use of automobile travel will continue to be an issue if viable transit alternatives are not developed and the study area levels of congestion and decreased speeds shown in the Existing and Future Conditions chapter continue to worsen. The promotion and enhancement of regional transit is needed as a method for improving the region's air quality or at least stemming the degradation of the air quality as well as fostering more environmentally sensitive travel alternatives.

Goals and Objectives

Project goals and objectives describe the desired outcomes of the transit investment that may result from the JCCCAA and also provide a basis for defining evaluation measures to be used to narrow the

transit alternatives under consideration. The project goals and objectives are based on the purpose and need and consider regional priorities documented in local planning documents.

Goals	Objectives
Develop a transit alternative that is competitive with the automobile.	Improve transit travel times and speeds within study area.
	Provide transit capacity needed to meet future travel demand.
Improve transit service reliability within the study area.	Improve on-time performance.
Develop a transit alternative that enhances mobility for the reverse commute market and transit-dependent populations.	Increase transit accessibility.
Develop a transit system that supports local planning initiatives and land use strategies.	Provide transit service that can influence more compact growth patterns.
	Develop transit alternatives that maximize use of existing resources.
Develop a transit system that improves connectivity between existing and emerging activity centers and redevelopment sites.	Provide convenient and accessible transit service to existing and planned activity centers.
Develop a transit system that supports regional sustainability goals.	Reduce air pollutant emissions, fuel consumption, Vehicle Miles Traveled/Vehicle Hours Traveled, and travel delay.

INTRODUCTION

The Mid-America Regional Council (MARC), the Kansas City Area Transportation Authority (KCATA), the City of Kansas City, Missouri, and Jackson County, Missouri are sponsoring an Alternatives Analysis (AA) for two Jackson County Commuter Corridors originating in downtown Kansas City, Missouri and extending east of the downtown area. The East corridor generally parallels Interstate 70, crossing downtown Kansas City (MO), Independence, and Blue Springs. The Southeast corridor generally parallels Missouri Highway 350, serving downtown Kansas City (MO), Raytown, and Lee's Summit. MARC is a association of city and county governments and the Metropolitan Planning Organization (MPO) for the Greater Kansas City region. The metropolitan area includes two states, nine counties and nearly 2 million people. KCATA provides transit service within the Kansas City metropolitan area.

OVERVIEW OF THE PURPOSE AND NEED DOCUMENT

The Purpose and Need Document is a critical initial step in the AA process. It establishes the mobility and transportation problems to be addressed; serves as the basis for project goals, objectives, and evaluation measures; and provides a starting point for identifying and evaluating alternative strategies and investments in the two study corridors. The document also serves as an introduction for local decision makers and the Federal Transit Administration (FTA) to the study area and its transportation, mobility and other related challenges and needs. The document is divided into three chapters:

Study Context: Provides a brief summary of relevant regional studies and goals that have informed the development of the purpose and need for the AA. It provides a historical and planning context for the study corridors and is especially important for the FTA and local stakeholders that may not be familiar with the project history or study corridors.

Existing and Future Conditions: Presents current and forecast demographic, land use, and transportation conditions within the study area, demonstrates how the study area is expected to change over the next 30 years and assesses the implications of these changes on transportation demand and mobility.

Purpose and Need: Articulates the needs for a major transit investment within the study corridors. It builds upon historical planning efforts within the study corridor discussed in the Study Context chapter and the mobility and related land use and environmental challenges identified in the Existing and Future Conditions chapter. The Purpose and Need concludes with a summary of project goals and objectives that will be used as a starting point for evaluating alternatives.

PROJECT STUDY AREA

The AA will examine transportation alternatives for East and Southeast corridors, connecting downtown Kansas City with communities to the east and southeast of downtown. The term "study area" refers to the geographic area encompassing the two corridors being studied. The boundaries were delineated to capture areas that could generate transportation trips and within the study corridors. For the purpose of this AA, the study area encompasses all of Jackson County (MO), the northern portion of Cass County (MO), the northwest portion of Johnson County (MO), and the western portion of Lafayette (MO) County. The physical boundaries are the Kansas state line to the west, the Missouri River to the north, Missouri Highway 131 to the east, and Missouri Highway to on the south.

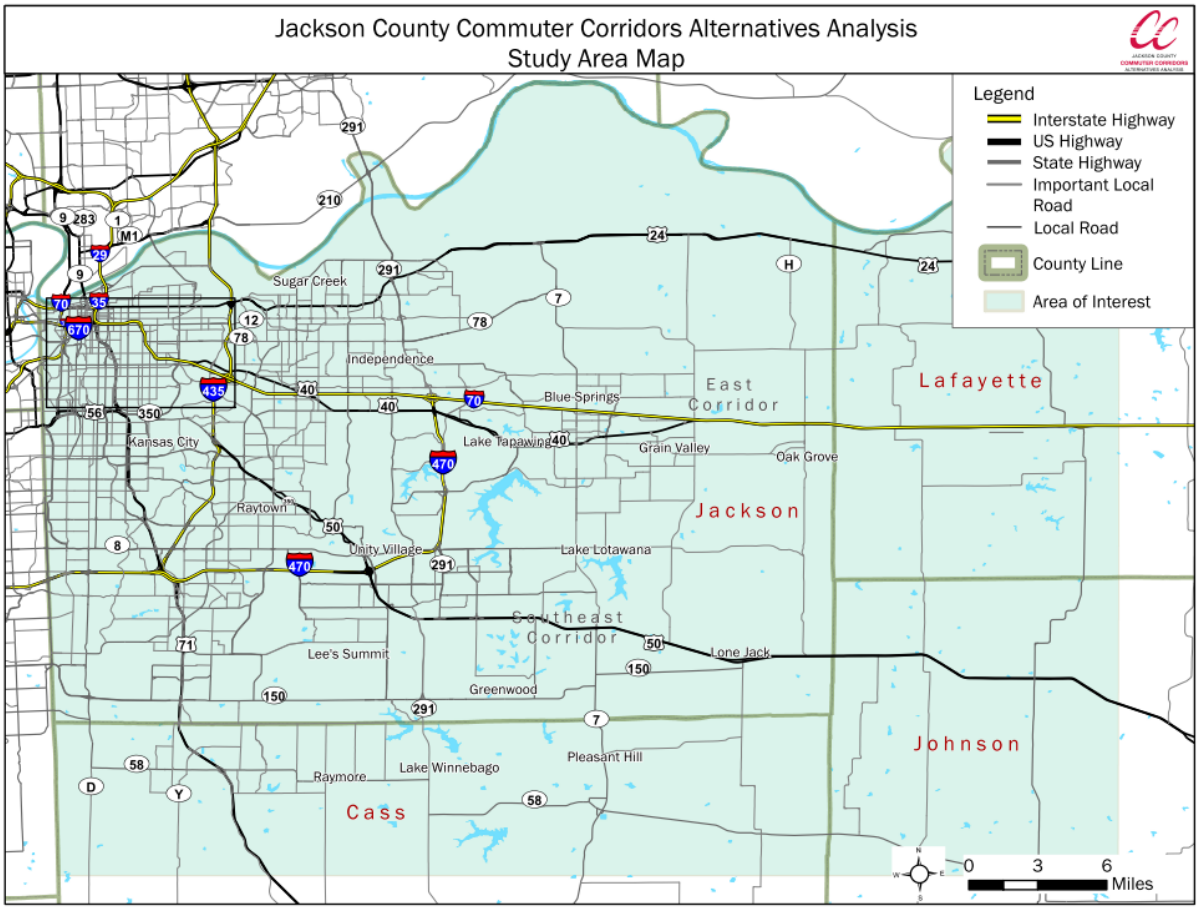

Figure 3 - Study Area

STUDY CONTEXT

This section presents a summary of planning that led to the initiation of the AA for the East and Southeast corridors. In addition, it describes relevant regional goals and objectives that will inform the development of the purpose and need for the AA.

PROJECT BACKGROUND

The need for transit improvements along the two corridors has been identified in numerous planning documents, dating back as far as the 1970's when commuter express bus service started in the corridors. In recent years, four distinct planning processes have identified these corridors as priorities for enhanced transit service.

The **Commuter Rail Feasibility Study** (Mid-America Regional Council, 2002) analyzed eight commuter rail corridors radiating from downtown Kansas City, including the two corridors that are being analyzed in this study. The study was conceptual in nature but was considered the first step in evaluating enhanced commuter transit service in the Kansas City area. The study's purpose was to determine whether existing rail corridors or rights of way could effectively serve the region's mobility needs and to identify strategies to assess commuter rail feasibility and development and implementation steps if necessary. The 2002 study identified the two corridors being analyzed in this AA.

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The **Smart Moves Regional Transit Vision** (Mid-America Regional Council, 2002 & 2008) serves as the defining transit vision for the Kansas City Metropolitan Area. MARC initially developed the Smart Moves vision in 2002, with a substantial update in 2007/2008 as part of the region's long range transportation plan. This AA study area includes two commuter corridors and portions of urban corridors identified in this plan. The Smart Moves Regional Transit Vision and its implementation plans envision a transit system offering three categories of service:

Urban Corridors - Designed to move people across long corridors while also providing access to local destinations and activity centers along the length of the corridor. Recommended transit improvements included a seven corridor regional Bus Rapid Transit (BRT) network.

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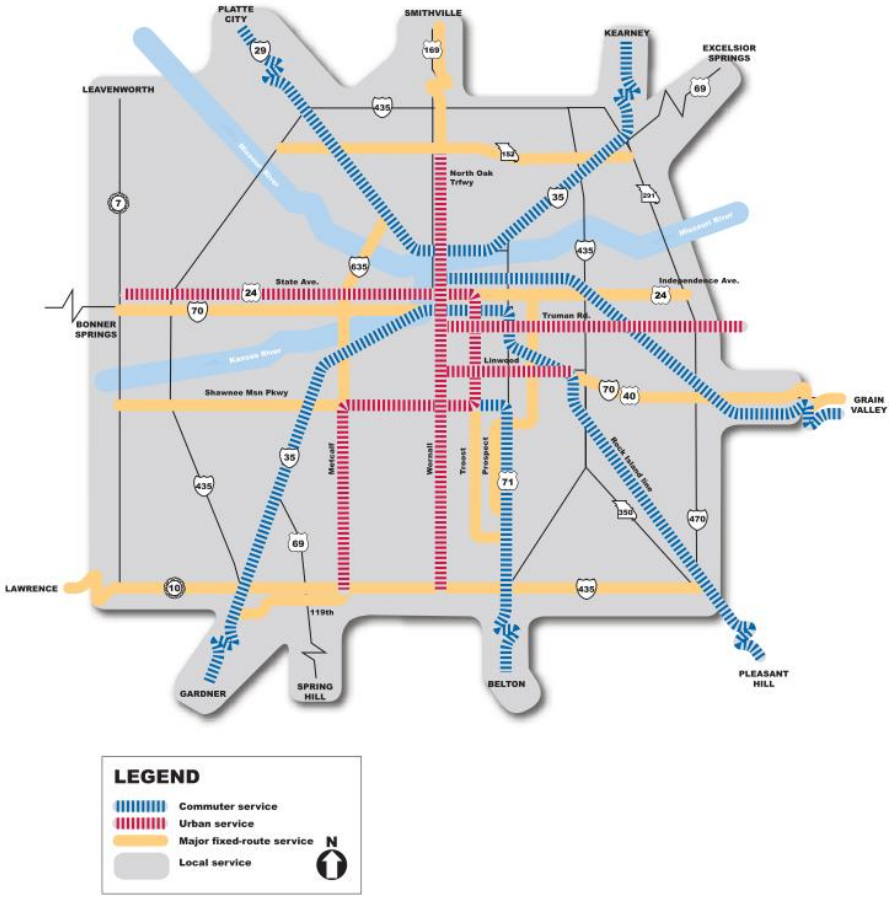


Figure 4 - Smart Moves Conceptual Map
Source: Mid-America Regional Council

Jackson County initiated the **Kansas City Regional Rapid Rail Project** to identify potential routes and existing rail lines for development of an interconnected regional rapid rail system. The study recommended a concept called “Regional Rapid Rail,” capitalizing on existing, out of service or abandoned rail or right of way and using transit technologies characterized by relatively high speeds and short headways linking central cities to suburban centers. The term “Regional Rapid Rail” refers to a modal hybrid of commuter rail and light rail transit where the technology provided is a traditional rail-based system using Federal Railroad compliant diesel motor units that provide a travel experience similar to a light rail vehicle. It is envisioned that the regional rapid system would make the Kansas City region competitive by providing alternative means of low cost transportation connecting people with jobs. Goals of the regional rapid rail system include transporting people to employment, supporting event center transportation, promoting localized economic development, creating a system that is affordable and accessible,

and developing environmentally friendly transit. The project reaffirmed the two corridors under this study as top-priorities for regional rail service because of potential ridership and availability of underutilized rail lines.

The Regional Rapid Rail concept was well received by citizens, elected officials, and local governments. While this was a feasibility planning effort testing the concept of a complete regional commuter rail network, the positive support for the concept demonstrated the depth of the local desire for connectivity through transit. In part, the local support shown for this concept encouraged agency action to undertake further work on enhanced transit projects, such as the Jackson County Commuter Corridor Alternatives Analysis.

RELEVANT GOALS

Regional goal setting provides a foundation for identifying needs for this AA. A number of previously completed studies provide a context for further study of transit alternatives in the two corridors. The goals defined in these studies set a context that was used in this AA to evaluate current system performance and to identify the need for potential transportation improvements. As a project that precipitated from long-range regional planning, the goals surrounding the Jackson County Commuter Corridor AA are cohesive, yet very broad. This section presents the goals that help to define the regional need for improvements.

TRANSPORTATION OUTLOOK 2040, MID-AMERICA REGIONAL COUNCIL

MARC's Long-Range Transportation Plan, *Transportation Outlook 2040*, defines the transportation vision for the Kansas City Metropolitan area. The plan set forth transportation system goals and corresponding objectives, that are relevant to this AA. The goal statement of this plan is:

"The Smart Moves Plan envisions a Kansas City region where public transit is a viable and cost-effective transportation choice for all citizens, and where public transit investments help shape the form of a regional community that is more accessible, walkable, healthy, efficient and attractive." (Source: Smart Moves Regional Transit Vision, Mid-America Regional Council, 2008).

Smart Moves identifies four specific goals and corresponding objectives for attaining its vision:

- *Expand and enhance* multi-modal transit service throughout the metropolitan region. Seek to make public transit as attractive a form of mobility as driving a personal automobile.
- *Strengthen communities* and improve the quality of life of residents and visitors throughout the region by making transit an equal or better option to automobile travel. Provide services that are timely, reliable, convenient and safe. Enhance connectivity within and between communities.
- *Support the economy* through accessible transportation options. Increase access to major destinations, employment centers and activity centers. Encourage community revitalization and economic development.
- *Safeguard the environment* and improve public health through increased transit ridership. Improve air quality through reduced energy consumption.

CLEAN AIR ACTION PLAN, MID-AMERICA REGIONAL COUNCIL

In 2011, the Mid-America Regional Council updated their Clean Air Action Plan. The plan emphasized the importance of a multifaceted approach to improving air quality and included

strategies for transportation, landscaping/green infrastructure, green buildings/site design and energy efficiency for renters and homeowners. The connection between all of these issues is described in this quote from the plan:

"Promoting sustainable growth and development is essential if the region is to address its ozone problem in the long term. Land-use policies that promote a decreased reliance on the automobile, planning practices that place greater emphasis on a truly multimodal transportation network, natural resource conservation techniques that reduce the urban heat island effect, and green-building practices that increase resource efficiency would make clean air easier to achieve." (Source: Clean Air Action Plan, Mid-America Regional Council, 2011)

The strategy outlined for transportation is to promote options that are pedestrian, bike, and transit friendly for communities, including MetroGreen, the proposed regional greenway for the Kansas City metropolitan region, and incentives for compact development. The plan includes three levels of goals – Basic Goals set for a three year horizon, Mid-Range Goals with a five year horizon, and Stretch Goals with a 10 year horizon. Goals include establishing transit-oriented development (TOD) guidelines for two of the seven BRT corridors identified in the Smart Moves Plan and increasing the mode share for bike, walk, and transit trips.

GREATER DOWNTOWN AREA KANSAS CITY PLAN, CITY OF KANSAS CITY

The Greater Downtown Area Kansas City Plan serves as the area plan for the downtown portion of Kansas City, Missouri and informs the comprehensive plan for the City of Kansas City. The plan outlines the following vision for downtown Kansas City: *"We must focus on connecting our neighborhoods to create a strong urban community, flourishing with diversity, fostering business, maintaining historic neighborhood identities, and sustaining a safe, vibrant, and healthy Greater Downtown Area for current and future generations."* (City of Kansas City, MO, May 2011)

The goals articulated to support the vision include:

- Create a walkable downtown
- Double the population downtown
- Increase employment downtown
- Ensure an adequate transportation system for all modes to accommodate existing and future population and employment growth)
- Retain and promote safe, authentic neighborhoods
- Promote sustainability
- Increase transportation options
- Promote alternative modes of transportation; and decrease dependency on single occupancy automobiles.

In addition to the specific acknowledgement of supporting multimodal transportation options, the goals to create walkable areas and pedestrian friendly networks to destinations are supportive of a successful commuter system.

RELATED ONGOING STUDIES

This AA is coordinating with two additional ongoing planning efforts:

Downtown Corridor Alternatives Analysis

The Downtown Corridor AA is considering major transit improvements to the trunk of the transit network in downtown Kansas City, Missouri. The study area stretches from River Market in the north, through the Central Business District and the Crossroads areas, to Crown Center on the south. The purpose of the project is to *"provide an attractive transit option that will more conveniently connect people and places within the Downtown Corridor, and support regional and city efforts to develop downtown Kansas City and the Downtown Corridor as a more attractive and successful urban center."* (Downtown Corridor Alternatives Analysis, Purpose and Need, June 14, 2011). The goals drafted to accomplish this mission are: c*onnect; develop, thrive, and sustain*. The LPA for this AA has been identified as a streetcar technology on Main Street. It is intended that the LPA for the Downtown Corridor AA will serve as an essential downtown distribution system for the Locally Preferred Alternative selected for the Jackson County Commuter Corridors AA.

Creating Sustainable Places: a Strategy for Regional Sustainability, Mid-America Regional Council

Creating Sustainable Places: a Strategy for Regional Sustainability seeks to identify more efficient ways to grow while realizing that the region will continue to grow most at the urban fringes. An overall goal of the effort is to move toward a development pattern which builds around clusters of vibrant mixed-use centers of housing and commerce connected by public transit. The plan also encompasses a goal to repopulate large portions of the central city that were originally projected to continue to lose population. The plan, which is funded by the US Department of Housing and Urban Development, emphasizes three key land-use goals for the future (Source: Mid-America Regional Council, Creating Sustainable Places, 2011):

- Identify and support vibrant activity centers throughout the region and along strategic transportation corridors offering multiple travel options.
- Reinvest in existing communities.
- Conserve natural systems.

To support these three key land use goals, six key transportation corridors were identified in the region for reinvestment, including the two study corridors for this AA. Additional work will be done in these corridors associated with the Creating Sustainable Places process to identify locations where activity centers can be revitalized through the support of enhanced transportation investments.

EXISTING AND FUTURE CONDITIONS IN THE STUDY AREA

This chapter provides a snapshot of current and forecast population and employment, land use patterns, travel demand, and transportation network characteristics and performance. It presents how the study area is expected to change between 2005 and 2035 and summarizes the implications of these changes on transportation demand and mobility. The information presented in this chapter provides the basis for the purpose and need by identifying the challenges in the study area that could be addressed through a transit investment.

POPULATION AND EMPLOYMENT

This section presents existing and forecast population and employment in the Kansas City metropolitan area, focusing on the study area for this AA.

POPULATION

2000 to 2010 Between 2000 and 2010, the Kansas City Metropolitan Statistical Area (MSA) grew by 10.85 percent, increasing from 1,776,062 to 2,035,334 persons. Within the study area, in the same period, Jackson County grew by approximately 19,000 persons, increasing 2.94 percent from 654,880 to 674,158 persons. Much of this growth took place in Jackson County suburban cities, while the portion of Jackson County coincident with Kansas City lost population. Suburban growth patterns were evident in those portions of Cass, Johnson, and Lafayette counties, which are also located within the study area. Table 1 shows the population change in the major cities and counties that comprise the study area as well as the Kansas City MSA.

2005 to 2035 Population forecasts developed by MARC anticipate strong, continued growth in the Kansas City metropolitan area and study area through 2035. This level of growth was based on past trends and known demographic and economic shifts. The Kansas City metropolitan area is anticipated to increase by nearly 30 percent from a population of 1.75 million in 2005 to nearly 2.5 million by 2035. As shown in Table 1 the study area is forecast to add 148,707 people by 2035 (the horizon year for the Alternatives Analysis), an increase of 19.76 percent. Similar to the growth trend from 2000 to 2010, population growth is expected to concentrate in the study area's suburban cities, specifically the outer suburbs such as Blue Springs and Lee's Summit.

Table 1 - Projected 2035 Population in Jackson County

Geographic Area	2005 Population	2035 Population	Population Change (2005-2035)	
			#	%
Blue Springs	52,583	*65,990*	*13,407*	*25.50%*
Independence (Jackson County)	120,052	*139,369*	*19,317*	*16.09%*
Kansas City, MO (Jackson County)	337,670	*329,726*	*-7,944*	*-2.35%*
Lee's Summit	72,168	*115,279*	*43,111*	*59.74%*
Raytown	30,816	*29,860*	*-956*	*-3.10%*
Balance of Jackson County	69,950	106,635	36,685	*52.44%*
Jackson County Total	**683,239**	**786,859**	**103,620**	***15.17%***
Cass, Johnson, & Lafayette Counties (within study area)	69,329	114,417	45,088	*65.03%*
Study Area Total	**752,568**	**901,275**	**148,707**	***19.76%***
Kansas City Metropolitan Area	1,745,071	2,483,631	738,560	*29.73%*
Total Modeled Area	1,829,081	2,583,844	754,763	*41.26%*

(Source: Mid-America Regional Council)

Population Density The highest population densities are found near the urban core of Kansas City and the population tends to become less concentrated further away from the CBD. Much of the urban area has been developed for many years and although the older urban areas have seen disinvestment and population loss over the recent past, density is still greater in the inner parts of the corridors than in the distant suburban and rural areas further from downtown Kansas City. Figure 16 shows 2010 population densities and Figure 14 shows the expected 2035 population densities.

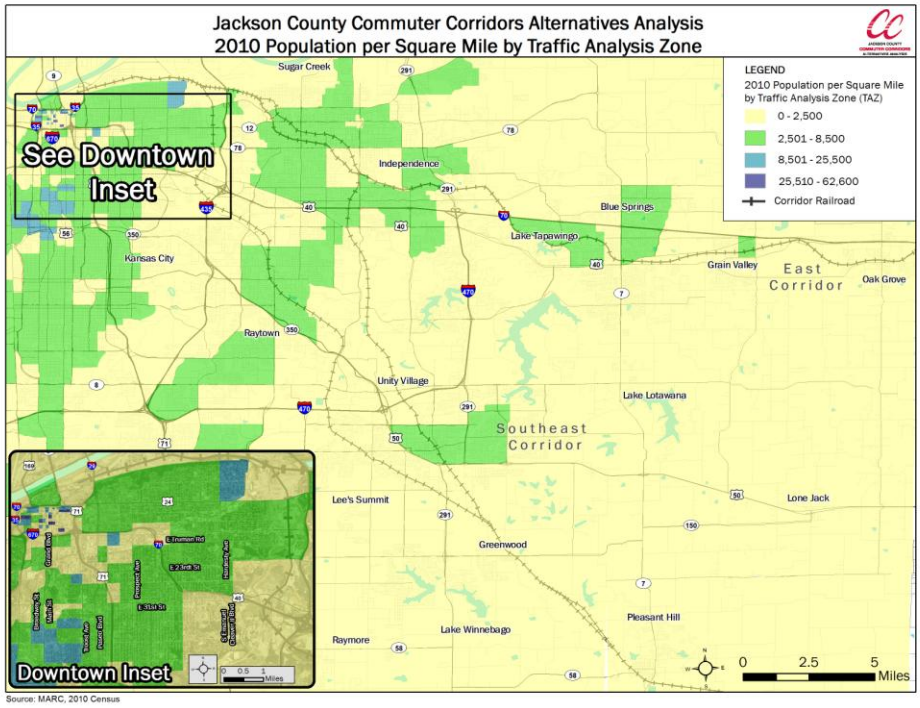


Figure 5 - 2010 Population Density

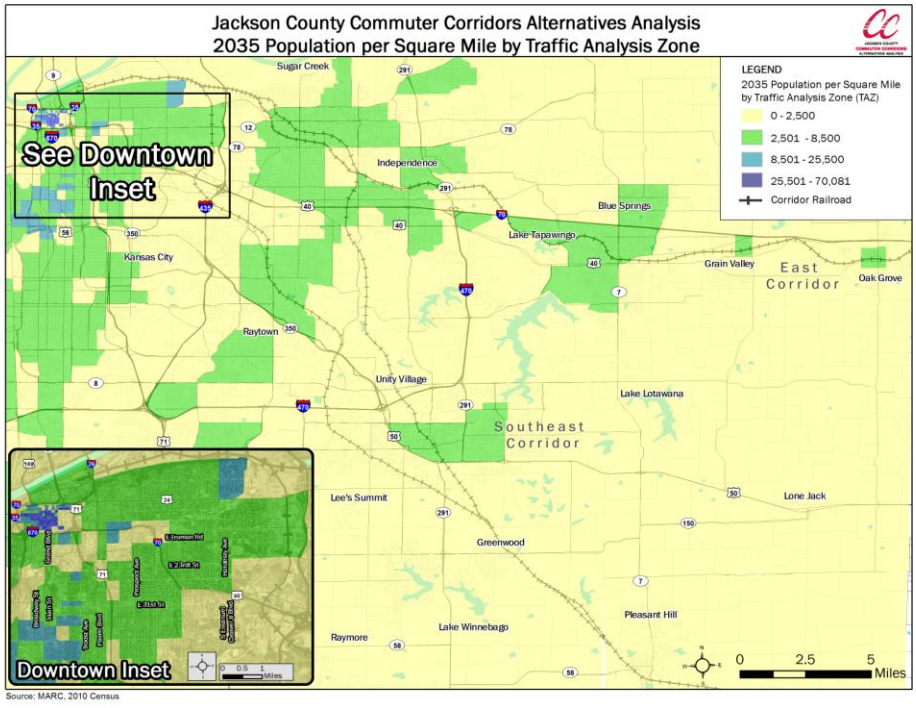


Figure 6 - 2035 Population Density

For the most part, densities remain constant between 2010 and 2035, with some additional density along I-70 between Independence and Blue Springs and additional densities within Blue Springs and Oak Grove.

EMPLOYMENT

Employment within the study area is concentrated in the core of Kansas City. The regional core consists of three areas – the Central Business District (CBD), Crown Center, and Country Club Plaza (Figure 5). The CBD is the traditional downtown area of Kansas City, Missouri. Both City and County government have their main office buildings in the CBD. Additionally, many federal office buildings and private employers are located in the CBD. Crown Center is a shopping and office area just south of the CBD and adjacent to Union Station. The Country Club Plaza is a shopping and employment district south of the CBD and Crown Center. The University of Missouri Kansas City Campus is just to the south of the Country Club Plaza. Combined employment in 2005 of these three areas was over 110,000, about one-eighth of all regional jobs.

Central Business District	50,000
Crown Center	37,400
Country Club Plaza	24,900

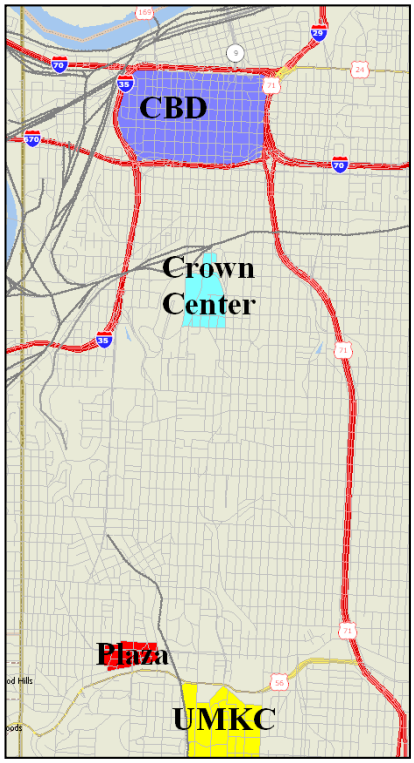


Figure 7 - Urban Core

2000 to 2010 Between 2000 and 2010, the number of jobs in the Kansas City Metropolitan Statistical area as a whole grew by 5.65 percent, increasing from 934,761 to 990,768 jobs.

2005 to 2035 Employment forecasts developed by MARC anticipate continued growth in the Kansas City metropolitan area and study area through 2035. Employment growth is consistent with the population growth for the region.

Table 2 – Expected Employment in 2005 and 2035 by Geographic Region

Geographic Area	2005 Employment	2035 Employment	Employment Change (2005-2035)	
			#	%
Blue Springs	17,894	*19,292*	*1,398*	*7.81%*
Independence (Jackson County)	45,265	*53,039*	*7,774*	*17.18%*
Kansas City, MO (Jackson County)	257,300	*285,241*	*27,941*	*10.86%*
Lee's Summit	27,618	*42,614*	*14,996*	*54.30%*
Raytown	11,239	*9,304*	*-1,935*	*-17.22%*
Balance of Jackson County	20,273	29,625	9,352	*46.13%*
Jackson County Total	**379,590**	**439,115**	**59,525**	***15.68%***
Cass, Johnson, & Lafayette Counties (within study area)	14,986	24,224	9,238	*61.65%*
Study Area Total	**394,575**	**463,339**	**68,764**	***17.43%***
Kansas City Metropolitan Area	938,198	1,322,766	384,568	*29.07%*
Total Modeled Area	969,342	1,357,976	388,634	*40.09%*

Employment Density

While job centers are located throughout the study area, the Central Business District has the highest employment density in the study area. The employees who work in the CBD reside throughout the metropolitan area – including many who live in Eastern Jackson County. According to Jackson County reports, in 2009, 16 percent of the metropolitan area labor force resided in eastern Jackson County (for a total of 170,322 individuals). Thirty-five percent of those individuals commute between 15-30 minutes to get to their workplace destination. (Source: Jackson County, Missouri "By the Numbers – 2010"). Study area employment density in 2010 is shown in Figure 8 and expected 2035 employment density is shown in Figure 9.

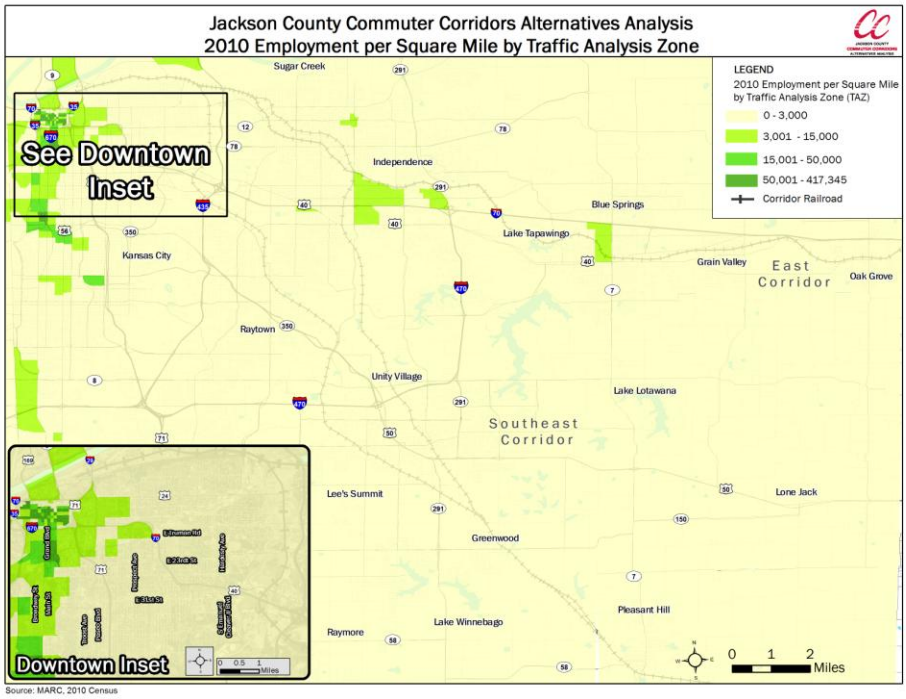


Figure 8 - 2010 Employment Density

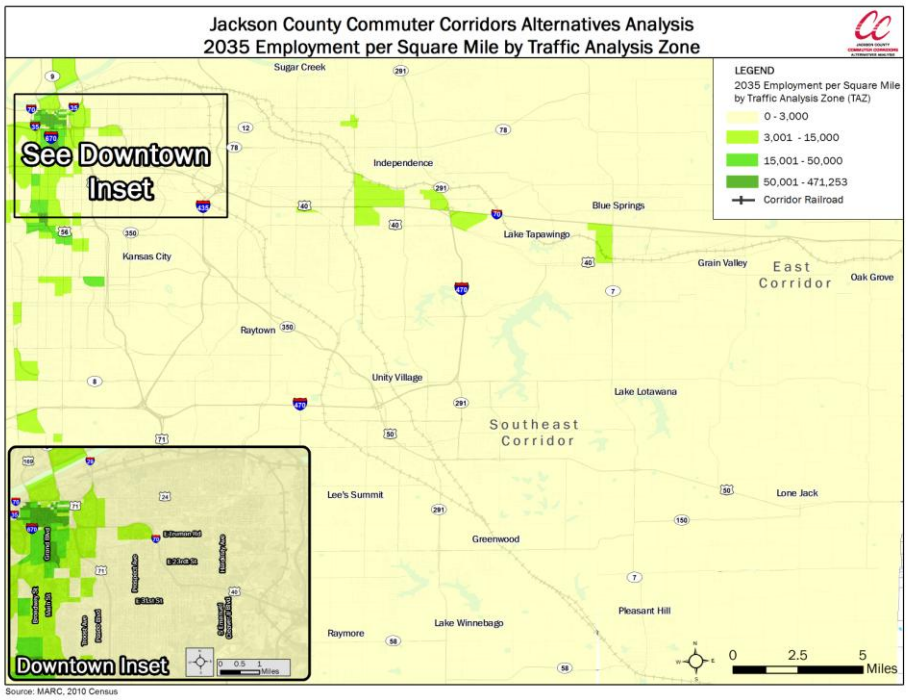


Figure 9 - 2035 Employment Density

LAND USE AND GROWTH TRENDS

The future demand for transportation and the transportation system's ability to accommodate future travel will be greatly affected by changes in and distributions of population and employment. This section briefly describes the current and forecast trends and the characteristics of existing and planned activity centers in the study area that would contribute to the need for transportation improvements.

EXISTING LAND USE

This section describes the land uses within the study area, focusing on the two study corridors for this AA. The section also presents key activity centers.

East Corridor In the East corridor, the western portions of the study area are primarily an urban mixture of commercial, industrial, and residential uses gradually becoming more suburban in development patterns with less density as one moves east from downtown Kansas City. Between I-435 and Grain Valley at Missouri State Route BB, the corridor contains primarily suburban development mixed with some areas where development has "leapfrogged", leaving spots of semi-rural land use. East of Grain Valley to the west line of Lafayette County, the corridor becomes more rural with spots of urbanization. The last node of urbanization occurs at Oak Grove just east of the Lafayette County Line.

Moving from east to west along the corridor, major activity centers (areas that generate substantial traffic) include the following:

- *Kansas City CBD and Crown Center*– As noted in the Employment section, the CBD, including the federal office district, Crown Center and Hospital Hill. This area is mixed use and provides ample access to the local KCATA transit routes, include the Main Street MAX.
- *River Market District* – This district, just north of the CBD, has both employment and residential development. This area is mixed use and provides ample access to local KCATA transit routes, including the Main Street MAX.
- *Truman Sports Complex* – Home to both the Kansas City Chiefs and the Kansas City Royals, this area currently only has special event uses, but ample greenfield space adjacent to the complex makes it an attractive location for development. Some transit service is located nearby the site.
- *Blue Ridge Crossing (the site of the former Blue Ridge Mall)* – This area provides regional retail and is served by some KCATA transit routes.
- *Downtown Independence* – The government center for the City of Independence, there are numerous employers and retail destinations, as well as some housing and tourist attractions. This area is adjacent to some KCATA transit routes.
- *Independence Events Center* – The event center hosts concerts and sporting events. Independence Events Center is located near KCATA transit routes.
- *Independence Center* – A regional shopping destination, Independence Center is located adjacent to transit.
- *Centerpoint Hospital Area* – A major medical an employment destination, the hospital area is adjacent to transit routes.

- *Downtown Blue Springs* - The government center for the City of Blue Springs, this area is close to express bus routes. The recently completed downtown plan for Blue Springs is supportive of increased transit and incorporates a station development.
- *Grain Valley* - A mostly residential community with some retail and employment. There is currently no transit service to the urban core from Grain Valley.
- *Oak Grove* – Similar to Grain Valley, Oak Grove is a mostly residential community with some retail and employment. There is currently no service to the urban core from Oak Grove.

These activity centers are shown in Figure 10.

Southeast Corridor Starting from the west, Southeast corridor also begins in the urban core of Kansas City in a mixture of commercial, industrial and residential uses. The corridor continues east and south to Raytown and then to Lee's Summit. The corridor terminates in Pleasant Hill in Cass County.

Moving from east to west along the corridor, major activity centers include the following:

- *Kansas City CBD* - As noted in the Employment section, the CBD, including the federal office district, Crown Center and Hospital Hill. This area is mixed use and provides ample access to the local KCATA transit routes, include the Main Street MAX.
- *Truman Sports Complex* - Home to both the Kansas City Chief and the Kansas City Royals, this area currently only has special event uses, but ample greenfield space adjacent to the complex makes it an attractive location for development. Some transit service is located nearby the site.
- *Downtown Raytown* - The government center for the City of Raytown, this area is close to express bus routes. The recently completed downtown plan for Raytown is supportive of increased transit and incorporates a station development.
- *Greenwood* - A mostly residential community with some retail and employment. There is currently no transit service to the urban core from Greenwood.
- *Pleasant Hill* - A mostly residential community with some retail and employment. There is currently no transit service to the urban core from Grain Valley.

These and many other identified activity centers are shown on Figure 10.

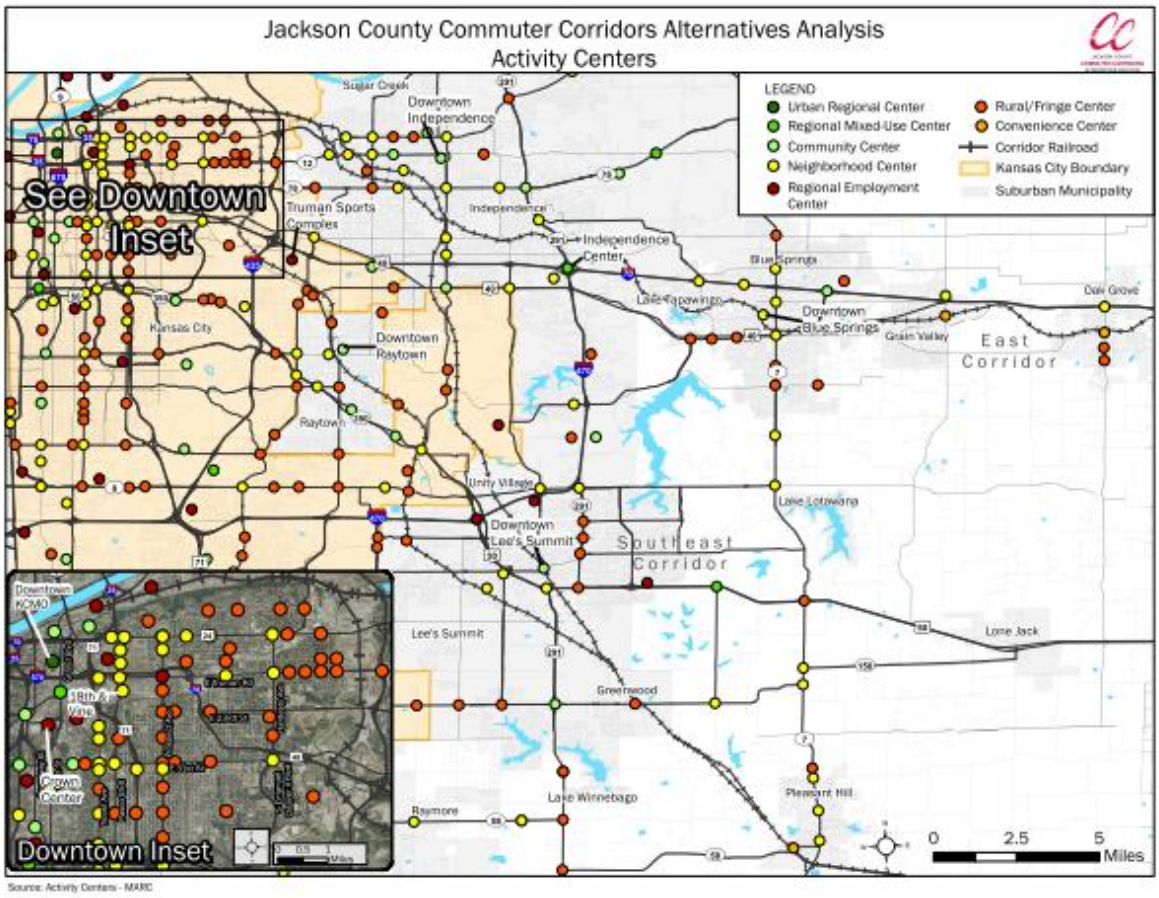


Figure 10 - Activity Centers in the Study Area

Source: Mid-America Regional Council

PLANNED LAND USE

Over the last fifteen to twenty years, regional planners have realized that continued growth in an auto dependent development pattern is neither efficient nor sustainable. MARC and several partner communities have undertaken a series of initiatives designed to educate regional planners, politicians, developers and the general public about the inefficiencies of auto oriented development patterns and to guide decision makers toward a vision of sustainability. The most recent iteration in this series of steps at the regional level is *Creating Sustainable Places, A Regional Plan for Sustainable Development*, which was described in Section 2 of this report. On a more local scale, jurisdictions along the corridor have plans and policies in place aimed at fostering more compact growth patterns. This section summarizes the planned land uses throughout the corridor and summarizes relevant policies that call for transit supportive growth and could be realized with a high capacity transit investment.

Figure 11 is a compilation of existing land use plans from the communities in the study area. For the purpose of making the data seamless, the land use categories are fairly simplistic. The majority of the study area is identified for a single land use (commercial, residential, etc.). There are pockets of mixed use developments in downtown Kansas City.

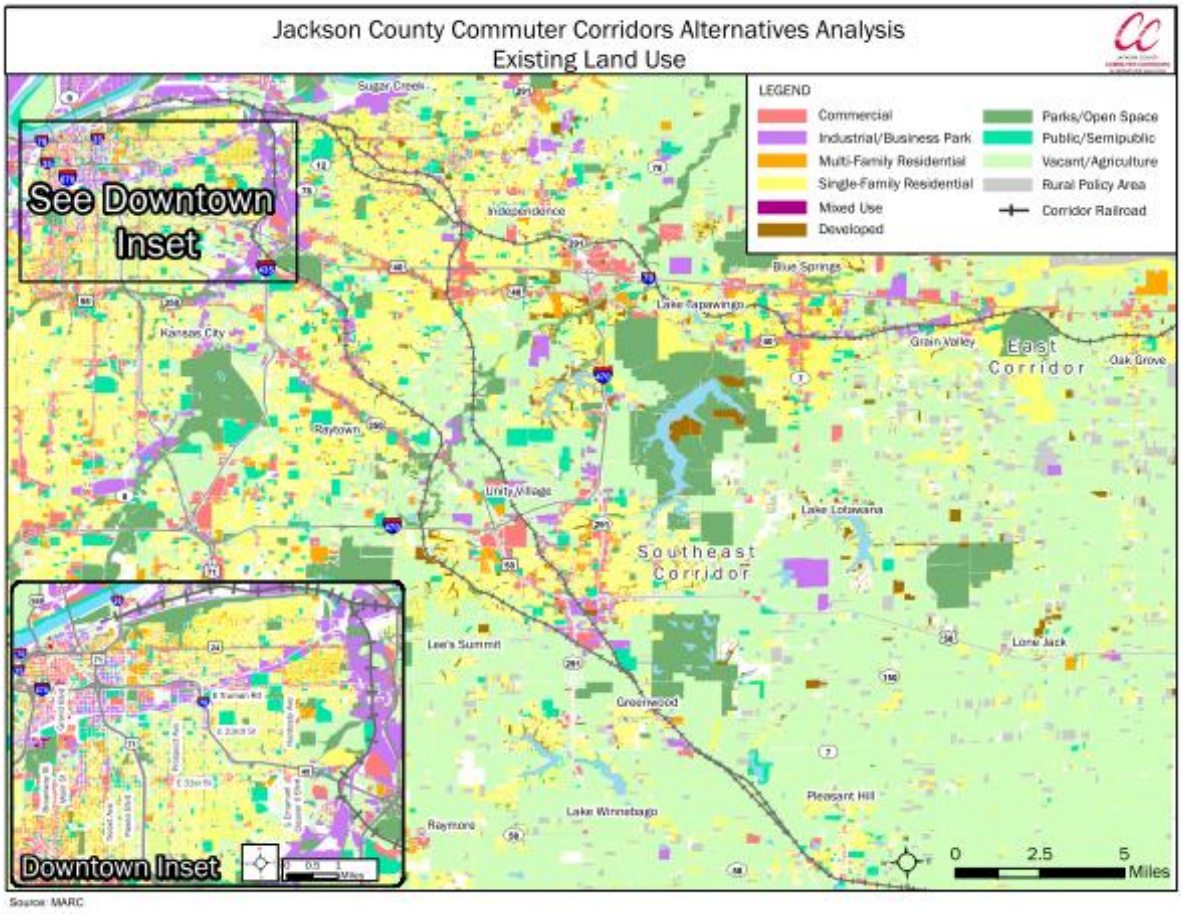


Figure 11 - Existing Land Use

Figure 12 is a compilation of future land use plans from the communities in the study area. This future land use map reflects current local policymaking that supports zoning for mixed uses in certain districts. The future land use map identifies many areas that should be redeveloped for mixed use, including:

- Downtown Kansas City
- Along Truman Road in Kansas City
- Along US 40 in Independence
- Downtown Blue Springs
- Along I-470 in Jackson County
- Downtown Raytown
- Areas adjacent to the Rock Island Rail line in Lee's Summit

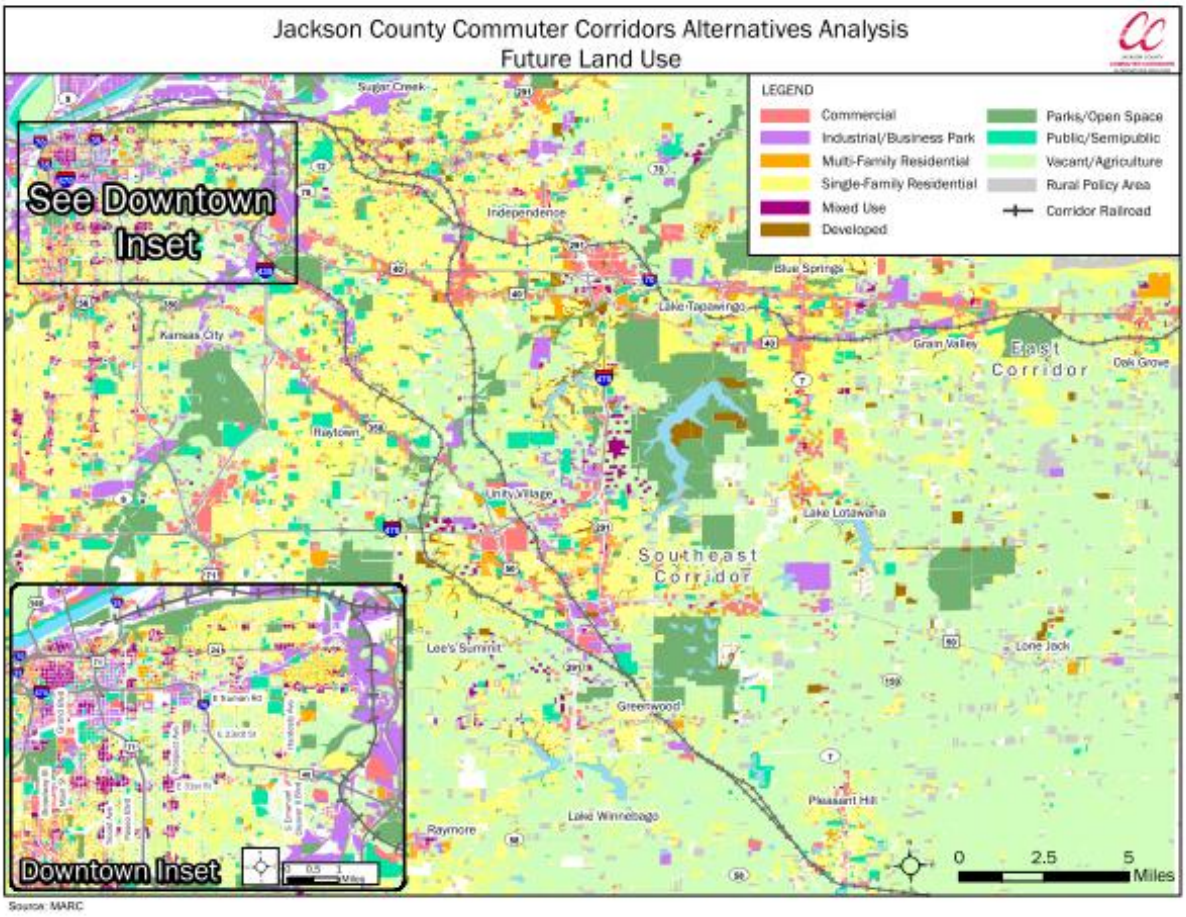


Figure 12 - Future Land Use

In the downtown plans for Kansas City (MO), Blue Springs and Raytown, increased density around possible transit stations is identified as a strategy.

As previously documented, the Greater Downtown Area Plan for Kansas City, Missouri identifies numerous goals and implementation opportunities related to multimodal transportation. The land use plan identified for the area is very supportive of transit oriented development. The majority of the area is classified as "downtown core" (intended to promote high-intensity office and employment growth), "downtown mixed-use" (intended to accommodate office, commercial, light industrial and residential development at lower densities that the downtown district), and "downtown residential" (intended to accommodate residential development and small-scale commercial uses on lower floors with residential units above.)

The Downtown Blue Springs Master Plan identifies as one of its key plan elements "Provide for short and long-term commuter transit improvements. Long-term includes the provision of a commuter rail station along the KC Southern rail line." (Downtown Blue Springs Master Plan, Blue Springs, 2006) Renderings in the plan identify the location the transit center with a "21st century transit village" adjacent to the center. This village is described below:

"West of the railroad tracks, the plan envisions a "21st century transit village." This large area, from Walnut north to the tracks, west to 15th street, is ripe for large-scale redevelopment. It is

well situated between the historic distract and the heart of the commercial main street, as well as the future transit station. The property is ideal for a mix of multifamily and small-lot single family buildings types, to provide a new resident base for downtown. It is particularly suited to the younger professional market that the market analysis identified."

The Raytown Central Business District Plan calls for mixed use, commercial, office and residential buildings by stating:

"Surround the Town Square are more traditional urban building forms, built up to the sidewalks. Retail shops would embrace the Town Square with complementary streetscape amenities and activities including outdoor cafes and sidewalk sales. Upper levels of two to three story buildings at major intersections or corners would accommodate office or residential lofts… Most parking would be provided on-street and to the rear of buildings as well as by strategically placed town square parking areas." (Raytown Central Business District Plan, City of Raytown, 2002)

This plan identifies a location for a transit center adjacent to the mixed use locations.

Other communities, such as Independence and Lee's Summit, allow for mixed use zoning, but do not specifically identify these areas for future transit development.

TRAVEL DEMAND

This section presents information on existing and forecast travel demand for the corridor. Understanding travel demand is an important building block for identifying potential transit markets.

Travel data presented in this section were synthesized from the following sources:

- *Year 2000 Census Transportation Planning Package (2000 CTPP)*: This is a special tabulation of data from the 2000 decennial census "long form" that includes summary worker and household characteristics as well as journey-to-work data.
- *2002-2009 Longitudinal Employer-Household Dynamics (LEHD) data set*: This is based on unemployment insurance records filed by employers, and contains home and work locations for employed residents.
- American Community Survey (ACS): This is a "rolling" continuous survey identifying home and work locations of employed residents. Started in 2006, worker flows became available from the combined 2006-2008 surveys.
- *2005 MARC Home Interview Survey*: A sample of household in the region, with detailed information on travel patterns for all trip purposes.
- *2005 MARC Transit On-Board Survey*: A survey of riders on public transit buses in the Kansas City region. Includes origin, destination, and trip purpose information as well as demographic data.

TRAVEL DEMAND STUDY AREA

The travel demand study area is similar to the AA study area, but the boundaries correspond to the traffic analysis zones (TAZs) used in the MARC travel demand forecasting model. The model includes Leavenworth, Wyandotte, Johnson and Miami counties in Kansas and Clay, Jackson, and Cass counties in Missouri. LaFayette and Johnson (MO) counties have been added to the model for the purpose of this study. The inclusion of the additional counties in

Kansas and Missouri allows the model to predict potential riders that could use the service from those areas. Figure 13 illustrates the travel demand study area.

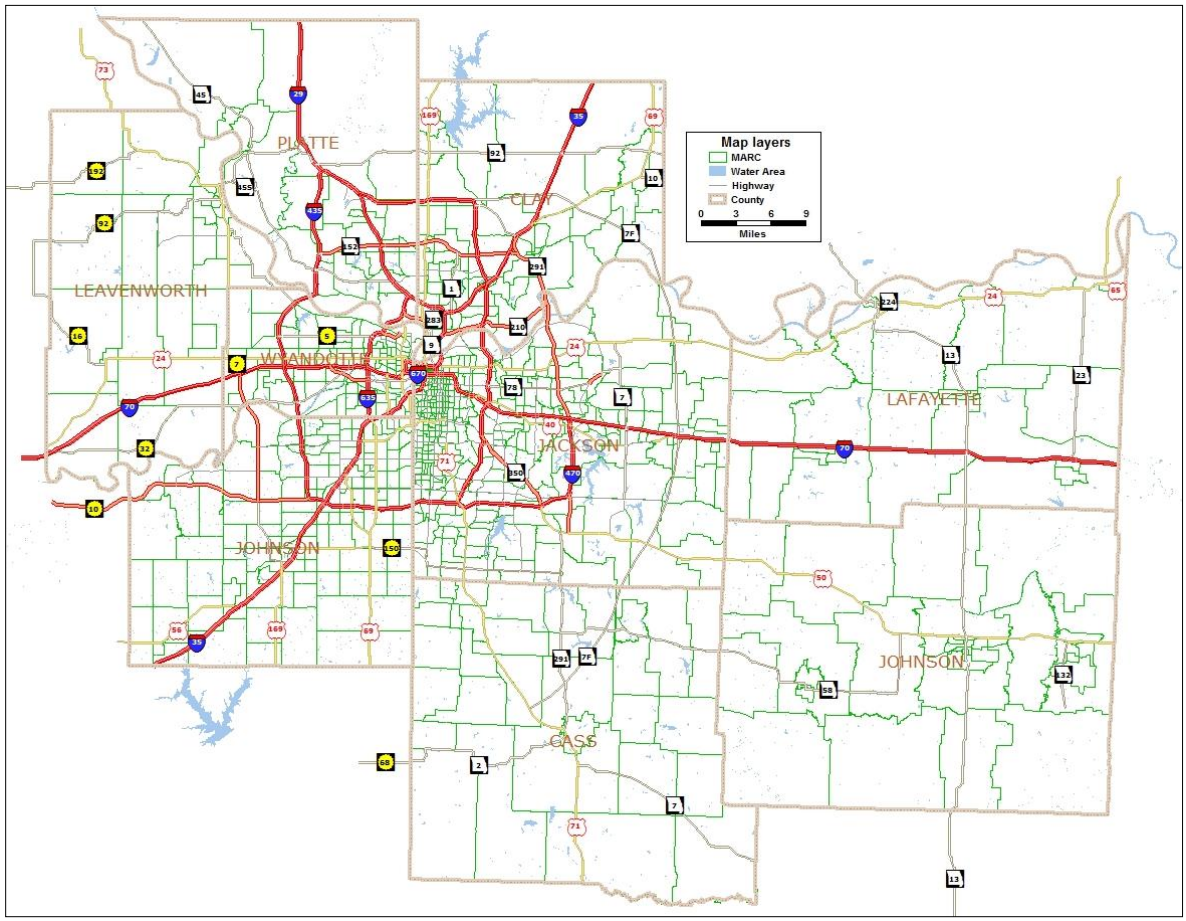


Figure 13 - Travel Demand Study Area

TRAVEL DEMAND DISTRICTS

The TAZs within the study corridors were aggregated into 12 districts in order to better understand travel patterns. Table 3 lists the districts, the corresponding colors on the map of the districts shown in Figure 14, and the primary characteristics.

Table 3 - Travel Demand Districts

District	Description
CBD (purple)	Includes the Downtown area of Kansas City, Missouri
Crown Center (aqua)	Just south of Downtown, includes Union Station, Crown Center and Hospital Hill employment centers
UMKC/Plaza (turquoise)	A major shopping, housing and educational destination, south of the CBD and Crown Center.
Inner Core South (yellow)	Includes areas of Kansas City, Missouri outside of the CBD
Inner Core North (light green)	Includes areas of Kansas City, Missouri outside of the CBD.
Independence (red)	An inner ring suburb that includes housing, employment and tourist/special event destinations.
Blue Springs (orange)	A suburban area that includes housing, employment and retail.
Raytown (gray)	An inner ring suburb, adjacent to the Truman Sports Complex that includes employment and housing.
Lee's Summit (SE Jackson Co) (blue)	A suburban area that includes housing, employment and retail.
North East Jackson County (magenta)	Low density housing
LaFayette County (green)	Low density housing
Johnson (MO) County (brown)	Low density housing

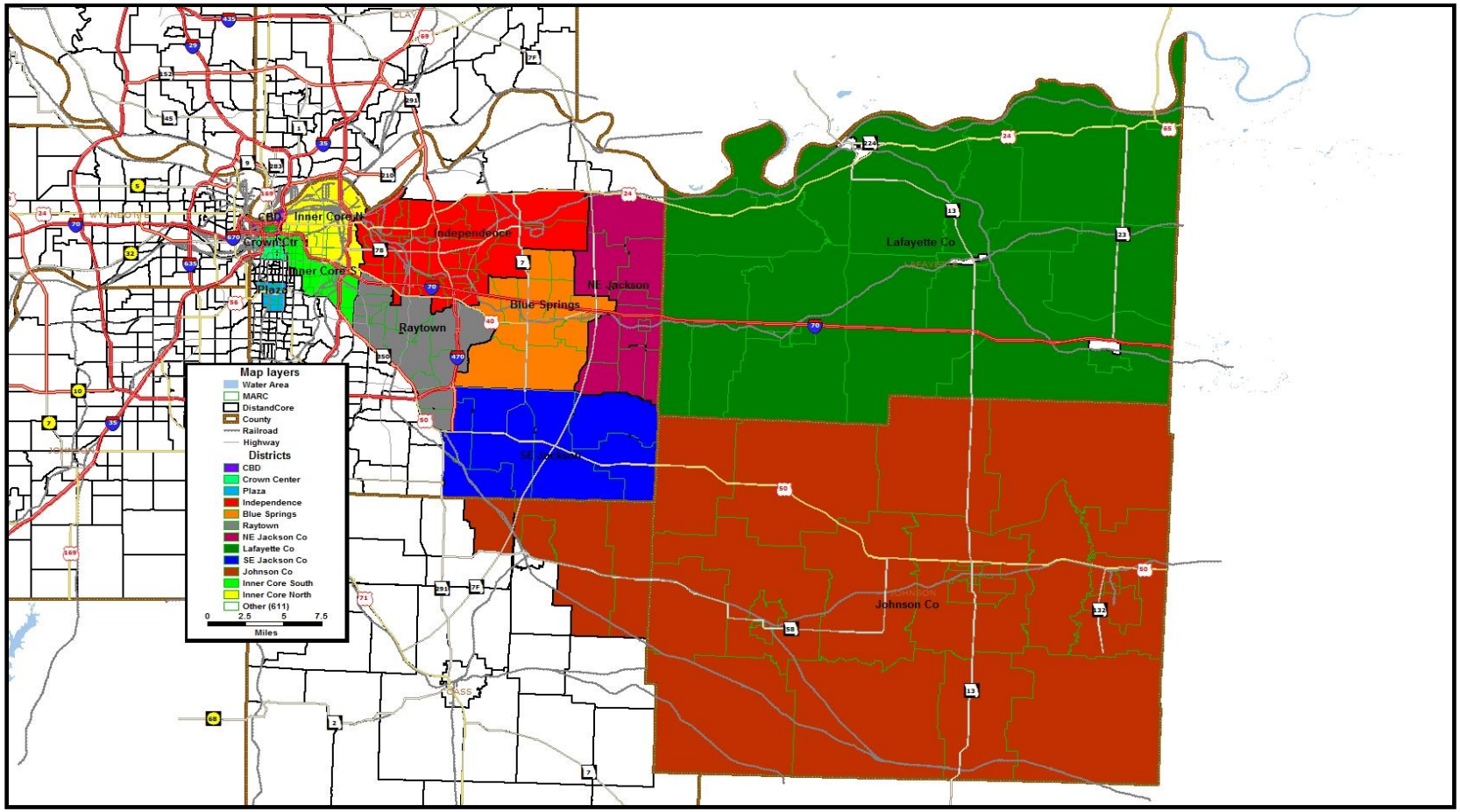


Figure 14 - Study Area Districts, Key Production and Attraction Areas

Regional Trip Activity

Large numbers of commuters and other trip-makers use the transportation facilities and services within the study area to reach work destinations as well as for other purposes like shopping and recreation. Between 2000 and 2010, work trips throughout the region grew overall but work trips from the study area to the CBD showed virtually no change. These trends are generally reflected in all markets so year 2005 results can be assumed to be representative of current and recent conditions.

Table 4 - Growth in Regional Travel, 2000-2010

Regional Worker Flows	2000-2005	2000-2010
Regional Work Trip Growth	7%	10%
Corridor Work Trip Growth	2%	6%
Regional Work Trip Growth to CBD	3%	4%
Corridor Work Trip Growth To CBD	0%	0%

Source: CTPP, ACS

Travel Patterns for Home-Based Work Trips

Table 5 shows the pattern of worker flows between the study corridor travel districts as well as between the study corridor districts and the larger region (travel demand study area). The data reveals the following about commute patterns in the region and study corridors:

Study Corridor Trip Productions A total of 228,300 daily work trips were produced within the study corridors in 2005, and 68 percent of these trips had destinations that stayed within the study corridor. Most of these daily work trips originated outside of the regional core (CBD, Crown Center, Plaza) in the Independence, Johnson County, Blue Springs, and Raytown districts.

Regional Trips Attracted to Study Corridors Collectively, the CBD, Crown Center, and Plaza districts were the primary destinations for commute trips attracted to the study area from the larger region (outside of the study corridors). Combined, the three districts attracted 78,800 daily work trips. This comprised just over 61 percent of the 129,100 work trips attracted to the study area from outside of the study corridors. Districts immediately to the east of the regional core, including Inner Core South, Inner Core North, Independence, Blue Springs, and Raytown, also attracted a substantial share of regional work trips. Combined these areas attracted 45,700 trips or just under 40 percent of the 129,100 regional work trips from outside of the study corridor.

Intra-Corridor Trip Attractions & Productions The majority of work trips starting and ending within the study area were attracted to the Independence, Blue Springs, and Raytown districts. Combined, the districts attracted 61,400 daily work trips, nearly 40 percent of the total 155,900 work trips within the study corridors. The highest shares were attracted to Independence (38,900 trips), Raytown (26,900 trips), and Inner Core North (30,500). About 20 percent of the work trips from the study corridors ended at the regional core; the CBD, Crown Center, or Plaza. 13 percent of the work trips were to either the inner core north or the inner core south. The remaining 27 percent of the trips were to the northeast or southeast corners of Jackson County, or to Johnson or Lafayette Counties.

The travel patterns for 2005 illustrate the concentration of employment not only in downtown Kansas City but also in areas just east of the downtown. While there is a work trip market between the eastern end of the study corridors and the regional core, particularly the CBD, there is also a strong market for commute trips destined for interim destinations, primarily in the Independence, Raytown, and Inner Core North districts. Those numbers listed in red identify the

reverse commute trips. Currently, most reverse commute trips are going from the urban core to Independence and Raytown, with some trips terminating in the outer ring suburbs of Blue Springs and Lee's Summit.

Table 5 - Year 2005 Worker Flows in Corridor

FROM	TO													
	CBD	Crown Center	Plaza	Inner Core South	Inner Core North	Indepen-dence	Blue Springs	Raytown	NE Jackson Co	Lafayette Co	Lee's Summit/ SE Jackson Co	Johnson Co	**Entire Corridor**	**Entire Region**
CBD	900	300	100	100	100	100	0	0	0	0	0	0	1,700	2,700
Crown Center	300	600	300	100	200	100	0	0	0	0	0	0	1,600	2,800
Plaza	1,100	1,000	2,600	200	300	200	100	100	0	0	100	0	5,700	10,600
Inner Core South	1,400	1,300	600	1,400	900	500	200	400	0	0	100	0	6,800	11,400
Inner Core North	2,000	1,500	500	1,000	3,400	900	200	500	100	0	100	0	10,000	17,100
Independence	3,200	2,400	1,100	1,200	4,100	18,300	1,900	3,100	200	200	500	100	36,000	53,200
Blue Springs	1,900	1,500	600	500	1,600	3,800	8,000	2,000	400	200	500	200	21,400	29,500
Raytown	1,900	1,400	800	700	1,300	2,600	700	6,100	100	0	1,000	0	16,800	28,100
NE Jackson Co	200	300	100	100	200	800	900	200	900	0	100	0	3,900	5,000
Lafayette Co	300	200	100	100	500	900	900	300	400	8,000	100	300	12,100	14,100
Lee's Summit/ SE Jackson Co	900	900	500	300	600	1,100	700	3,000	100	100	2,700	300	11,100	19,600
Johnson Co	400	200	100	300	400	1,100	600	1,300	200	1,000	800	22,400	28,800	34,200
Entire Corridor	**14,700**	**11,500**	**7,300**	**5,900**	**13,600**	**30,400**	**14,100**	**16,900**	**2,500**	**9,500**	**6,100**	**23,300**	**155,900**	**228,300**
Region outside of Corridor	**35,300**	**25,900**	**17,600**	**7,300**	**16,900**	**8,500**	**3,000**	**10,000**	**400**	**300**	**2,700**	**1,200**	**129,100**	**670,300**
Entire Region	**50,000**	**37,400**	**24,900**	**13,200**	**30,500**	**38,900**	**17,100**	**26,900**	**2,900**	**9,800**	**8,800**	**24,500**	**284,900**	**898,600**

Source: CTPP, ACS

HOME-BASED NON-WORK TRIPS

The 2005 Home Interview Survey (HIS) was reviewed to determine the level of home-based non-work (HBNW) trip activity in the study area. The HIS indicated that HBNW trips was the primary trip purpose for travel within the study area. Similar to the journey-to-work data presented in the previous section, the Independence, Blue Springs, and Raytown districts both produced and attracted the highest share of trips within the study corridors. Of the 840,000 average daily HBNW trips starting and ending within the study corridors, roughly 55 percent (464,500 trips) were produced in these three subareas and 52 percent ended in these subareas. Conversely, for trips produced outside of the study corridors and attracted to the study corridors, the regional core districts of the CBD, Crown Center, and the Plaza attracted a slightly higher share than the Independence, Blue Springs, and Raytown districts.

Table 6 - Year 2005 Average Day Home Based Non-Work Trip Flows in the Corridor (from 2005 Home Interview Survey)

FROM	TO					Entire Corridor	Entire Region
	Core Districts	Indepen-dence	Blue Springs	Raytown	Remaining Corridor Districts		
Core Districts	13,700	0	0	900	5,800	20,400	53,600
Independence	6,200	186,400	4,500	11,800	3,000	211,900	233,700
Blue Springs	1,300	15,200	71,400	3,000	6,500	97,400	103,800
Raytown	4,200	18,600	11,200	78,100	12,900	125,000	168,100
Remaining Corridor Districts	15,200	22,000	9,800	31,600	121,000	199,600	270,900
Entire Corridor	**40,600**	**242,200**	**96,900**	**125,400**	**149,200**	**654,300**	**830,100**
Region outside of corridor	**75,400**	**27,600**	**4,400**	**38,200**	**40,000**	**185,600**	**2,938,900**
Entire Region	**116,000**	**269,800**	**101,300**	**163,600**	**189,200**	**839,900**	**3,769,000**

Source: 2005 MARC Region Home Interview Survey, Data does not include Johnson and Lafayette Counties because they are not part of the base MARC model area.

MAJOR TRANSIT MARKETS

Table 7 summarizes worker flows by all modes and by transit based upon data from the 2000 CTPP. It shows that commuters from Independence to downtown use transit more frequently than the regional average. Note that the observed transit shares for Johnson and Lafayette county areas are low, possibly due to lack of service.

Table 7 - Year 2005 Worker Transit Trip Flows to the CBD and Region (From Year 2000 CTPP)

From	To CBD			To Entire Region			Transit
	All Modes	Bus	Transit Share	All Modes	Bus	Transit Share	Pct To CBD
Independence	3,100	200	6.30%	51,800	390	0.70%	50%

From	To CBD			To Entire Region			Transit
	All Modes	Bus	Transit Share	All Modes	Bus	Transit Share	Pct To CBD
Blue Springs	1,900	80	4.10%	29,500	130	0.40%	61%
Raytown	1,900	60	2.90%	28,100	150	0.50%	37%
Lee's Summit	900	6	0.60%	19,600	60	0.10%	38%
Outer South Corridor (Johnson Co)	1,300	6	0.50%	53,800	60	0.10%	10%
Outer North Corridor (Lafayette Co)	500	1	0.20%	19,200	20	0.10%	6%
Entire Corridor	8,800	340	3.70%	182,400	750	0.40%	45%
Entire Region	50,000	2,700	5.40%	898,600	9,080	1.00%	30%

Source: CTPP, ACS

Table 8 summarizes worker flows by all modes and by transit (bus) modes from data provided by the 2005 HIS and On-board surveys. Information related to transit share is somewhat similar to data provided by the 2000 CTPP, with the exception of the transit share to the CBD in the Outer South Corridor.

Table 8 - Year 2005 Worker Trip Flows to the CBD and Region (from Year 2005 HIS and On-board Surveys)

From	To CBD			To Entire Region			Transit
	All Modes	Bus	Transit Share	All Modes	Bus	Transit Share	Pct To CBD
Independence	4,300	260	6.00%	60,500	310	0.50%	84%
Blue Springs	3,300	20	0.50%	31,300	20	0.10%	79%
Raytown	800	70	8.20%	39,100	210	0.50%	31%
Lee's Summit	400	40	10.00%	25,000	60	0.24%	67%
Outer South Corridor (Johnson Co)	0	30	8.10%	6,400	50	0.78%	69%
Outer North Corridor (Lafayette Co)	400	0	0.00%	4,200	0	0.00%	N/A
Entire Corridor	9,200	370	4.00%	166,500	580	0.30%	64%
Entire Region	52,900	2,150	4.10%	1,028,000	11,830	1.20%	18%
Note, Most of the Outer South and Outer North Corridors were not included in the MARC 2005 HIS or on-board survey.							

Source: MARC 2005 Home Interview and On-board Surveys

Table 9 summarizes transit characteristics for the region and for travelers from the corridor. Regionally, transit riders are predominantly low and middle income, with about half owning not owning autos. Walk access is the dominant access mode regionally, with 88 percent walking to the bus. Home-based work and Home-based Non-work transit trips are equally frequent in the region.

Table 9 - Year 2005 Transit Trip Characteristics

	Regional				Corridor			
Purpose	HBW	HBNW	NHB	Total	HBW	HBNW	NHB	Total
Trips	13,800	14,100	5,500	33,400	680	590	140	1,410
Share	41%	42%	17%	100%	48%	42%	10%	100%
Income Profile	Low Inc	Med Inc	High Inc	Total	Low Inc	Med Inc	High Inc	Total
Trips	8,700	11,300	2,400	22,400	680	270	70	1,020
Share	39%	51%	11%	100%	67%	26%	7%	100%
Access Mode	Walk	Park-Ride	Kiss-Ride	Total	Walk	Park-Ride	Kiss-Ride	Total
Trips	27,300	1,500	2,200	31,100	960	210	160	1,330
Share	88%	5%	7%	100%	72%	16%	12%	100%
Autos Available	0	1	2+	Total	0	1	2+	Total
Trips	16,800	7,900	8,600	33,400	660	410	340	1,410
Share	50%	24%	26%	100%	47%	29%	24%	100%
Note: differences in totals reflect surveys which did not respond. Low income<$30k, Mid Income $30k-$75k, High income >$75k								

Source: 2005 MARC On-Board Survey

Table 10 describes worker household characteristics, in terms of both income and commute destinations. The corridor's commuters to the CBD are from higher income households than the regional average. Specifically, trips from Independence, Blue Springs and Raytown show higher CBD orientation from mid and high income groups than the regional average. Higher percentages are noted in red.

Table 10 - Year 2005 Worker Household Income Characteristics

	To CBD				To Entire Region				Pct To CBD		
	Income Group				Income Group				Income Group		
From	Low	Mid	High	Total	Low	Mid	High	Total	Low	Mid	High
Independence	440	1,750	890	3,080	8,880	28,770	14,010	51,760	4.90%	6.10%	6.30%
Blue Springs	160	880	890	1,930	2,900	15,400	11,240	29,540	5.40%	5.70%	8.00%
Raytown	150	860	910	1,920	3,630	13,520	10,960	28,100	4.10%	6.40%	8.30%
Lee's Summit	70	320	560	950	1,420	8,700	9,500	19,620	4.93%	3.68%	5.89%
Outer South Corridor (Johnson Co)	60	150	150	360	8,630	17,950	7,600	34,180	0.70%	0.84%	1.97%
Outer North Corridor (Lafayette Co)	40	270	230	550	3,190	11,190	4,810	19,190	1.30%	2.40%	4.80%
Entire Corridor	910	4,240	3,630	8,780	28,750	95,520	58,120	182,390	3.20%	4.40%	6.30%
Entire Region	6,420	23,880	19,700	50,000	127,930	438,620	332,080	898,630	5.00%	5.40%	5.90%
Note: Low income<$30k, Mid Income $30k-$75k, High income >$75k											

Source: 2000 CTPP expanded to 2005

SPECIAL MARKETS

This section presents key characteristics of three distinct markets that impact the demand for future transportation services: the reverse commute market, transit-dependent populations and special generators.

Reverse Commute Market

As identified earlier in this section, 2005 data shows that the majority of the reverse commute trips start in the urban core or adjacent areas and terminate in either Independence or Raytown. There are some reverse commute trips that terminate in Blue Springs and Lee's Summit. The reverse commute market is underserved by transit in the study area.

Transit Dependent Populations

Transit mobility for the transit dependent in the study area provides a unique challenge, especially for job seekers. Transit-dependent populations include persons younger than 20 years old, older than 65 years old, living in a zero car household, or with incomes below the poverty level. Transit dependent individuals have limited local access to jobs and commerce and oftentimes must rely on transit for regular transportation to meet most of their needs. In order to enhance services for transit dependent riders, options must provide access to locations that are not currently served by the KCATA, or provide service hours that are not currently offered. Additionally, fares must be reasonable in order for those who are transit dependent to afford and seek benefit from the service improvements.

Figures 13 through 16 depict the percentage of these demographic groups by census tract throughout the study corridors.

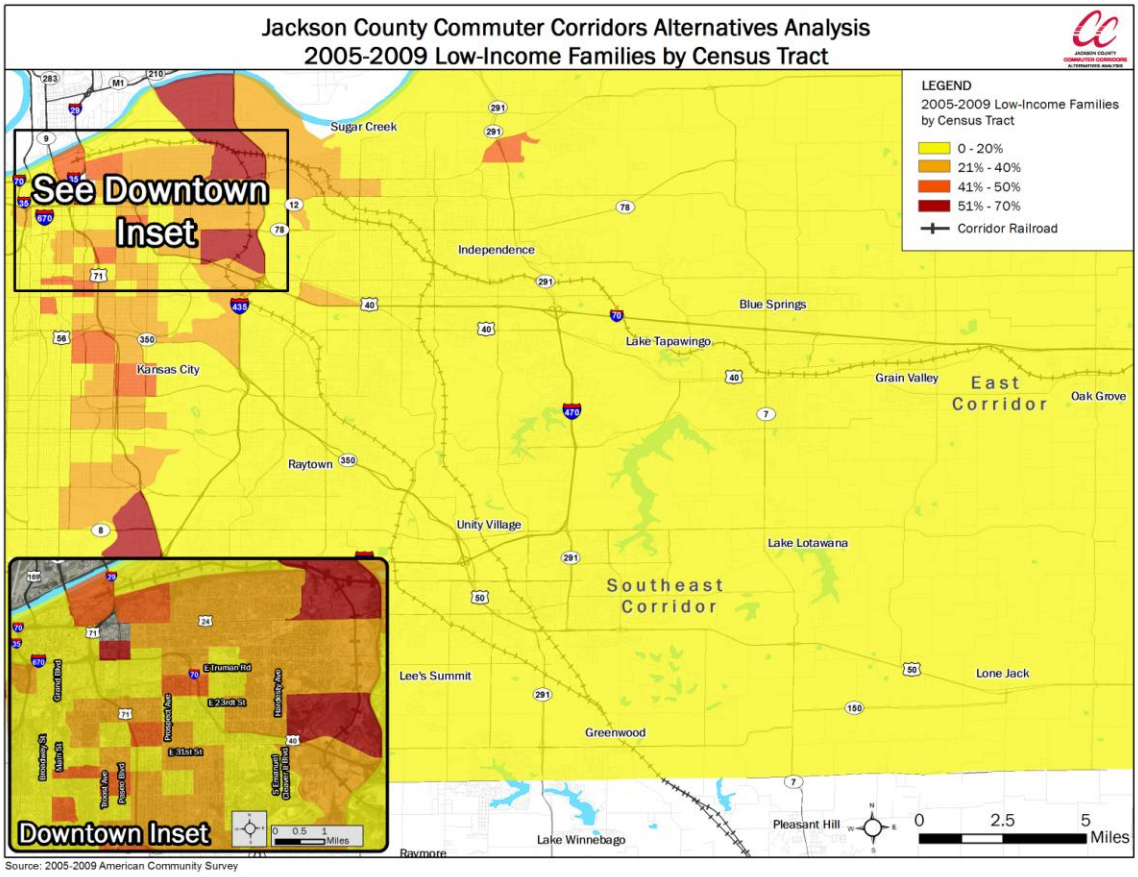


Figure 15 - Low Income Families by Census Tract

Figure 15 shows low income families by census tract. The study corridors have a substantial percentage of the population living below the poverty line, with the greatest geographic concentration generally found in neighborhoods located in downtown Kansas City and in areas immediately to the east. For the most part, the suburban areas of the corridor have 20 percent or less of the population living below poverty.

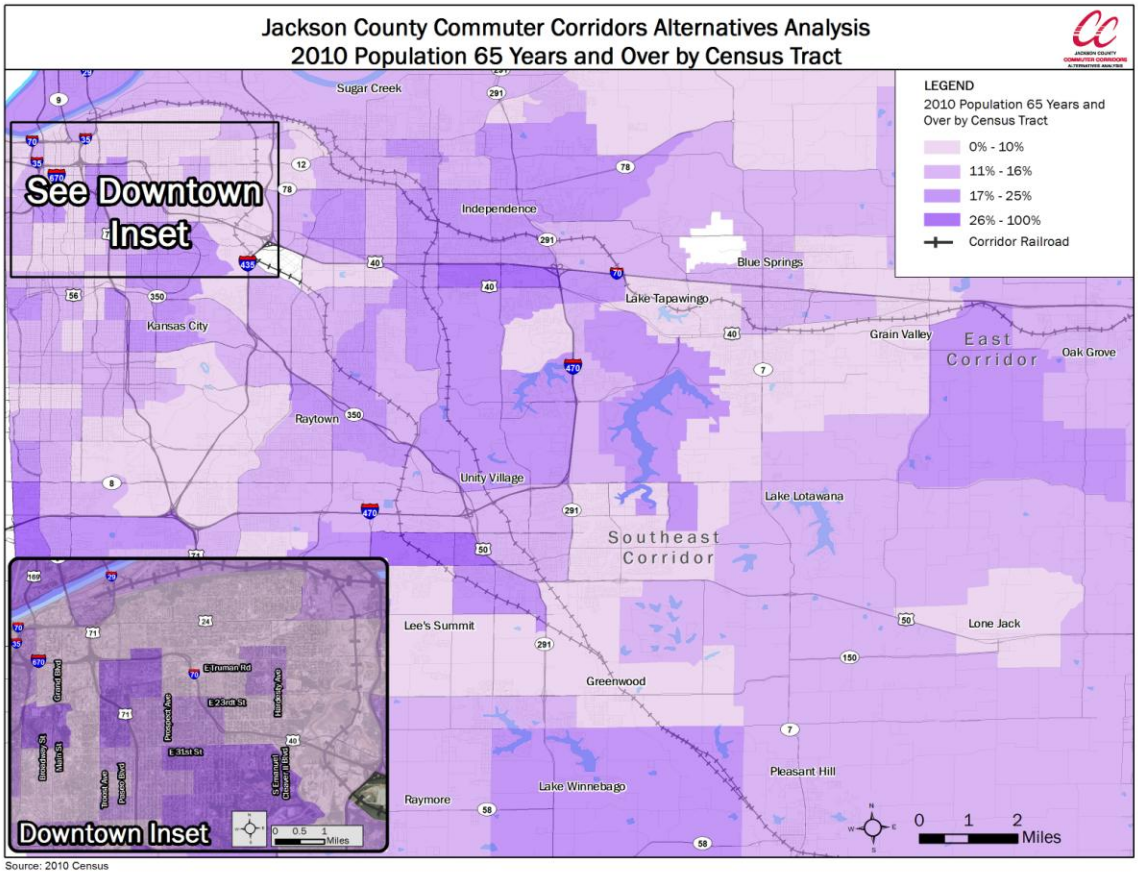


Figure 16 - 65 Years and Over Population

Figure 16 and Figure 17 shows the concentration per census tract of individuals over the age of 65 and under the age of 20, respectively. Mobility for older adults and youth is also of importance in the corridors. Communities such as Independence and Raytown have high percentages of both youth and older adults – two groups who are often the most dependent on public transit. The Truman Plaza neighborhood of Kansas City has a high percentage of youth and a high percentage of low income adults.

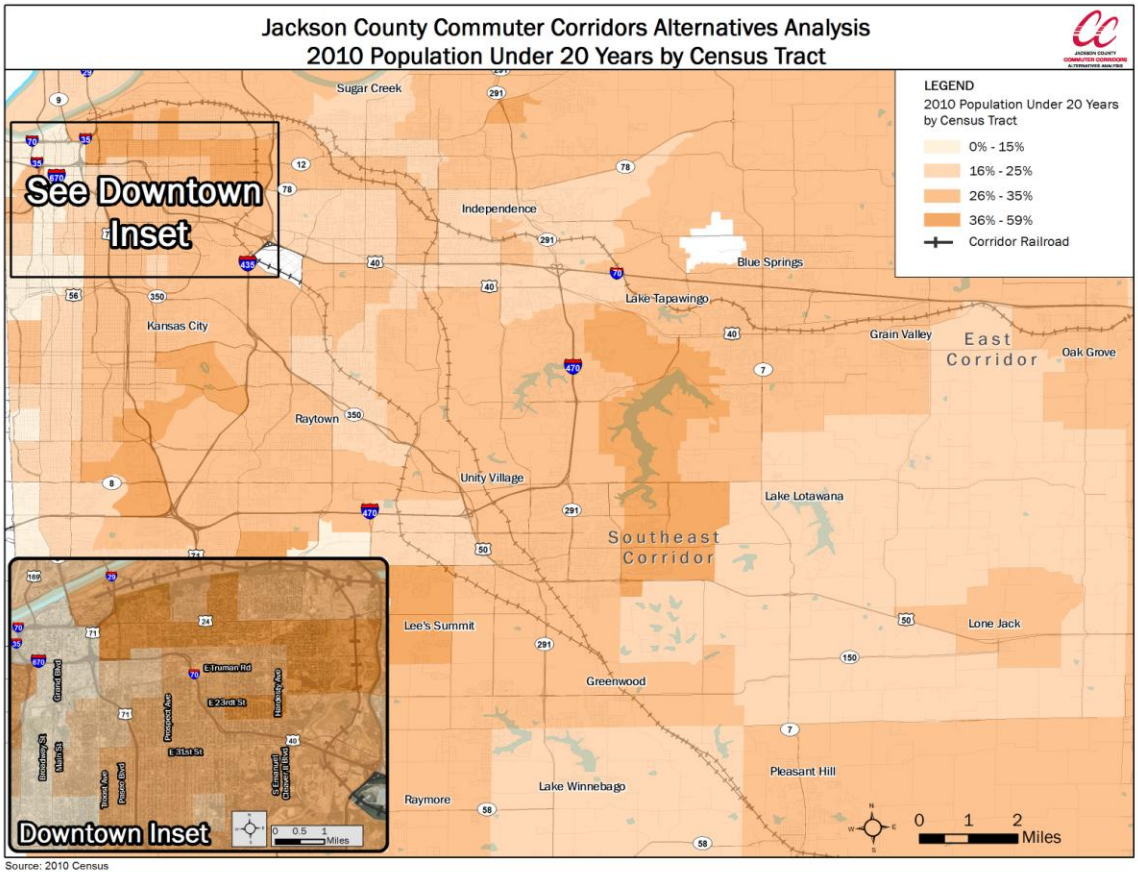


Figure 17 - Population Under 20 Years by Census Tract

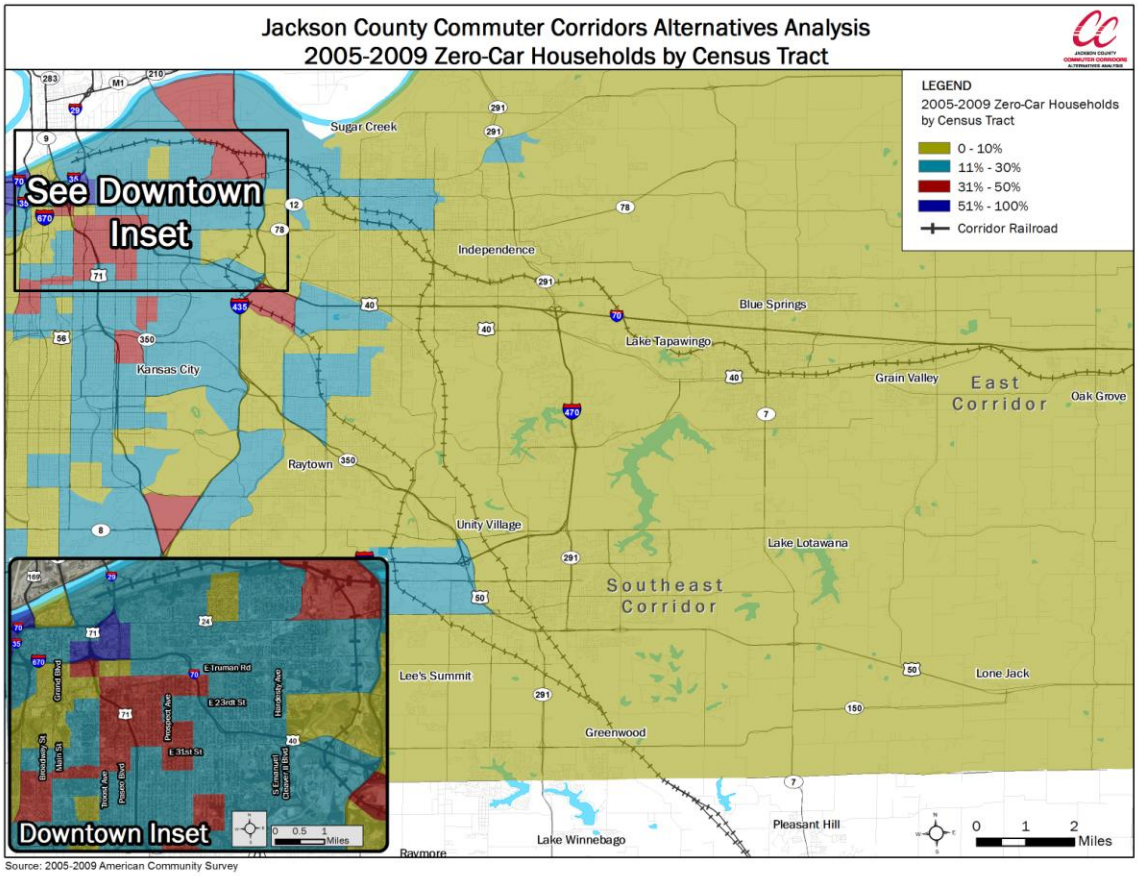


Figure 18 - Zero Car Households by Census Tract

Figure 18 shows the concentration of zero car households per census tract. The concentrations of these households are most prevalent in and adjacent to the Central Business District. There are some areas along the southeast corridor that have larger concentrations of zero car households than the other suburban areas.

Special Generators

Special generators can be defined as those destinations that have travel demand that is not fully reflected in a four step travel demand model. This is because the special generator's trip generator characteristics are dissimilar from usual daily trips – either because of the frequency of the event, the number of trips varying too much to be reflected by an average number, or the location does not have a peak travel time during the day. In this study area, there are two special generators (the Truman Sports Complex and the Sprint Center) that attract people who could benefit from enhanced transit service. Characteristics of these two special generators are described below.

Truman Sports Complex The Truman Sports Complex is a sports facility located in Kansas City, Mo. The site is the location of Arrowhead Stadium, the home of the Kansas City Chiefs professional football team, and Kauffman Stadium, the home of the Kansas City Royals professional baseball team. In addition to home games for these two teams, some college sporting events are hosted at the Truman Sports Complex. The complex has parking capability

for nearly 26,000 vehicles, which is generally sufficient to meet most parking demand at the complex. Even so, traffic on I-70 and the city streets adjacent to the sports complex are extremely congested before and after sporting events. According to 1999 Season Ticket data by zip code, 4,970 season ticketholders lived in a zip code adjacent to the East corridor, 3,510 ticketholders lived in a zip code adjacent to the Southeast corridor and 4,670 ticketholders lived in a zip code adjacent to the corridor the East and Southeast corridor share (Source: TranSystems Corporation, 2000). There is also land adjacent to the sports complex that has been identified as a prime location for redevelopment.

Sprint Center The Sprint Center is a 19,000 seat indoor arena located adjacent to the Power and Light District in downtown Kansas City, Missouri. The Sprint Center hosts numerous events throughout the year, including concerts, the NCAA Big 12 Men's Basketball Tournament, and other sporting events. It is the home of the Kansas City Command, the Kansas City's area's arena football team. There is no identified parking specific to the Sprint Center – those attending events must park in downtown streets or parking lots or structures. One outcome of the Greater Downtown Area Master Plan is to review and analyze parking locations in the downtown area to determine if existing parking can be converted to a higher and better use. Demand for parking in downtown for special events at the Sprint Center could be reduced if an effective transit alternative were provided.

TRANSPORTATION NETWORK

The transportation system provides the means by which people get from home to work, shopping, recreational and other activities. The transportation system also serves travel to, from and within the study area. It also serves through-travel with neither an origin or a destination within the study area. This section describes the existing and planned transportation system within the study area.

HIGHWAY AND ROADWAY SYSTEM

Existing

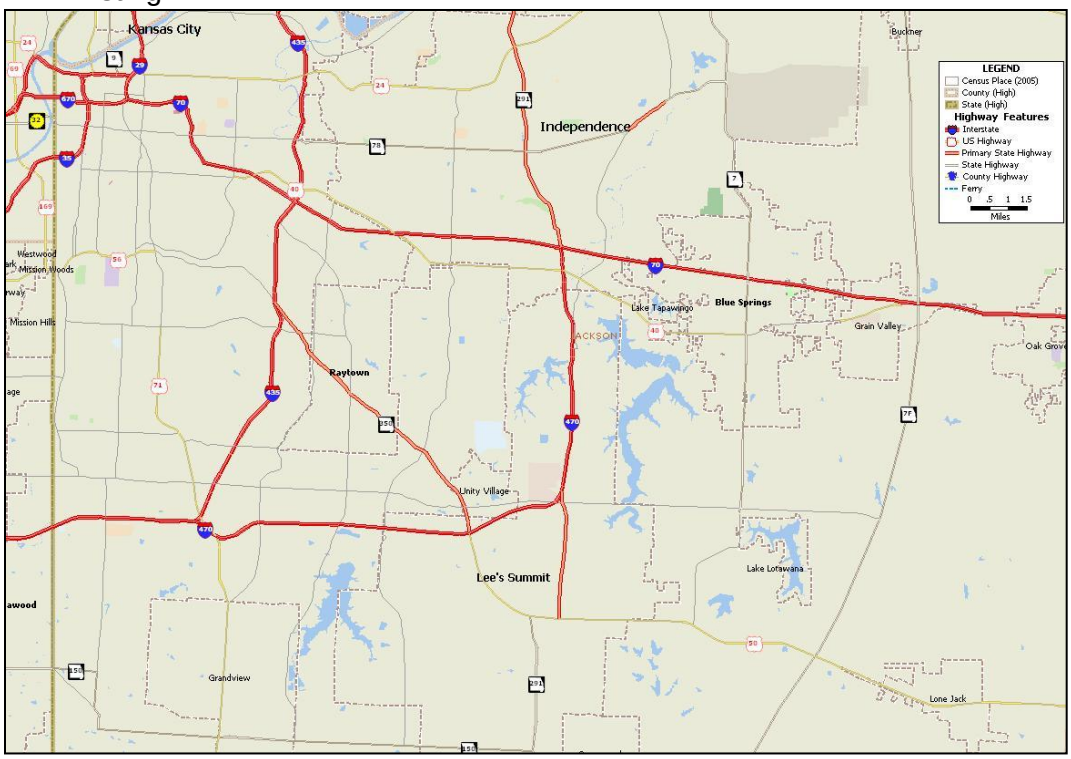


Figure 19 - Study Area Highway System

The Kansas City metropolitan area benefits from an expansive roadway network. This network serves both local and regional traffic. The main east-west Interstate through Kansas City is I-70, which bisects the heart of the Midwest and passes through the center of the East Corridor. It is a limited-access freeway that connects the Kansas City metro area and other cities to the west to central Missouri, St. Louis, and other cities to the east. Between Odessa and the SR-7 interchange it is a 4-lane facility that widens to a 6-lane roadway west into downtown Kansas City. Currently, I-70 is being studied by the Missouri Department of Transportation (MODOT) in a second tier EIS to assess capacity and congestion issues. The first tier EIS analyzed a series of potential options to reduce congestion. Included in those options were transit solutions, including light rail and bus on shoulder. Currently, the identified solution to address congestion issues is to reconfigure key interchanges that cause bottlenecks in the system and not to add capacity (additional lanes). Due to shoulder width constraints, the current facility could not have a bus on shoulder operation; at this time, all transit vehicles operating on I-70 do so in mixed traffic.

The following are other major highways that serve the study area:

- I-435 is a 6-lane circumferential Interstate highway that serves the outlying suburbs surrounding the Kansas City metro area.
- US-50 is a 4-lane highway going through the western and southern edges of Lee's Summit, MO to the cities in the east. It has limited access and grade-separated interchanges in Lee's Summit.

- US-40 is a 4-lane highway which parallels I-70 between Blue Springs and the I-435 and I-70 interchange. It has mostly at grade intersections but is a major east-west roadway. It goes through the northern part of the study area.
- SR-350 is a 4-lane major arterial connecting Lee's Summit to the urban core of Kansas City. It traverses directly through the study area corridor.
- SR-7 is a 2-lane highway connecting Pleasant Hill to US-50 and I-70 to the north.

Planned

Roadway improvements programmed in *Transportation Outlook 2040* focus on improving existing facilities rather than building new ones, are primarily located within existing cities, and tend to support higher-intensity land use in the region's identified activity centers. Appendix A provides a table of planned roadway projects. MoDOT in their I-70 Tiered EIS is also pursuing project aimed at fixing bottlenecks, and doesn't not intend nor can it afford to fund projects that add capacity to I-70.

TRANSIT SYSTEM

Existing

KCATA provides a variety of transit services within the study area. The agency operates eleven line haul bus routes: five are KCATA routes and six are operated by KCATA under a contract with the City of Independence. These routes operate all day with frequent stops along the route. KCATA also operates two MetroFlex bus routes (the Lee's Summit and Raytown Circulators), which are call ahead, general public demand response services. The Metroflex services have limited service hours and only operate within the city limits of the two cities. Additionally, KCATA offers commuter routes that serve Independence, Blue Springs and Lee's Summit and two MAX BRT routes that offer north-south service along Main Street (connecting the CBD, Crown Center and the County Club Plaza) and along Troost south of downtown. The operating characteristics are described for each route that serves the two corridors.

Table 11 - KCATA Operating Characteristics

Route Type	Route #	Route Name	Days/Week	Service Span	Peak Hour Frequency	Route Information
Line Haul	24	Independence	7	4:43am - 6:48pm	10-15 minutes	operates on Winner Road and Highway 24
Commuter	24x	Independence Express	5	5:53am -7:41am and 4:09pm - 6:11pm	2-30 minutes	operates on Truman Road
Line Haul	28	Blue Ridge	7	4:25am - 11:12pm	20 mimnutes	operates on Blue Ridge Blvd and US 40
Commuter	28x	Blue Ridge Express	5	4:41am - 8:19am and 4:16pm-6:41pm	20-30 minutes	operates on Blue Ridge Blvd and I-70
Line Haul	47	Roanoke	6	4:38am - 7:31pm	17-40 minutes	operates on 47th Street and Southwest Trafficway
MetroFlex	252	Lee's Summit Circ	5	7:30am - 5:30pm	demand response	operates within Lee's Summit city limits
MetroFlex	253	Raytown Circulator	5	6:00am - 10:00am and 2:30pm - 6:30pm	demand response	operates within Raytown city limits
Commuter	170	Blue Springs	5	5:42am-7:57am and 3:30pm-6:17pm	5-30 minutes	operates on I-70 and highway 7
Commuter	152	Lee's Summit	5	5:15am - 7:56am and 3:37pm and 6:16pm	30-40 minutes	operates on M-350
Line Haul (Independence)	183	Green Independence	6	7:36am - 5:54 pm	60 minutes	operates on Noland Road, 23rd Street and I-470
Line Haul (Independence)	284	Purple Independence	6	5:31am - 5:57pm	60 minutes	operates on Main Street and Noland Road
Line Haul (Independence)	285	Blue Independence	6	5:35am - 5:55pm	60 minutes	operates on Sterling Ave.
Line Haul (Independence)	291	Yellow Independence	6	7:39am - 5:24am	120 minutes	operates on Indepdenence Ave.
Line Haul (Independence)	292	Orange Independence	6	7:32am - 5:55pm	60 minutes	operates on Truman Road and Independence Ave.
Line Haul (Independence)	293	Red Independence	6	8:01am - 4:57pm	120 minutes	operates on Truman Road, Lee's Summit Road and 23rd Street

Planned

KCATA is in the process of conducting a Comprehensive Service Analysis (CSA) to determine improvements that could be made to KCATA's existing services to improve efficiency and effectiveness. Initial study findings indicate that existing services are well-matched with transit demand. However, there are routes within the AA study area that have service inefficiencies. For example, existing service in the Independence/Truman Road portion of the study corridors shows duplication including four routes that have multiple branches and variants, three routes that partially duplicate each other in Kansas City, and two routes that duplicate Independence local routes. (Source: KCATA Comprehensive Service Analysis – presentation to KCATA Board of Directors – Nelson\Nygaard Consulting Associates, 2011) Initial recommendations from the CSA are to restructure KCATA service systemwide to reduce duplication and rider confusion and, potentially, reduce operating costs and provide faster and more frequent service during peak demand periods.

In addition to the recommendations from the CSA, transit projects within the study area that are programmed in the MARC LRTP are included in Appendix A of this document

RAIL NETWORK

Underutilized or abandoned freight rail lines in Jackson County could provide an opportunity for future passenger rail service. Though many assets owned by the Union Pacific Railroad (UPRR), the Kansas City Southern Railway (KCS) and the BNSF Railway (BNSF) are at or near capacity, many existing or out of service tracks are not at capacity.

The Union Pacific Railroad's presence in Jackson County consists of one main east-west line (River Subdivision), two north-south lines (Sedalia and Coffeeville Subdivision) and one out-of-service line (Rock Island) each carrying 18, 27, 32, and 0 freight trains per day, respectively. The Sedalia and River Subdivisions also allow Amtrak trackage rights for one-way traffic twice daily along these lines. All of UPRR's active freight lines are at or near capacity and do not have the accessibility for additional passenger trains, with the exception of the out-of-service Rock Island. The Rock Island line was placed out-of-service by the Chicago, Rock Island and Pacific Railroad in 1982 and later acquired by the UPRR.

The BNSF operates one line in Jackson County, the Marceline Subdivision. This line is very heavily travelled, approximately 95 trains daily, and does not have capacity to operate additional services. The BNSF begins co-operation of the Kansas City Terminal Railway (KCT) at Rock Creek Junction through the center of the Kansas City central business district. The KCT or "trench" line is near capacity with over 100 trains daily, including eight Amtrak trains arriving or departing Union Station.

The KCS assets in Jackson County include the east-west Gateway Subdivision and the north-south Pittsburg Subdivision. The Gateway Subdivision has low daily freight traffic of 5 trains per day. Though only a single track line the Gateway does have additional capacity that could be utilized for passenger service. Though the Pittsburg Subdivision has a greater freight volume, 15 trains per day, with moderate improvements to the existing infrastructure this line could be capable of passenger service. Both of these subdivisions merge near Rock Creek Junction and continue north through Airline Junction and into the KCS Knoche Rail Yard. Both of these locations are overly congested as it is and will not offer capacity to passenger service.

Other freight lines exist in Jackson County and may offer potential to passenger service. The Pixley Spur owned by UPRR is aligned just south of downtown Independence and carries two freight trains per week. The Saint Louis San Francisco Railway (SLSF), though partially abandoned is owned and operated by the KCS and the Smoky Hills Railroad group. This line

runs south through Grandview and could offer capacity and an additional route through Grandview.

TRANSPORTATION SYSTEM PERFORMANCE

An analysis of the performance of the transportation system helps to further define the need for transportation and transit improvements in the study area. This section assesses how well the system performs in terms of meeting the region's goals and objectives.

HIGHWAY SYSTEM PERFORMANCE

Roadway mobility, reliability, and efficiency are typically "measured" by a rating system referred to as level of service (LOS) based on traffic volume and the capacity of the roadway (e.g., number of lanes). LOS describes the quality of traffic flow using national standards published in the ***Highway Capacity Manual*** (TRB 2000). LOS is reported using letter designations from A to F, where LOS A represents free traffic flow and LOS F designates the worst operating conditions (stop-and-go conditions, substantially reduced speeds, and difficulty maneuvering).

Table 12 shows the LOS color convention used in the following graphics. These are based on volumes generated using the MARC base year (2005) travel demand model for the AM and PM peak hours. While the modeled output is not an exact replica of existing conditions, it does illustrate the overall peak travel conditions of the travel demand study area.

Table 12 - Level of Service key

LOS F
LOS E
LOS D
LOS C
LOS B
LOS A
LOS A
LOS A

Figure 20 shows the modeled LOS levels during the AM peak period in the I-70 corridor for 2005. I-70 operates between LOS D and F in the westbound direction from east of Blue Springs to the CBD, while the eastbound lanes operate at LOS C or better. The model shows the M-350 corridor is also congested in the AM peak in 2005. The northbound segment east of I-435 experiences LOS E and F. There is also congestion on northbound US-50 in Lee's Summit.

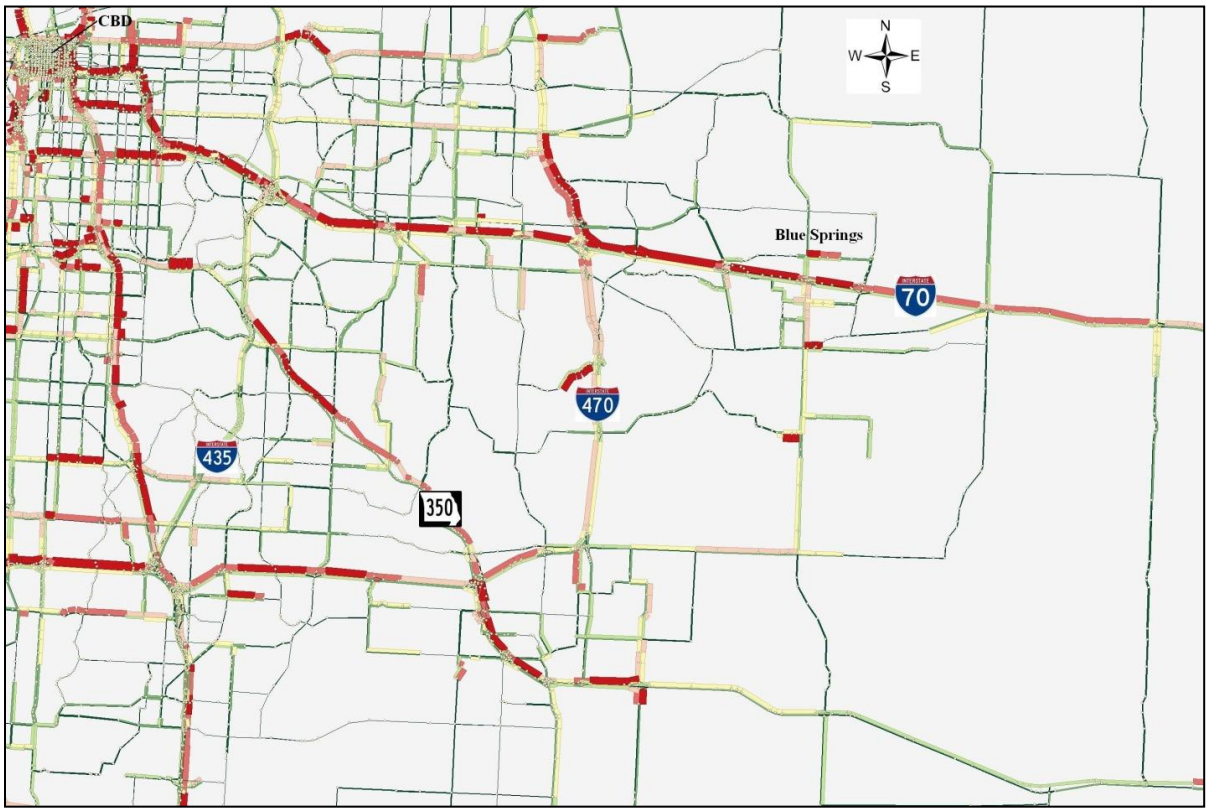


Figure 20 - 2005 AM Peak Modeled LOS

In the PM Peak period, the traffic on I-70 in both directions is heavy. The eastbound lanes do not have as much congestion as in the AM peak period, but the segment near I-435, between the Jackson Ave curve on the west and Noland Road on the east has LOS D. The westbound lanes consistently operate between LOS D and F from the CBD to Blue Springs, as illustrated in Figure 21

In 2005, M-350 operated better in the PM peak than in the AM peak. The southbound segment east of I-435 operated at LOS E, while further south M-350 operated at LOS D. US-50 southbound had LOS E.

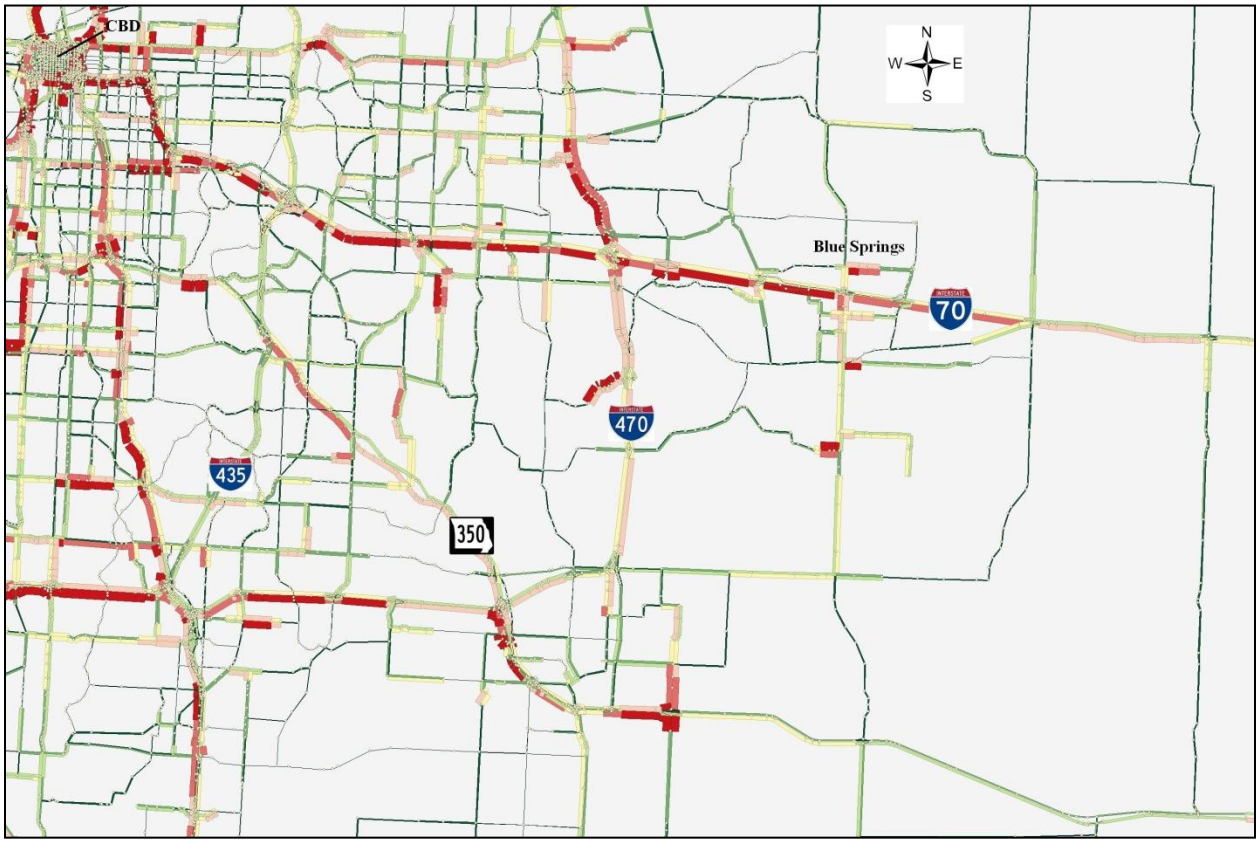
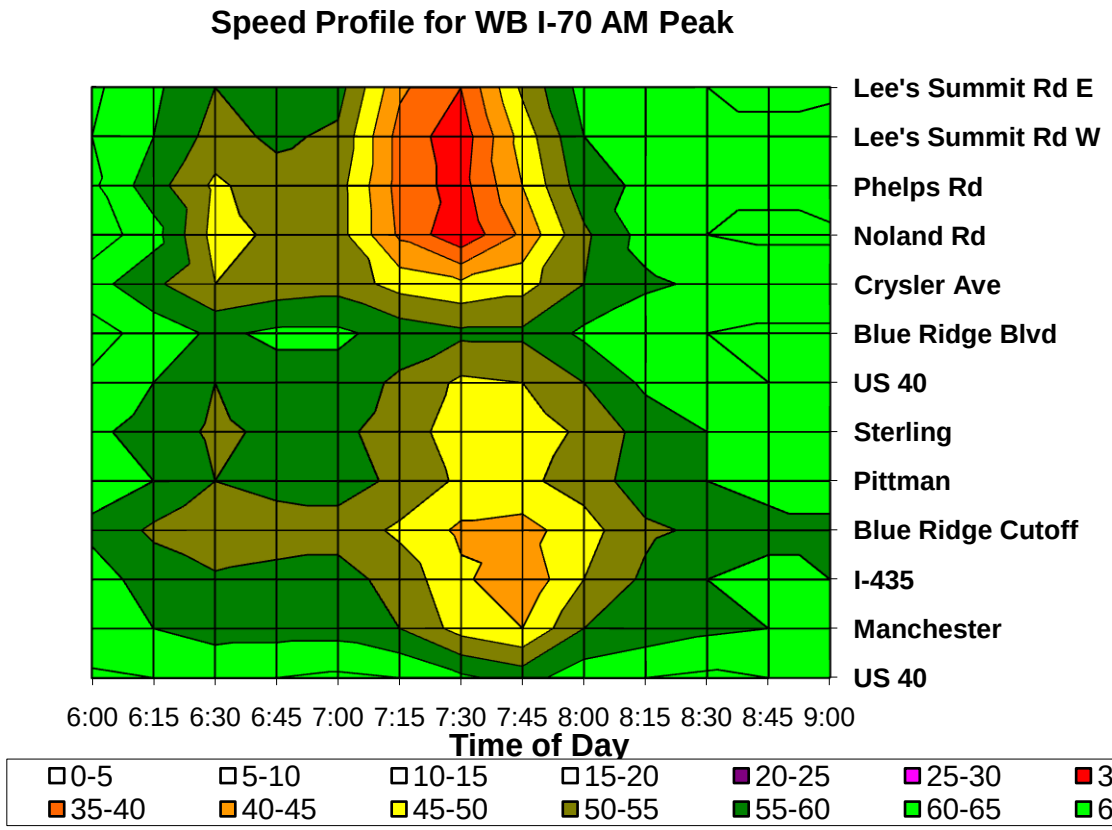


Figure 21 - 2005 PM Peak Modeled LOS

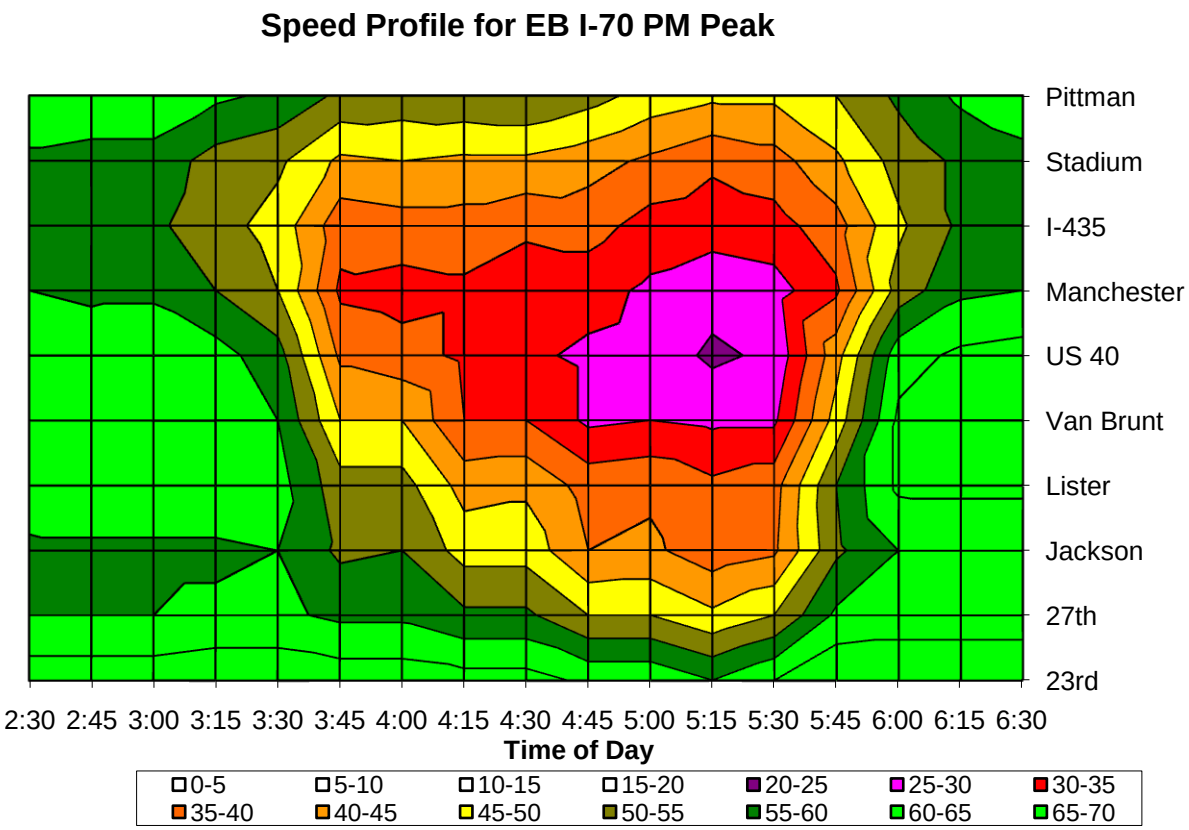
Observed Speeds on I-70 during the peak periods show significant slowing in both directions, particularly in the morning “peak of the peak” between 7:15 and 7:45 and afternoon “peak of the peak” between 4:45 and 5:30. This slowing shows some support for a reverse commute market.



Source: MoDOT I-70 EIS

Figure 22 - Speed Profile for West Bound I-70 AM Peak

Figure 22 illustrates two areas that show significant slowing on westbound I-70 during the AM peak (Source: MoDOT I-70 EIS). The first is at Noland Road in Blue Springs and the second is at the I-435 interchange.



Source: MoDOT I-70 EIS

Figure 23 - Speed Profile for East Bound I-70 PM Peak

Figure 23 illustrates that in the PM Peak, eastbound I-70 traffic slows significantly at the I-435 interchange, causing slowing as far back as the Jackson Ave curve. The period in which I-70 is congested is much longer in the afternoon than in the morning.

Existing conditions on the highways during peak periods are congested and will continue to be congested in the future. This affects not only auto users, but also existing bus services that operate on the highway.

TRANSIT SYSTEM PERFORMANCE

The following tables and figures display the performance measurements of the bus routes within the study area by line haul / MetroFlex services, commuter route services, and routes operated within Independence.

Table 13 describes performance of the KCATA line haul routes. The existing routes and service provides frequent stops and emphasizes route coverage over route directness. The result is that the line haul routes are slow and tend to be circuitous. Based on the published schedule, the 24 Independence route averages less than 11 miles per hour through the day. The 28 Blue Ridge and 47 Roanoke routes are faster – averaging 15 to 16 mph – but the 47 loops through the Plaza en route to downtown, which likely limits the attractiveness of the service to commuters into the downtown.

Table 13 - Line Haul / MetroFlex Performance Measurements (Source: Kansas City Area Transportation Authority)

	Route	Route Name		May 10 - May 11 Avg	Route	Route Name		May 10 - May 11 Avg
Line Haul / MetroFlex	24	Independence	ADR	3,245.68	183	Green Independence	ADR	196.51
			Daily Hours	118.97			Daily Hours	11.35
			Daily Miles	1,261.00			Daily Miles	155.00
			Miles/Hour	10.60			Miles/Hour	13.65
			Passengers/Hour	27.28			Passengers/Hour	17.31
			Passengers/Mile	2.57			Passengers/Mile	1.27
			Direct Op Cost / Passenger	$1.60			Direct Op Cost / Passenger	$2.29
			Direct Op Cost Recovery	44.7%			Direct Op Cost Recovery	27.7%
	28	Blue Ridge	ADR	2,115.58	285	Blue Independence	ADR	135.35
			Daily Hours	135.01			Daily Hours	13.03
			Daily Miles	2,243.85			Daily Miles	159.46
			Miles/Hour	16.62			Miles/Hour	12.24
			Passengers/Hour	15.67			Passengers/Hour	10.40
			Passengers/Mile	0.94			Passengers/Mile	0.85
			Direct Op Cost / Passenger	$3.46			Direct Op Cost / Passenger	$3.77
			Direct Op Cost Recovery	24.1%			Direct Op Cost Recovery	19.5%
	47	Roanoke	ADR	1,344.00	291	Yellow Independenc	ADR	87.58
			Daily Hours	67.73			Daily Hours	6.48
			Daily Miles	1,027.00			Daily Miles	82.85
			Miles/Hour	15.16			Miles/Hour	12.79
			Passengers/Hour	19.84			Passengers/Hour	13.53
			Passengers/Mile	1.31			Passengers/Mile	1.08
			Direct Op Cost / Passenger	$2.05			Direct Op Cost / Passenger	$2.94
			Direct Op Cost Recovery	36.4%			Direct Op Cost Recovery	28.3%
	252	Lee's Summit Circ	ADR	28.48	292	Orange Independenc	ADR	98.17
			Daily Hours	17.55			Daily Hours	11.24
			Daily Miles	201.38			Daily Miles	113.00
			Miles/Hour	11.47			Miles/Hour	10.05
			Passengers/Hour	1.62			Passengers/Hour	8.73
			Passengers/Mile	0.14			Passengers/Mile	0.87
			Direct Op Cost / Passenger	$17.44			Direct Op Cost / Passenger	$4.10
			Direct Op Cost Recovery	4.5%			Direct Op Cost Recovery	16.0%
	253	Raytown Circulator	ADR	83.23	293	Red Independence	ADR	108.20
			Daily Hours	26.09			Daily Hours	7.07
			Daily Miles	351.12			Daily Miles	139.77
			Miles/Hour	13.46			Miles/Hour	19.78
			Passengers/Hour	3.29			Passengers/Hour	15.30
			Passengers/Mile	0.24			Passengers/Mile	0.81
			Direct Op Cost / Passenger	$8.96			Direct Op Cost / Passenger	$2.98
			Direct Op Cost Recovery	9.0%			Direct Op Cost Recovery	25.2%

The line haul routes serving the study area attract far more riders than the commuter routes, with 24 Independence being the most productive with an Average Daily Ridership (ADR) of more than 3,000 daily trips. The 28 Blue Ridge attracts over 2,000 daily trips and the 47 Roanoke attracts 1,500. With very limited service, commuter routes attract far fewer riders - 170 Blue Springs attracts about 260 daily trips and 152 Lee's Summit around 215. Table 14 provides performance information on the commuter routes.

Table 14 - Commuter Routes Performance Characteristics

	Route	Route Name		May 10 - May 11 Avg
Commuter Routes	170	Blue Springs	ADR	258.49
			Daily Hours	16.56
			Daily Miles	365.00
			Miles/Hour	22.04
			Passengers/Hour	15.61
			Passengers/Mile	0.71
			Direct Op Cost / Passenger	3.40
			Direct Op Cost Recovery	0.50
	152	Lee's Summit	ADR	215.99
			Daily Hours	14.33
			Daily Miles	341.00
			Miles/Hour	23.80
			Passengers/Hour	15.08
			Passengers/Mile	0.63
			Direct Op Cost / Passenger	$3.62
			Direct Op Cost Recovery	46.7%

Source: Kansas City Area Transportation Authority

The commuter routes are more direct and faster, with scheduled speeds averaging 22 to 24 mph. Even with a faster pace, the trips are still very long. For example, a trip on the 170 Blue Springs route from White Oak Plaza to downtown is scheduled to take 80 minutes. A trip on the 152 Lee's Summit route from SR350/Chipman Road to Pershing and Grand downtown is scheduled to take an hour.

Routes 28, 28 express, and 170 express operate on I-70 for portions of their service. Route 152 express runs on MO-350, I-435 and I-70. Any additional congestion on these highways would affect the speed and reliability of transit service.

Table 15 compares AM peak travel times from the MARC base year (2005) travel demand model against the scheduled transit times for the existing commuter routes in the study area. This table shows only in-vehicle time and does not include access and egress times for the transit route, so the total transit travel time is likely to be longer than shown in the table.

Table 15 - Transit Time Competitiveness

To CBD **From**	**Auto** AM Peak Model Time (Minutes)	Distance (Miles)	Speed (MPH)	**Transit** AM Peak Schedule Time (Minutes)	**Comparison** Auto Time - Transit Time	**Notes**
Independence	20	11	33	26	-6	Route 24 Express from Independence Metro Center to 13th/Holmes
Raytown	18	12	41	35	-17	Route 152 Express from M-350 to 10th/Main
Lee's Summit	30	21	42	47	-17	Route 152 Express from Lee's Summit to 10th/Main
Blue Springs	35	25	44	58	-23	Route 170 Express from Blue Springs to 11th/Grand

Performance data shows that the line haul services in Independence have similar average speeds to the other KCATA line haul routes. As mentioned earlier in the report, KCATA is working on a CSA to identify service improvements. One of the preliminary findings of the CSA is that redundancy exists between the Independence routes. Implementation efforts associated with the CSA should improve performance on these routes.

OTHER ISSUES IMPORTANT TO THE SELECTION OF THE LPA

ENVIRONMENT

The Kansas City metropolitan area is currently designated as an attainment area for one-hour and eight-hour air quality standards but has in the past been designated as a maintenance area. In addition, the Environmental Protection Agency (EPA) strengthened the national air quality standards for ground-level ozone in 2008 and is expected to designate the Kansas City region as a nonattainment area after the agency issues more stringent eight-hour standards in 2011. Although not currently required to develop a maintenance plan, local government officials, business leaders, and community group representatives have committed themselves to a serious effort to reduce emissions voluntarily. As noted in the 2011 Clean Air Action Plan, implementing land use policies that foster sustainable growth and development and emphasizing development on a truly multi-modal system that reduces reliance on the automobile and transportation-related greenhouse gas emissions is critical for the region to meet its air quality goals. An improved transit system would support maintaining environmental standards.

Daily vehicle miles traveled (VMT) is one measure that can be used as an indicator of vehicle emissions – as VMT increases, there is generally increased congestion and decreased vehicle speeds, both of which can result in higher vehicle emissions. Regionally, daily VMT has increased more than 13 percent since 1995 and daily VMT per capita has increased 32 percent since 1989. However, recent trends indicate a decline in daily VMT, likely attributable to rising gas prices that resulted in less travel in 2008. (Source: Transportation Outlook 2040, Performance Measures, Progress Report Summary, June 2011)

SERVICE TO TRANSIT DEPENDENT POPULATIONS

The study area is largely characterized by low-density, auto-centric, and sprawling development. Serving this sprawling region with transit is challenging. In a recent Brookings Institute report titled "Missed Opportunity: Transit and Jobs in Metropolitan America," ranked metropolitan areas based on the availability of transit to take people to jobs. The Kansas City region was rated 90 out of 100 metro areas for metropolitan area wide transit coverage and access to jobs by public transit. While the report found that the urban core was well served by transit, service outside of Kansas City, Mo was seen to be limited, especially for those who live in the urban core and work or seek to work elsewhere in Jackson County. Between 2000 and 2010 alone, the population living within ¼ mile of fixed-route transit decreased by just over 5 percent. (Source: Transportation Outlook 2040, Performance Measures, Progress Report Summary, June 2011). The number of elderly persons is projected to increase and recent census data indicates that the number of person classified as low income has also increased between the years 2000 and 2010. An improved transit system would serve this increasing population segment.

COST OF DRIVING

While the Kansas City metropolitan area is generally an affordable place to live, with housing costs 10.8 percent lower than the national average, savings in housing are off-set by the higher cost of personal transportation in the region. Transportation costs, which nationally are around 10 percent of cost of living, are higher than the national average in the Kansas City metropolitan area (Source: Mid-America Regional Council, KCEconomy.com, 2011). Figure 24 shows the breakdown of the Cost of Living index for the Kansas City Metropolitan Area. One explanation for the high cost of transportation is the distance between a person's home and their place of business. For most residents of the Kansas City metropolitan area, driving a personal vehicle is the only available option for regional mobility, if they can afford it. Given the high concentration of persons living below poverty and not owning cars, transportation costs are likely a high burden for residents of the study corridors. An improved transit system would provide an option for persons to reduce transportation costs.

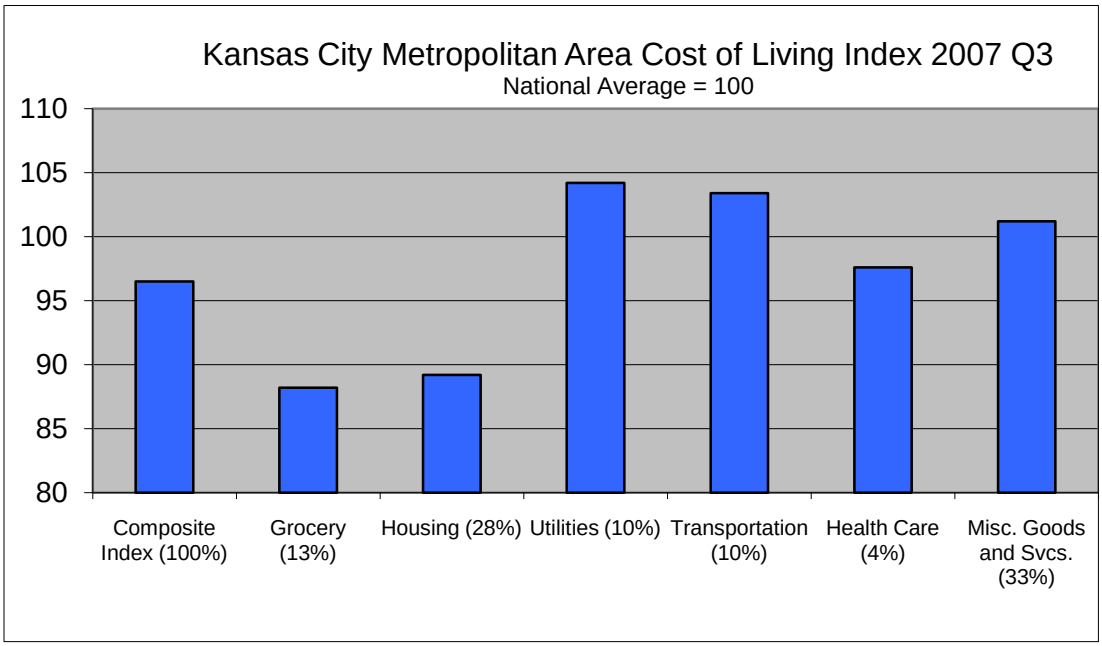


Figure 24 – KC Metro Area Cost of Living

Source: KCEconomy.com, Mid-America Regional Council

PURPOSE AND NEED

This chapter presents the purpose and need for a transit investment in the JCCCAA study area. The purpose and need summarizes mobility and other related challenges and needs that could be addressed by substantially enhanced transit service. A sound purpose and need and supporting goals and objectives derived from the local planning objectives and the existing and future trends and conditions documented in this report guides the development and evaluation of alternatives.

PURPOSE OF THE PROJECT

The purpose of a proposed transit investment within the JCCCAA study area is to improve transit system performance and usage, thereby addressing the identified transportation needs in the two study corridors. The project should provide a viable alternative to operating transit vehicles on congested roadways, improve system reliability, reduce transit trip duration, and increase speed resulting in increased desirability and competitiveness of transit for commuting and other trip purposes and added mobility options for the region. This project should also catalyze redevelopment in and near transit centric activity centers (current and future) and increase the regional transit mode share fulfilling the goals and objectives of MARC and its partners as they seek to implement the Adaptive Land Use and Growth Scenarios articulated in *Transportation Outlook 2040*.

NEED FOR THE PROJECT

Project stakeholders have identified three categories of need for a major transit investment in the JCCC AA study area: Transportation, Land Use and Economic Development, and Sustainability. Each category and related needs is described in greater detailed below.

TRANSPORTATION

The Kansas City metropolitan area is expected to add 738,560 people and 384,568 jobs by 2035. This new growth is expected to generate increased demand on the existing transportation system and the transportation needs focus on accommodating this new growth and meeting the current and future mobility needs within the corridor.

Need to increase competitiveness of transit service relative to the automobile. The travel experience provided by transit does not compete with automobile travel. Travel times of the current transit system do not present an attractive alternative to the automobile. As is characteristic of conventional bus service, KCATA's current line-haul routes have frequent, closely spaced stops that contribute to longer end-to-end travel times and limit the maximum operating speeds of buses. Further, circuitous routing through commercial and residential centers in some cases also increase travel times and makes traveling by bus less efficient than automobile for many trip-making purposes. Existing commuter services in the study area from Independence, Raytown, Lee's Summit, and Blue Springs to the CBD, on average, are 15 minutes longer than comparable trips on auto.

In addition, travel by transit within these travel corridors are limited by infrequent service, difficult access to the service, limited route coverage and limited distribution to destinations. Service span and frequency to many of the existing suburban communities is limited to a few transit trips during the peak periods.

As shown in Table 9 - Year 2005 Transit Trip CharacteristicsTable 9, a high percentage of existing transit riders are from transit-dependent groups – 67 percent of riders in 2005 were from low-income groups and 47 percent were from zero-car households. Medium and higher income groups comprise a much lower share of existing transit riders, indicating that when given

a choice, riders tend to choose auto over transit. Accommodating increased demand on the transportation system through 2035 will require developing transit alternatives that can attract riders who could otherwise drive.

Need to improve reliability of the current transit system as roadway congestion increases. Existing KCATA service operates in mixed-traffic and service reliability is thus subject to prevailing roadway conditions. As indicated by previous studies summarized in the Study Context chapter as well as the data presented in the existing and future conditions chapter of this report, congestion is expected to worsen on the key roadways within the highway network. For example, I-70 and I-435 are currently experience LOS D and worse in both the AM and PM peak periods in both directions through 2035 and conditions are expected to further decline through 2035. This will directly impact the reliability of existing commuter routes 28x, 170, and 152. Currently, KCATA is able to improve on-time performance by scheduling extra time in the schedules for delays. However, this presents another challenge for service reliability – buses running ahead of schedule in uncongested conditions due to the padded timetables. Still, given the anticipated demand on the roadway network, adding time to bus schedules will become more difficult over the next 25 to 30 years. The reliability and competitiveness of bus-based transit travel in the region is likely to decline.

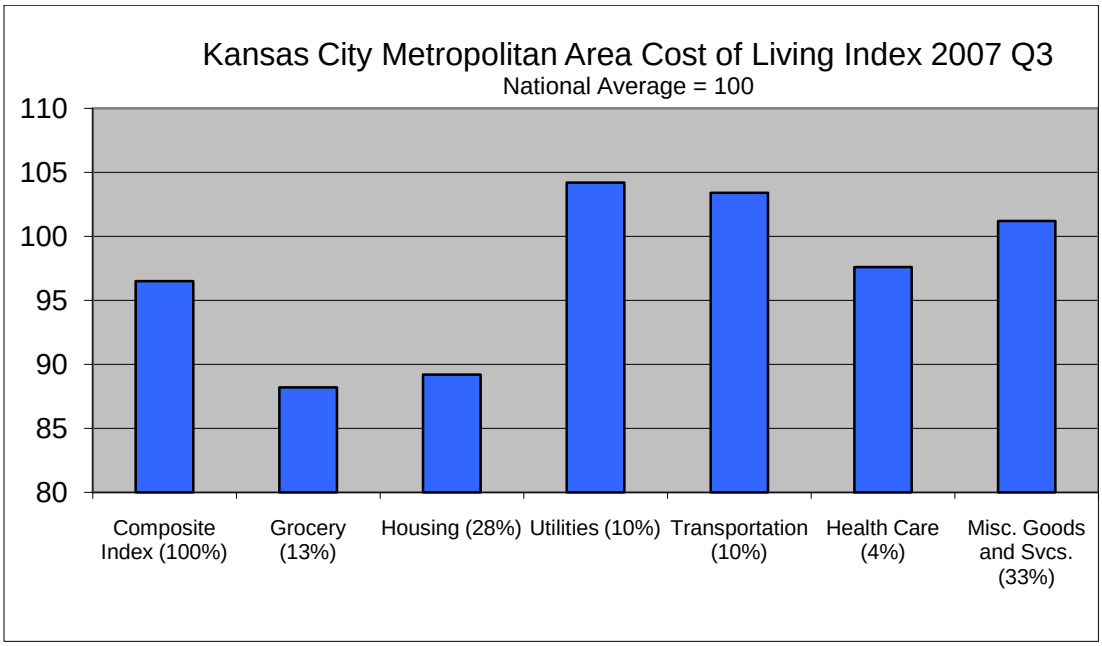
With congested roadways, it may be more cost-effective to increase person through-put by increasing transit capacity rather than road capacity.

With increases in employment projected for areas outside the Kansas City CBD and core area, there is an increasing need to enhance mobility for the largely underserved reverse commute market as well as the high concentration of transit-dependent populations. The reverse commute market is largely underserved by existing fixed-route transit service. Continued proliferation of employment and educational opportunities in suburban locations will make it increasingly important for the study corridors to offer reverse commuting options for a variety of trip types. This becomes particularly important for transit-dependent populations, which are primarily concentrated in the western portion of the study area. Accessing employment opportunities in the eastern half of the study area is challenging as the existing service is better aligned to serve the traditional commuter pattern. Expanding the capability to make these trips will help the region achieve more balance and make trip making easier for low income residents, job seekers, students and others.

The study area is largely characterized by low-density, auto-centric, and sprawling development. Serving this sprawling region with transit is challenging. In a recent Brookings Institute report titled “Missed Opportunity: Transit and Jobs in Metropolitan America,” ranked metropolitan areas based on the availability of transit to take people to jobs. The Kansas City region was rated 90 out of 100 metro areas for metropolitan area wide transit coverage and access to jobs by public transit. While the report found that the urban core was well served by transit, service outside of Kansas City, Mo was seen to be limited, especially for those who live in the urban core and work or seek to work elsewhere in Jackson County. Between 2000 and 2010 alone, the population living within ¼ mile of fixed-route transit decreased by just over 5 percent. (Source: Transportation Outlook 2040, Performance Measures, Progress Report Summary, June 2011)

In addition, while the Kansas City metropolitan area is generally an affordable place to live with housing costs 10.8 percent lower than the national average, savings in housing are off-set by the higher cost of personal transportation in the region. Transportation costs, which generally are around 10 percent of cost of living, are higher than the national average in the Kansas City metropolitan area (Source: Mid-America Regional Council, KCEconomy.com, 2011). Figure 25

shows the breakdown of the Cost of Living index for the Kansas City Metropolitan Area. One explanation for the high cost of transportation is the distance between a person's home and their place of business. For most residents of the Kansas City metropolitan area, driving a personal vehicle is the only available option for regional mobility, if they can afford it. Given the high concentration of persons living below poverty and not owning cars, transportation costs are likely a high burden for residents of the study corridors.



Source: KCEconomy.com, Mid-America Regional Council

Figure 25 - KC Metro Area Cost of Living

LAND USE & ECONOMIC DEVELOPMENT

The Kansas City Metropolitan Area is not as densely populated as some of its eastern and western counterparts. This is largely because the city does not have natural boundaries or policies that can restrain outward growth or mitigate decentralization and urban sprawl. Similar to other American cities, the decline of streetcars, rise of the automobile, and advent of the Interstate Highway System resulted in decentralization and a sprawling, automobile-oriented landscape. Currently, the Kansas City Metropolitan Area has one of the highest ratios of freeway lane miles per capita in the United States. (Source: Texas Transportation Institute, http://www.aaroads.com/forum/index.php?topic=349.0)) The corollary to the suburban growth and decentralization of urban areas is the high consumption of land in the Kansas City region relative to the population growth. In the 1980s and 1990s the region converted nearly 200 square miles of open lands to new suburban uses, more than double its rate of population growth.

Regional planning efforts recognize that continuing this growth pattern is unsustainable due to the financial strain of providing new infrastructure to an ever expanding urban area as well as the ensuing degradation of the natural environment. For example, MARC forecasts indicate that if current growth patterns continue, 275 square miles of additional "greenfields" will be developed raising infrastructure development and maintenance costs to $8.8 billion. Curbing this trend by focusing growth along existing centers and corridors will reduce new land consumption by 43 percent and save the region an estimated $2.1 billion in infrastructure costs.

(Source: Transportation Outlook 2040, Adopted Forecasts, Mid-America Regional Council). Conventional bus service will not influence land use and development patterns to the extent needed to help reverse the dominant growth trends in the study area. The region is currently developing policies and plans that set a framework for more sustainable growth, but an investment in a transit option that has demonstrated ability to influence compact growth patterns and stimulate economic development is critical for the region to realize these objectives. Land use and economic development needs center on supporting these regional planning efforts.

Need to support local planning initiatives and land use strategies that aim to strengthen communities, foster economic development, and fulfill long range growth goals. The East and Southeast corridors under study in this AA are the focus of several transportation and land use planning efforts. Transportation plans seek to develop an integrated transit system that maximizes use of available resources and provides sustainable alternatives to increasingly congested roadways. Future land use plans in the region generally allow for greater densities to take place in specific areas that are targeted for mixed use redevelopment. Some plans, such as those for the downtowns in Kansas City (MO), Blue Springs and Raytown, specifically identify how future transit enhancements would support redevelopment.

Existing plans and ongoing planning efforts need improved public transportation services as a means to achieving the long range growth and development patterns.

Need for improved connectivity to existing and emerging activity centers as well as redevelopment sites. Regional planning initiatives aimed at development or redevelopment of activity centers and corridors and using transit oriented development strategies benefit from enhanced transit to catalyze future economic growth and maximize public investment. The MARC 2040 plan specifically outlines improving access to jobs, education centers, shopping and entertainment and improving connectivity between activity centers and existing transportation resources as objectives for improving accessibility and economic vitality. The current system does not provide connections to all centers, nor does it connect enough the origins and destinations in the study corridors. Activity centers that are in close proximity to the CBD are located near existing bus routes, but the local conventional bus services will likely not be enough to catalyze redevelopment of these centers. Improved transit service can guide development and provide connectivity to activity centers located in these two study corridors

In addition, the nature of the travel demand for the study corridors and the locations of key activity centers are changing. As shown by travel demand patterns presented in this report, key employment and other type of activity centers are no longer concentrated solely in downtown Kansas City but extend eastward into such areas as Independence and Raytown. An analysis of travel demand recently commissioned by MARC found that by 2030 population growth is expected to continue in TAZ's further from the central core of the city. (Source: Travel Market Analysis, Initial Demographic Review, MARC) In addition, MARC and its sponsor communities have identified activity centers in both corridors where redevelopment should be focused in order to be consistent with the MARC 2040 Regional Forecast. These target areas expand into burgeoning communities such as Lee's Summit and Pleasant Hill.

Outside of downtown, the current transit system offers limited, although fairly heavily used peak period express bus options. These peak services, however, tend to focus on the traditional commute patterns that bring people from suburban areas into downtown Kansas City with limited service to intermediate destinations. Improved connectivity between activity centers and redevelopment sites is critical for realizing long-term economic development goals.

SUSTAINABILITY / LIVABILITY

The Kansas City metropolitan region is committed to creating quality places for people to live, work, and play. As discussed under the land use and economic category of needs, current land use growth trends are unsustainable due not only to the financial strain of maintaining new infrastructure as well as the ensuing degradation of the natural environment. Air quality is an important consideration for the Kansas City metropolitan area and the two AA study corridors. The sprawling landscape is difficult to serve with conventional bus service and requires greater use of the automobile, which in turn results in increased vehicle pollutants. In addition to fostering more sustainable development patterns as discussed under the land use and economic development category of needs, a consideration for sustainability and livability is improving regional air quality.

Need to improve the region's air quality and foster environmentally sensitive travel alternatives. The Kansas City metropolitan area is currently designated as an attainment area for one-hour and eight-hour air quality standards but has in the past been designated as a maintenance area. In addition, the Environmental Protection Agency (EPA) strengthened the national air quality standards for ground-level ozone in 2008 and is expected to designate the Kansas City region as a nonattainment area after the agency issues more stringent eight-hour standards in 2011. Although not currently required to develop a maintenance plan, local government officials, business leaders, and community group representatives have committed themselves to a serious effort to reduce emissions voluntarily. As noted in the 2011 Clean Air Action Plan, implementing land use policies that foster sustainable growth and development and emphasizing development on a truly multi-modal system that reduces reliance on the automobile and transportation-related greenhouse gas emissions is critical for the region to meet its air quality goals.

Daily vehicle miles traveled (VMT) is one measure that can be used as an indicator of vehicle emissions – as VMT increases, there is generally increased congestion and decreased vehicle speeds, both of which can result in higher vehicle emissions. Regionally, daily VMT has increased more than 13 percent since 1995 and daily VMT per capita has increased 32 percent since 1989. However, recent trends indicate a decline in daily VMT, likely attributable to rising gas prices that resulted in less travel in 2008. (Source: Transportation Outlook 2040, Performance Measures, Progress Report Summary, June 2011) Still, declining air quality will continue to be an issue if viable transit alternatives are not developed and the study area levels of congestion and decreased speeds shown in the Existing and Future Conditions chapter continue to worsen. The promotion and enhancement of regional transit is needed as a method for improving the region's air quality and fostering environmentally sensitive travel alternatives.

GOALS AND OBJECTIVES

Project goals and objectives describe the desired outcomes of the transit investment that may result from the JCCC AA and also provide a basis for defining evaluation measures to be used to narrow the transit alternatives under consideration. The project goals and objectives are based on the purpose and need and consider regional priorities documented in local planning documents.

Table 16 – Jackson County Commuter Corridors Alternatives Analysis Goals and Objectives

Goals	Objectives
Develop a transit alternative that is competitive with the automobile.	Improve transit travel times and speeds within study area.
	Provide transit capacity needed to meet future travel demand. Provide service levels and amenities that can provide a travel experience that is competitive with the automobile.
Improve transit service reliability within the study area.	Improve on-time performance.
Develop a transit alternative that enhances mobility for the reverse commute market and transit-dependent populations.	Increase transit accessibility.
Develop a transit system that supports local planning initiatives and land use strategies.	Provide a level and quality of transit service that can influence more compact growth patterns.
	Develop transit alternatives that maximize use of existing resources.
Develop a transit system that improves connectivity to and between existing and emerging activity centers and redevelopment sites.	Provide convenient and accessible transit service to existing and planned activity centers in the travel corridors.
Develop a transit system that further supports regional sustainability goals.	Reduce air pollutant emissions, fuel consumption, VMT / Vehicle Hours Traveled (VHT), and travel delay.

APPENDIX A – STUDY AREA LRTP FISCALLY CONSTRAINED PROJECTS

Table 17 – Mid-America Regional Council Long Range Transportation Plan Fiscally Constrained Highway Projects

Project Name	County	Organization	Fiscally Constrained Cost	Length (miles)	Fiscally Constrained Decade
Business 7 Hwy - in Pleasant Hill from 7 Hwy to 58 Hwy	Cass	City of Pleasant Hill	2,000,000	3.5	2010
39th St Bridge Over the Little Blue River - eastern Independence	Jackson	City of Independence	3,000,000	0.2	2010
135th St - MO 150 to Holmes Rd	Jackson	City of Kansas City, MO	5,738,220	1	2010
22nd/23rd St - Brooklyn to I-70	Jackson	City of Kansas City, MO	10,738,220	1.6	2010
Lees Summit Road - 85th St to Gregory	Jackson	City of Kansas City, MO	13,216,650	1.2	2010
Red Bridge Rd - Blue River to US 71	Jackson	City of Kansas City, MO	23,004,000	2.2	2010
Southwest Trafficway - Westport Rd to 43rd St	Jackson	City of Kansas City, MO	3,556,000	0.7	2010
Blackwell Interchange at US 50 Highway	Jackson	City of Lees Summit	23,700,000	1.1	2010
Lees Summit Rd - Colbern to West City Limits	Jackson	City of Lees Summit	8,660,000	1.1	2010
350 Hwy & Blue Ridge Blvd Intersection Improvements	Jackson	City of Raytown	20,000,000	1.2	2010
US 50 at MO 291 South - Interchange Improvements	Jackson	MoDOT	13,577,000	1.8	2010
I-470 - US 50/MO 350 to US 40 (Corridor Improvements)	Jackson	MoDOT	66,491,000	23.8	2010
39th St - West City Limits to Crysler	Jackson	City of Independence	4,000,000	1	2020
MO 7 Hwy - Pink Hill Rd to U.S. 24 Hwy	Jackson	City of Independence	30,000,000	6.9	2020
MO 78 Hwy - Speck to Truman Rd	Jackson	City of Independence	12,500,000	2.4	2020
Winner Rd - US 24 Hwy to Sterling Ave	Jackson	City of Independence	7,200,000	2.1	2020
85th St - Troost to Prospect	Jackson	City of Kansas City, MO	10,576,160	1	2020
Blue Parkway - Elmwood to Eastwood	Jackson	City of Kansas City, MO	14,462,700	1.8	2020
Holmes - Martha Truman to 115th St	Jackson	City of Kansas City, MO	11,991,900	0.8	2020
Lees Summit Road - Phelps Rd to US 40	Jackson	City of Kansas City, MO	12,833,250	1.1	2020
Lees Summit Road - Lakewood Blvd to Phelps Rd	Jackson	City of Kansas City, MO	11,498,095	1.5	2020
Lees Summit Rd - Gregory to Lakewood Blvd	Jackson	City of Kansas City, MO	16,614,000	1.5	2020
Lewis & Clark Expressway - new 2 lane facility	Jackson	City of Kansas City, MO	63,800,000	3.4	2020
Little Blue Road - Woodson to Noland Rd	Jackson	City of Kansas City, MO	14,995,200	1.8	2020
Red Bridge Rd - State Line to Holmes St	Jackson	City of Kansas City, MO	17,556,000	1.6	2020
Todd George at US 50 Hwy - Interchange	Jackson	City of Lees Summit	18,000,000	2.9	2020
Pryor Rd - Longview Rd to M-150	Jackson	City of Lees Summit	14,250,000	3.5	2020
MO 7 Hwy - Hwy 50 to 163rd St	Jackson	City of Pleasant Hill	20,000,000	3.1	2020
US 50 - Chipman Rd to MO 291 North (Corridor Improvements)	Jackson	MoDOT	176,249,000	10	2020
I-70 at I-470 - Interchange Improvements	Jackson	MoDOT	167,515,000	5.7	2020
Bannister Rd - Raytown Rd to Route 350	Jackson	City of Kansas City, MO	23,962,500	3.2	2030
Front St - I-35 To Chouteau	Jackson	City of Kansas City, MO	47,925,000	2.9	2030
Front St - Chouteau To I-435	Jackson	City of Kansas City, MO	30,615,200	1.3	2030
Holmes - Blue Ridge To Martha Truman	Jackson	City of Kansas City, MO	13,781,100	1.2	2030
Holmes - 135th St to Blue Ridge	Jackson	City of Kansas City, MO	5,644,500	0.5	2030
Manchester - Blue Pkwy to Coal Mine Rd	Jackson	City of Kansas City, MO	16,502,000	2.3	2030
Raytown Rd - I-435 to Blue Ridge Cut-Off	Jackson	City of Kansas City, MO	14,949,050	1.6	2030
107th St - Hillcrest Rd to Raytown Rd	Jackson	City of Kansas City, MO	12,335,000	2.7	2030
Bannister Rd - James A. Reed to Raytown Rd	Jackson	City of Kansas City, MO	21,132,000	1.5	2030
Blue Ridge Blvd - St Andrews Dr to Grandview City Limits	Jackson	City of Kansas City, MO	21,132,000	2.5	2030
Gregory Blvd - Noland Rd to Lees Summit Rd	Jackson	City of Kansas City, MO	21,554,300	2.1	2030
Hardesty Rd - 63rd St to Blue Pkwy	Jackson	City of Kansas City, MO	7,568,000	1.4	2030
Raytown Rd - 87th St to I-470	Jackson	City of Kansas City, MO	11,233,650	2.2	2030
Wornall Rd - Red Bridge to 135th St	Jackson	City of Kansas City, MO	33,655,050	3	2030
I-435 - Manchester Interchange at 103rd St to West of US 71 (Corridor Improvements)	Jackson	MoDOT	33,207,000	4	2030
I-35 Interchange at US 169 (Northwest Downtown Loop) - Reconstruction	Jackson	MoDOT	80,036,000	0.3	2030
I-70 - Blue Ridge Cutoff to east of Lee's Summit Rd (Corridor Improvements)	Jackson	MoDOT	100,000,000	12.7	2030

Table 18 - Mid-America Regional Council Long Range Transportation Plan Fiscally Constrained Management and Operations Projects

Project Name	County	Organization	Fiscally Constrained Cost	Length (miles)	Fiscally Constrained Decade
Traffic Management System 2010 (KCMO)	Jackson	City of Kansas City, MO	$25,000,000	0.1	2010
Traffic Management System 2020 (KCMO)	Jackson	City of Kansas City, MO	$20,000,000	46.9	2020
Traffic Management System 2030 (KCMO)	Jackson	City of Kansas City, MO	$96,000,000	67.1	2030
Performance Based Interurban Transportation Safety Program 2010	Jackson	City of Kansas City, MO	$25,000,000	0.1	2010
Performance Based Interurban Transportation Safety Program 2020	Jackson	City of Kansas City, MO	$96,000,000	7	2020
Performance Based Interurban Transportation Safety Program 2030	Jackson	City of Kansas City, MO	$10,000,000	0.1	2030
MARC RideShare program	Jackson	MARC	$45,580,000	0.1	2010
MoDOT Corridors - Improve Pedestrian Mobility	Jackson	MoDOT	no cost provided	0.1	2010
MoDOT - Various intersection improvements to improve traffic flow	Jackson	MoDOT	$25,000,000	0.1	2010
MoDOT - KC Scout ITS Operations	Jackson	MoDOT	$96,000,000	0.1	2010
Motorist Assist Operations (Missouri)	Jackson	MoDOT	$18,440,000	0.1	2010
MoDOT - Various corridor improvements through Signal Synchronization/Coordination	Jackson	MoDOT	$6,000,000	0.1	2010

Table 19 - Mid-America Regional Council Long Range Transportation Plan Fiscally Constrained Transit Projects

Project Name	County	Organization	Fiscally Constrained Cost	Length (miles)	Fiscally Constrained Decade
BRT I-35 Bus on Shoulder Project	Johnson	Johnson County Transit	$49,000,000	42.5	2010
BRT - N Oak Bus Rapid Transit Improvements	Clay	KCATA	$40,000,000	16.1	2010
Kansas City Streetcar	Jackson	KCATA	$150,000,000	5.8	2010
BRT - Prospect BRT along the Prospect Corridor from the downtown CBD to the vicinity of 95th Street	Jackson	KCATA	$45,000,000	18.9	2010
BRT - Eastside Bus Rapid Transit	Jackson	KCATA	$40,000,000	20	2010
BRT - State Avenue Corridor Bus Rapid Transit	Wyandotte	KCATA	$35,000,000	4.7	2010
Rock Island Extension/MOPAC Trail Pleasant Hill Project	Cass	City of Pleasant Hill	$2,000,000	4.7	2010
Rock Island Corridor (Commuter Rail and Trail) Pleasant Hill Project	Cass	City of Pleasant Hill	$4,000,000	2.8	2010
Rock Island Corridor - Greenwood Project	Jackson	City of Greenwood	$3,000,000	29.1	2010
Rock Island Corridor (Katy Trail) - KCMO Project from Pleasant Hill to KCMO stadiums, to the Levees	Jackson	City of Kansas City, MO	$16,700,000	3	2010
Rock Island Corridor (Railroad Trail and Transit Line) - Raytown Project	Jackson	City of Raytown	$21,005,000	10	2020