Kansas City Area Transportation Authority

North/South Corridor Alternatives Analysis Final Report

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kcATA
Kansas City Area Transportation Authority

HNTB

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KANSAS CITY NORTH/SOUTH CORRIDOR ALTERNATIVES ANALYSIS

December, 2009

This report documents the findings and conclusions of the North/South Corridor Alternatives Analysis conducted by the Kansas City Area Transportation Authority from June 2007 through November 2009. The Alternatives Analysis was funded in part by the Federal Transportation Administration.

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Chapter One: Background and Context

What is the North/South Corridor Alternatives Analysis?

The Kansas City Area Transportation Authority (KCATA) has been evaluating how best to improve transit services in the main north – south corridor from the Northland through the downtown area to the southern part of Kansas City near the Country Club Plaza and beyond. This corridor includes many of Kansas City's important institutions and has over 230,000 jobs, according to Mid America Regional Council (MARC) statistics. The corridor also includes KCATA's highest ridership bus routes, including the MAX bus rapid transit (BRT) route established in 2005. KCATA is committed to supporting the economic activity in the corridor and working with the cities of Kansas City and North Kansas City to promote new economic development.

In November of 2006 the voters of Kansas City, MO expressed interest in a light rail transit (LRT) system by passing a referendum to fund and construct a 27-mile alignment from KCI Airport to the Kansas City Zoo in Swope Park.

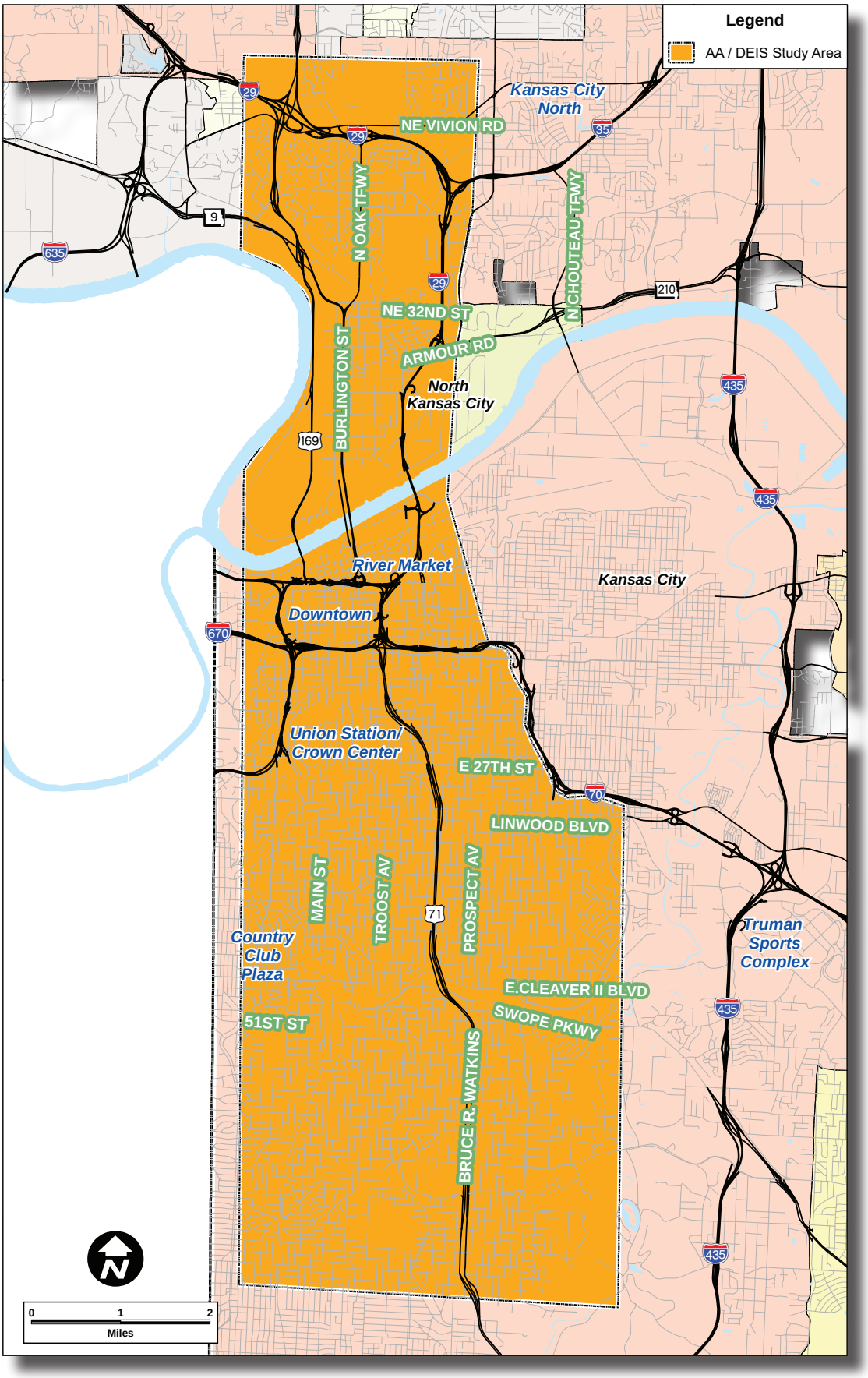
Project planning for major transit investments focuses on a specific transportation need in a given corridor or sub-area, identifies alternative actions to address these needs, and generates the information needed to select a preferred project for implementation. These activities are often collectively referred to as "alternatives analysis" and typically address such issues as costs, benefits, environmental and community impacts, and financial feasibility. Consequently, an alternatives analysis spans a wide range of technical disciplines, ranging from engineering to ridership forecasting to the natural and social sciences. Project planning continues beyond the selection of a preferred capital investment strategy (or "New Starts" for fixed guideway transit projects funded, in part, through the discretionary FTA Section 5309 grant program) and into further refinement and analysis, including completion of federal environmental review requirements. The New Starts program is FTA's major capital investment program for fixed guideway transit projects. Projects eligible for New Starts (49 USC §5309) funding include any fixed guideway system which utilizes and occupies a separate right-of-way, or rail line, for the exclusive use of mass transportation and other high occupancy vehicles, or uses a fixed cantenary system and a right-of-way usable by other forms of transportation. This includes, but is not limited to, rapid rail, light rail, commuter rail, and exclusive facilities for buses (such as bus rapid transit) and other high occupancy vehicles. A pre-requisite to receiving any New Starts funding is completion of an Alternatives Analysis.

Phase I of the North/South Corridor Alternatives Analysis, completed in 2007, concluded that the voter approved 27-mile LRT route was not financially feasible and had other flaws that made implementation extremely challenging. Moreover, the primary financing mechanism for the LRT concept, a 3/8-cent sales tax levied in Kansas City, is used by the KCATA bus system.

Background and Context

For several years, KCATA and others in the community have been studying the possibility of light rail transit and other transit improvements in Kansas City's primary commercial corridor. The North/South Corridor runs from Vivion Road in the Northland to Meyer Boulevard in the south and encompasses many of the region's most important traffic generators. The Alternatives Analysis is intended to provide decision-makers with the information they require to assess a major investment in transit. Chapter One provides background on the project as well as a summary of the current status of the project.

Figure 1-1 : North/South Corridor



Diverting the tax receipts to LRT would have resulted in a 40% reduction in KCATA revenue. Phase II of the Alternatives Analysis began in December 2007 and was intended to complete FTA's requirements for an Alternatives Analysis.

The Alternatives Analysis considered an expanded and improved BRT system, referred to as the MAX Alternative. The MAX Alternative was developed to compare costs and benefits with the LRT Alternative to provide decision-makers valuable information upon which to base investment decisions.

Where is the Project Located?

The Kansas City North/South study area, shown in Figure 1-1, is an approximately 14-mile corridor extending from the vicinity of the Interstate 29 interchange with North Oak Trafficway in the northern portion of Kansas City, Missouri south through the City of North Kansas City, across the Missouri River into downtown Kansas City, Missouri and continuing south to 75th Street in the Waldo neighborhood. South of the Missouri River, the corridor generally extends west to east from the vicinity of Ward Parkway to the Blue River industrial area. North of the Missouri River, the Corridor is narrower, extending from US 169 to I-35.

Major retail, commercial, office, and entertainment areas located within the corridor include the downtown Central Business District (CBD) and Power and Light retail and entertainment district, Crown Center, Union Station, and the Country Club Plaza. Several other redeveloping higher-density commercial and residential districts are also found in the Corridor, including the Crossroads and Midtown areas. These commercially-focused districts combine to make up the Central Business Corridor (CBC), which encompasses the linear commercial development area from the downtown CBD south to the Country Club Plaza. The North/South Corridor also contains several primarily residential areas located to the east and south of the CBC that provide an employment base for many businesses in the Corridor.

Who is Leading the Alternatives Analysis?

KCATA is the Project Sponsor, and is the lead agency. The KCATA Board of Commissioners is the primary decision-making entity for the Alternatives Analysis. The City of Kansas City is a partner in the Alternatives Analysis, with an interest in improving transit in the Corridor. The City's decision-making input is through the City Council's Transportation and Infrastructure Committee. A new funding source would likely require the approval of City Council; coordination with Kansas City is a critical ingredient for a successful project.

In the same manner, the city of North Kansas City is a partner because the Corridor runs through North Kansas City. The Missouri Department of Transportation (MoDOT) has also been actively involved in the project. MoDOT has responsibly for some of the roadways in the Corridor, and MoDOT is responsible for the Heart of America Bridge, a major river bridge in the Corridor considered for transit use.

Another important partner is the Kansas City Parks and Recreation Department and Board. By city charter, the Parks and Recreation Board has

jurisdiction over boulevards that the alignment might use or cross. The Board also has responsibility for parklands in the city. Several city parks are within the Corridor.

During the course of the project, KCATA and Kansas City coordinated the details of the project through a Study Management Team (SMT) which included representatives from all the partner agencies. The Mayor of Kansas City and the KCATA Board jointly appointed a Citizen's Task Force (CTF) to help guide the project and provide input.

What Policies are Currently in Place in the Region?

Two policy documents were considered as part of the evaluation of the preliminary alternatives:

- Mid-America Regional Council's (MARC) Transportation Outlook 2030 Update,
- City of Kansas City's FOCUS Kansas City Plan,

each of which is discussed on the following pages.

Transportation Outlook 2030 Update

Transportation Outlook 2030 Update[1], the region's long-range transportation plan, was developed in 2002 by MARC to identify ways that the region's transportation resources could assist in meeting the regional growth and development goal. Through an extensive public participation process, four transportation goals to support this regional goal were identified:

- *"Goal: Support a healthy, strong, regional economy"*

  Transit strengthens the regional economy by providing potential employees without cars access to job opportunities and employers access to workers; attracting major corporations looking for a region with a comprehensive transportation system; reducing urban infrastructure costs through more efficient, transit-oriented land development patterns; turning commute time to productive work time; helping the region meet federal air quality standards and avoiding costly sanctions; supporting tourist activities; and providing relief to personal budgets strained by high automobile costs.

- *"Goal: Maximize access to opportunity for all area residents"*

  Transit provides mobility options for persons who choose transit in lieu of driving; a rapidly growing elderly population; persons who are not yet old enough to drive; persons who choose an urban environment living experience; persons who rely on transit because of low income or disability; and new immigrants from cultures where transit is the primary mode of transportation."

- *"Goal: Support a quality built and natural environment"*

  Transit is integral to improving the quality of the built environment and can support the successful implementation of mixed-use development, options for mid- or high-density and transit- and pedestrian-

Transportation Outlook 2040

Since the Alternatives Analysis began in 2007, MARC started an update of the region's long range transportation plan. Outlook 2040 incorporates information from projects like the Alternatives Analysis and will be finished in 2010.

1 *(http://www.marc.org/outlook2030/update_full_document.pdf)*

friendly design. Such development increases the cost effectiveness of transit trips and contributes to a quality environment by making transit patrons more aware of the surrounding environment during pedestrian trips to and from transit stops while encouraging their participation in its improvement. Transit plays a role in the quality of the natural environment by improving air quality, by reducing congestion in selected corridors, conserving energy and providing a viable alternative travel mode in case of fuel shortages, rising fuel prices or other emergencies.

- *"Goal: Promote the safety and well-being of the traveling public"*

  Transit provides a safer travel option. The National Safety Council reports that traffic accidents and death are 47 times more likely traveling in a car as compared to traveling by a bus.

Within the broad policy framework created by this set of transportation goals, local officials and area residents created a set of four transportation policy priority areas. These areas were identified as providing the greatest opportunity for making progress towards achieving the region's identified transportation goals and objectives:

- Increasing the emphasis on maintaining transportation infrastructure
- Increasing the choice of travel modes available across the region
- Working to better integrate transportation projects into the fabric of the community
- Better managing the region's roadway capacity

Focus Kansas City Plan

A fixed guideway transit system is recommended in the FOCUS [2](Forging our Comprehensive Urban Strategy) Kansas City Plan, Kansas City's, Missouri comprehensive plan (adopted in 1997), as a strategy for making Kansas City more competitive both within the metropolitan area and as compared to peer cities nationally.

"In order to enhance movement of people in Kansas City, promote clean air and protect the natural environment, light rail and transit improvements are appropriate through the city. The Kansas City Area Transportation Authority should take the lead in designing, funding and building the system. Integral to the mixed use center development concept is the connection of these centers with high speed, high capacity public transit, and specifically light rail, although other systems, such as dedicated bus transit may be appropriate for some corridors. In addition to providing transit service along the corridor, light rail will promote private development investment within the immediate transit stop area and provide a framework for feeder bus, bicycle, and pedestrian connections."

In addition to inclusion within the comprehensive plan, the City of Kansas City Council expressed support for transit by passing a resolution supporting a fixed guideway transit routing through the city's Central Corridor in October 1997.

The following is excerpted from The FOCUS Plan's "Building Blocks" report.

"The successful implementation of FOCUS is dependent on an increasingly strong transit system. Transit in the future may be found in several modes from mini-bus to bus to light rail, or even historic rail.

Indicators of a successful transit corridor include:

- *A regional transit network that reinforces desirable development patterns and corridors*
- *Transit that is located and designed to support pedestrian environments*
- *Transit that promotes higher density, mixed-use*

2 *(http://www.kcmo.org/planning.nsf/focus/home)*

development within certain corridors

- *Transit that promotes a nodal rather than a strip commercial pattern of development*
- *Parking and transit that are considered as components of a unified development concept*

Strategies:

- *Implement the KCATA's Light Rail Transit Plan*
- *Incorporate plans for early phase light rail connections to Kansas City's Northland*
- *Target development incentives to reinforce mixed-use, transit oriented corridors*
- *Create parking authorities in dense transit corridors to reconcile the needs of the automobile, transit, and the pedestrian*
- *Amend the City's zoning ordinance to reduce parking requirements in dense, urban, transit corridors*
- *Create a regional bus system that supports the light rail transit system and work trips throughout the metropolitan area*
- *Revise the City's zoning ordinance to encourage transit "nodes" with a higher density of development, rather than strip commercial development*
- *Adopt design and development guidelines to increase pedestrian activity near transit stations and provide enforcement through a revised zoning ordinance or a zoning overlay district*
- *Consider historic rail transit to link key entertainment and tourist venues"*

Figure 1-2 shows the regional transit framework included in the FOCUS Kansas City Plan.

Is This Project Coordinated with Other Plans or Studies?

A number of transit planning projects have been undertaken within the study corridor. The most relevant to this study are MARC's Smart Moves Regional Transit Plan, the Troost Corridor Planning Report, the Troost Corridor Plan, the Central Business Corridor Transit Plan, the Northland/Downtown Major Investment Study (MIS) and the Southtown Corridor Light Rail Starter Project. Each is described below.

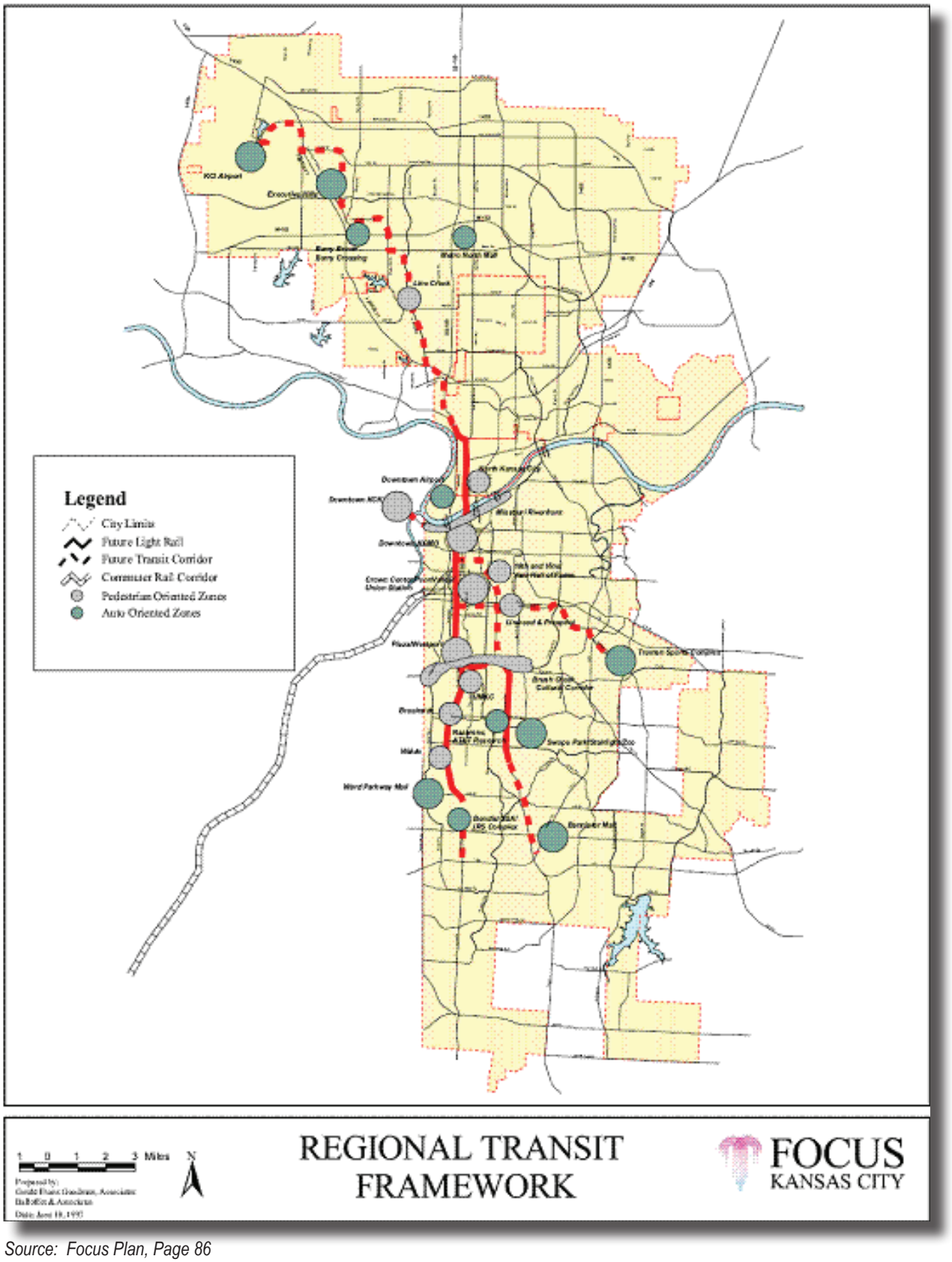
Southtown Corridor Transit Study: Major Investment Study and Environmental Assessment (1995)

In 1994, based on the findings of the Southtown Corridor Transportation Study, the KCATA Board of Commissioners selected a light rail alternative as the Preferred Alternative to guide decisions on transit improvements throughout the Corridor. The KCATA Board identified a 5.6-mile Starter Project initial construction phase from River Market to 51st Street. The Southtown Corridor Transit Study, completed in 1995, was an analysis of alternative major transportation investments in the Southtown Corridor of the Kansas City region, extending from the Missouri River through downtown Kansas City, Missouri, and continuing southward for 15 miles to the I-435 loop. The purpose of the study was to develop sufficient information about the alternatives in order to enable to the KCATA to make decisions on transit improvements. Figure 1-3 shows the preferred corridor for the study.

Northland/Downtown Major Investment Study (2002)

This study, which was completed by MoDOT, Kansas City, Missouri, and KCATA in 2002, analyzed north-south mobility and focused on the development of general transportation system improvements to better connect the Northland with downtown, specifically at the three downtown river crossings on Broadway, the Heart of

Figure 1-2: Regional Transit Framework



Source: Focus Plan, Page 86

Figure 1-3: Southtown Corridor Preliminary Engineering Preferred Alignment

America Bridge, and the Paseo Bridge. The study team selected a preferred strategy whose centerpiece included increasing capacity over the Missouri River through the construction of a new Paseo Bridge and a separate fixed guideway transit bridge adjacent to the Heart of America Bridge. In addition to this new construction and the continued study of light rail system feasibility, the study team recommended widening I-29/35 from the northeast corner of the downtown loop to the I-29/I-35 split, expanding bus service in the Northland, and improving bicycle and pedestrian facilities.

Central Business Corridor Transit Plan (2001)

This plan, completed in 2001 by the City of Kansas City and the KCATA, focused on developing plans for fixed guideway alternatives, in the City's central core. The final Central Business Corridor plan was based on an Alternatives Analysis that identified transportation options in both the Main Street and Troost Avenue Corridors. The preferred mode identified for both corridors in the plan was light rail transit. Bus rapid transit was preferred if rail was found to be financially infeasible. A ballot initiative to establish a sales tax for light rail in both the Main Street and Troost Corridors in keeping with this plan was defeated by the voters in 2001.

Smart Moves Regional Transit Plan (2005)

This regional transit plan builds on the comprehensive assessment of Kansas City's transit needs, which were identified in the 1998 Metropolitan Transit Initiative[3] and 2001's Transit Investment Strategy[4], as well as on the Creating Quality Places initiative. This plan, developed by MARC, KCATA, Johnson County Transit (JCT) and Unified Government Transit (UGT), is designed to provide expanded transit service through the seven-county region.

Rather than outlining a series of goals for an expanded and enhanced public transportation service, the report outlines a series of direct benefits that flow from an integrated transit system. The benefits identified are:

- Greater choice and savings: improved access will allow residents to choose the neighborhoods in which they live, work, and play. This choice will improve overall access for nearly half of the urbanized population in the Kansas City region that does not currently have transit service. This increased access will translate into transportation savings for households through a decreased reliance on private automobiles.
- Improved air quality: an integrated transit system can improve personal health by reducing congestion on roadways, which reduces the emission of pollutants into the natural environment.[3] An inability to meet federal air quality standards may restrict future transportation system plans, thereby reducing the economic competitiveness of the Kansas City region.
- Improved built environment: in addition to creating natural focal points for the community, public transportation facilities can help to create strong neighborhood centers that are more economically stable, safe and productive. Successful transit partnerships with communities can bring together both the goals of the transportation system and the livability goals of communities. Transit can sustain and support communities by:
  - Decreasing the land area devoted to parking lots- people, shops, offices, homes, and community facilities become more accessible by walking, bike, transit, and automobile.
  - Allowing for different population densities throughout the urbanized areas, which allow a greater variety of choices in housing and lifestyles.

3 Metropolitan Transit Initiative, MARC, 1998

4 Transit Investment Strategy, MARC, 2001

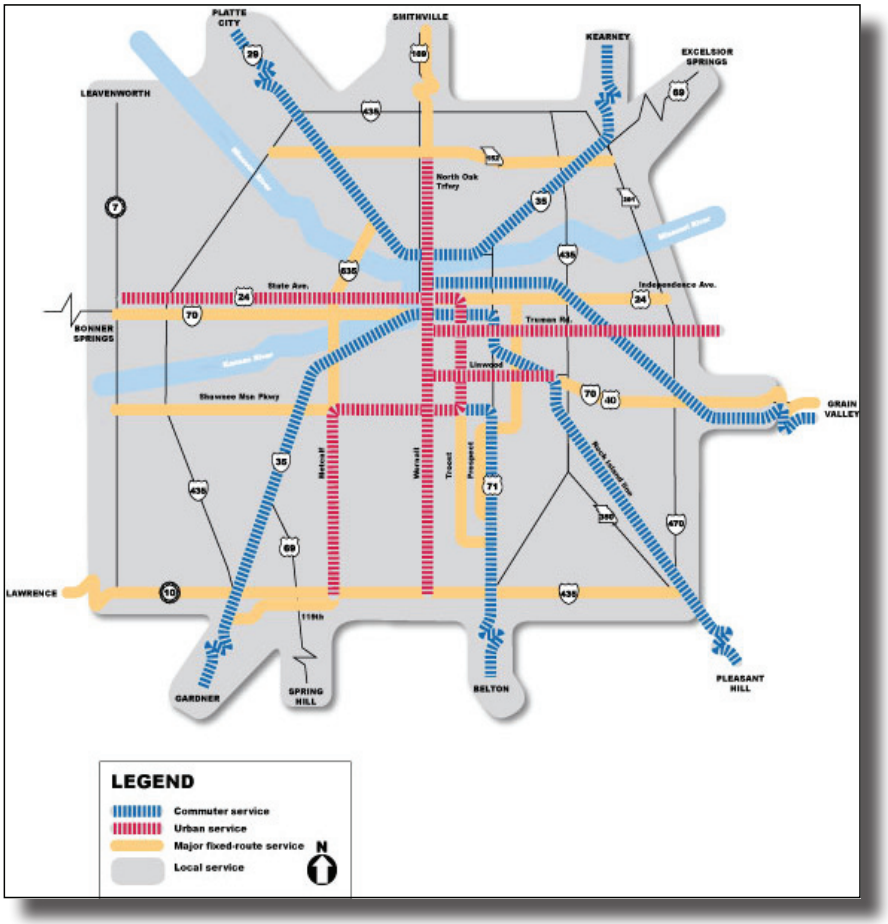
- Linking transit routes to regional greenways and bikeways.
- Enhancing the creation and maintenance or neo-traditional development like that of the Brookside neighborhood in Kansas City, MO, and the suburb of Prairie Village, KS.

❍ Economic development: fixed guideway transit systems have been instrumental in catalyzing local development in a number of cities across the country, including the peer cities of St. Louis and Dallas. These cities have leveraged the development potential of new transit lines by investing millions in corporate buildings, sports facilities, and entertainment complexes.

❍ Expanded labor pool, job accessibility and reliability: access to jobs is crucial to economic development in the region. Increased mobility through increased transit options better links workers to employment centers and opportunities. Transit also offers more choices to employers who had previously experienced employee recruitment and retention difficulties that resulted from accessibility barriers.

Smart Moves proposed services for areas within a quarter-mile walk of the highest density population areas within the region, with less densely populated areas served by a combination of fixed route, demand-response service, and park-and-ride lots. The proposed system was primarily bus-based with a possible commuter rail component, and was slated to double the amount of transit services available. Figure 1-4, is a schematic of this regional transit plan.

Figure 1-4: Smart Moves Regional Transit Plan



Source: http://www.kcsmartmoves.org/

Because the plan would primarily operate as a bus-based system, it was designed to be highly flexible and able to respond to changing residential and employment densities, levels of vehicle ownership, and ridership estimates in order to most effectively serve the population. Annual capital costs were expected to be $47 million, and annual operating costs were expected to reach $107 million (in 2003 dollars). These costs were expected to be offset by projected revenues, continuation of the existing half-cent Kansas City sales tax, and projected state and federal funds. One state-level objective identified in the plan is to promote the creation of new statewide multi-modal transportation revenue streams.

In 2007, MARC began a comprehensive update to the Smart Moves plan in response to recent transit activity in the region, including this Alternatives Analysis and the bus rapid transit study along the Troost Avenue Corridor (which is described in the section below). The updated Smart Moves plan, completed in June 2008, does not include commuter rail on the I-35 corridor. The updated report can be found on MARC's website at: www.marc.org

Troost Corridor Planning Report: Bus Rapid Transit (2007)

This plan, completed in 2007 and shown in Figure 1-5, is a continuation of the planning process for this corridor that was undertaken for the Central Business Corridor Plan (CBC) in 2001. Following an unsuccessful ballot initiative to fund the light rail recommendations of the CBC, KCATA shifted its focus to reviewing options for BRT along Main Street and Troost Avenue. The existing Main Street BRT project (MAX), which was completed in 2005, was also a direct outgrowth of the planning process. Both the Main Street and Troost BRT lines are currently included in MARC's Smart Moves plan. The plan is also consistent with the region's long-range transportation plan, previous corridor studies, and the overall goals of KCATA.

Figure 1-5: Troost BRT Implementation

The project concluded that a new BRT line centered along Troost Avenue would benefit a large number of existing transit riders while also providing a service that will be attractive to those new to transit and new to the corridor. The line is expected to provide the indirect benefit of enhancing the corridor's connectivity and supporting economic reinvestment in an area that continues to seek a catalyst for redevelopment. Troost BRT is currently in development and expected to begin operation in late 2010.

What Recent Developments have Occurred in Kansas City?

In November of 2008 a ballot measure for funding a light rail transit system was brought before Kansas City Missouri voters. The measure for a 3/8-cent sales tax for 25 years was based in part on work developed in the Alternatives Analysis. The sales tax would have funded a 14-mile light rail line running from Vivion Road and North Oak to Meyer and Bruce R. Watkins Drive. Although the measure had widespread support among Kansas City's elected leaders and the business community, as well as popular support within the Corridor, the measure was defeated in the city-wide vote.

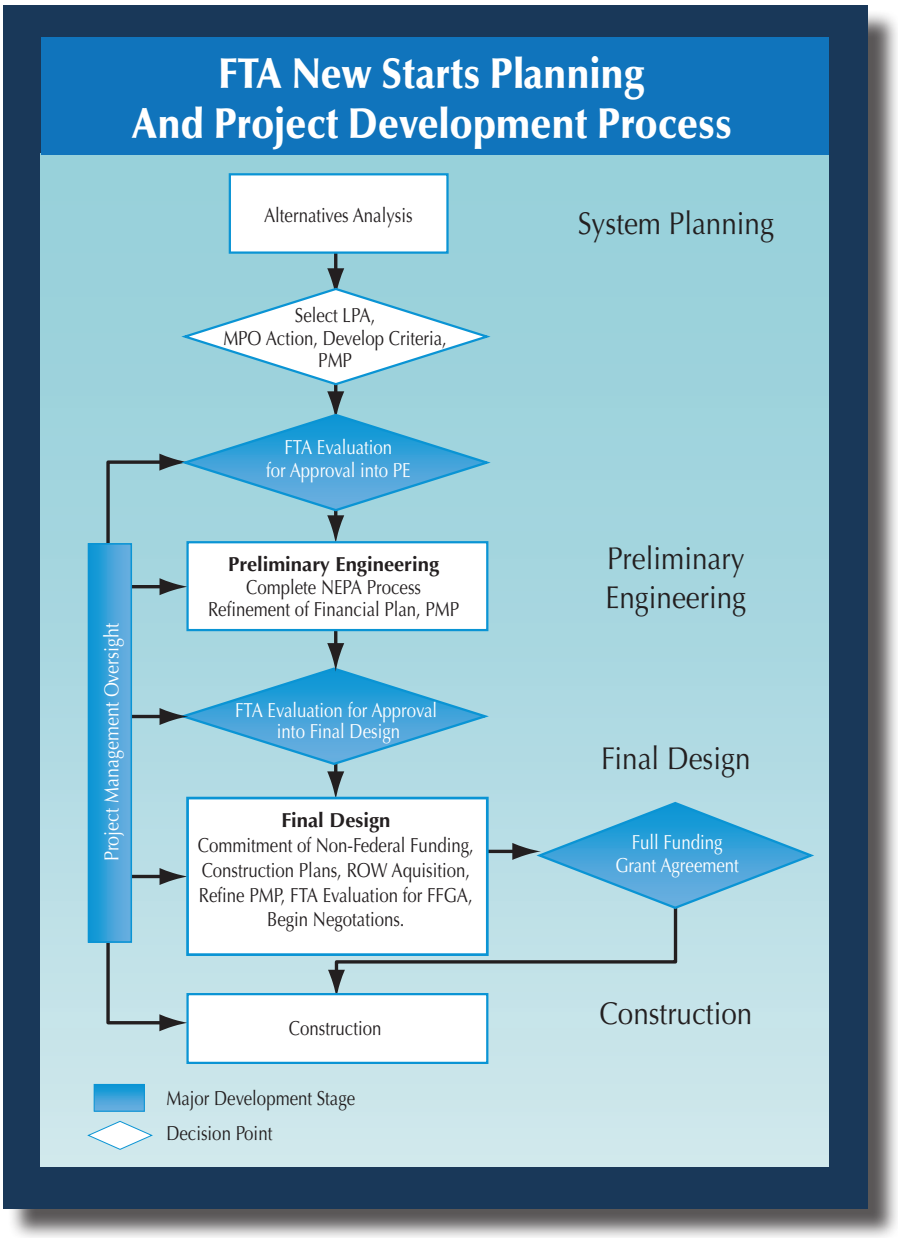
The City of North Kansas City created a Transportation Development District (TDD) that included the entire city proper. The intent was to have the TDD levy a 3/8-cent

sales tax to fund NKC's portion of the capital and operating cost for the light rail alternative. The measure passed in NKC on November 4, 2008.

The KCATA concluded that without a local KCMO funding source it was unnecessary to submit the project for consideration by FTA for advancement to the preliminary engineering phase, the second step in the federal funding process. Thus, the project team was directed to complete the Alternatives Analysis but not the work to complete the Draft Environmental Impact Statement (DEIS) or the New Starts application.

Figure 1-6, shows the FTA's New Starts Process.

Figure 1-6: New Starts Process



In consultation with Kansas City officials, it was concluded that the matter of selecting a Locally Preferred Alternative (LPA) for the Corridor would be deferred until the project was restarted and another source of local funding was identified. Information on the costs and benefits of the Light Rail Alternative and the MAX Alternative is presented in a manner to provide local decision-makers a starting point for determining the best approach to improving transit in the North/South Corridor.

Additional information on the completion of the Alternatives Analysis and next steps is provided in Chapter 3.

Another issue with the completion of the Alternatives Analysis involves ridership forecasts and the analysis of costs and benefits for the proposed transit investments. Ridership estimates used for an alternatives analysis and subsequent evaluation in FTA's New Starts process must be produced by the regional travel demand forecasting model. In Kansas City this model is maintained by MARC and is used for all regional transportation planning projects.

During the course of the Alternatives Analysis it was determined that the MARC model was not able to produce ridership forecasts suitable for New Starts purposes. Model development work was done as part

of the Alternatives Analysis and by MARC as a separate effort; the model is expected to be ready later in 2009.

Rather than wait for these ridership forecasts it was decided to use an alternate method of producing ridership estimates for the transit alternatives under consideration. The project team determined that adequate estimates could be developed using the CTTP-Based Aggregate Rail Ridership Forecasting (ARRF) model. The ARRF model was developed by FTA to develop order-of-magnitude estimates of ridership for new rail lines in metropolitan areas where no existing rail transit facilities are present.

Ridership estimates from the ARRF model were considered only for a comparative evaluation of the transit alternatives to provide local decision-makers an idea of the viability of the transit investments in the Corridor. These estimates are discussed fully in Chapter 5 of this report.

It must be stressed that the ARRF-produced estimates are not adequate for New Starts evaluation or local investment decision-making. Again, it is believed that the ARRF model can produce ridership estimates that reflect potential markets and are useful in a comparative analysis. It is anticipated that ridership estimates from MARC's regional demand forecasting model will be available in the future as transit investments move forward in the New Starts process.

Chapter Two: Purpose and Need

Why Do We Need This Project?

As proposed, the Kansas City North/South Corridor extends approximately 14 miles beginning near the Interstate 29 interchange at North Oak Trafficway in the northern portion of Kansas City, Missouri and ending in southern Kansas City, Mo. near 63rd Street and 71 Highway. While land use in the Kansas City metropolitan area is primarily comprised of dispersed development, the North/South Corridor encompasses some of the oldest and most densely developed parts of the metropolitan area and contains many of the Kansas City region's employment, retail, and entertainment centers. In recent years, local governments have developed policies and plans discouraging urban sprawl and have sought to emphasize connections between activity, cultural and entertainment centers. Recent land use plans have focused on land use in areas well served by various transportation modes; in particular public transit. Regional plans, such as Kansas City's "Forging Our Comprehensive Urban Strategy" (FOCUS), stress the importance of transit services as a catalyst for increasing residential and commercial activity along transportation routes. Encouraged by these policies and recent population trends, both the private and public sector are investing in residential, employment, cultural and recreational activity centers along the North/South Corridor. As a result, investment in transit is sought to encourage increased ridership, augment ongoing investment in the corridor and serve transit-dependent populations who work in the corridor. The need of the proposed transit improvements is a result of: (1) Kansas City's desire to respond to declining transit ridership over the last three decades in an area that is currently experiencing an economic resurgence through significant development investments in the CBD and (2) the need to respond to safety and congestion concerns involving the limited Missouri River crossings serving the CBD. The purpose of the proposed transit investments is to improve transit service and increase overall transit ridership, support and focus local economic development and redevelopment initiatives and to continue to enhance transit access to and from transit dependent neighborhoods.

Purpose of the Project

The purpose of the proposed transit investments is:

- To improve transit service in the corridor
- Increase overall transit ridership
- Focus economic development and redevelopment initiatives
- Enhance transit access to and from transit dependant neighborhoods

What Are the Attributes of the Corridor?

Population and Employment

The North/South Corridor, which includes portions of Jackson and Clay counties and the cities of North Kansas City and Kansas City, Missouri, had a year 2000 population of over 185,700 persons representing approximately ten percent of the entire metropolitan area's population (refer to Figure 2-1). Population in the North/South Corridor north of the Missouri River grew eight percent from 1990 to 2000 and is forecasted to grow ten percent from 2000 to 2030. South of the Missouri River, the North/South Corridor saw its population decrease eleven percent from 1990 to 2000. That same area is forecasted to lose an additional 12 percent of population from 2000 to 2030 (refer to Figure 2-2). Slower rates of growth and significant losses of

population in the North/South Corridor are symptomatic of the historical pattern of population dispersal throughout the Kansas City region.

Employment growth is expected to continue in the North/South Corridor and throughout the region through 2030. The North/South Corridor is forecasted to see a 32 percent increase in employment by 2030. With a 37 percent increase in employment from 1990-2000, employment in the Corridor grew nine percent more than the region as a whole. However, the Corridor is expected to see employment grow at a rate 20 percent less than the region as a whole through 2030. Forecasted employment figures attempt to account for the pattern of dispersal of both population and employment throughout the region.

Land Use

The North/South Corridor has been segmented into eleven subareas based upon differing geography, development density, and land use characteristics. Each subarea and its dominate land uses are described below. In general, the North/South Corridor includes the historical and present urban core of the Kansas City metropolitan region and existing land uses reflect the historical intensity of development. Residential development densities in the Corridor range from less than 12,000 persons per square mile (considered low density) to greater than 19,000 persons per square mile (high density). Residential areas with densities between 12,000 and 19,000 persons per square mile are considered areas of medium density. Employment densities in the Corridor also range from low to high, with primarily residential areas having low employment densities. Employment densities greater than 30,000 jobs per square mile are considered high, while areas with 15,000 jobs per square mile or less have low employment densities. The 2000 and 2030 Employment Densities are shown in Figures 2-3 and 2-4.

Future land use in the North/South Corridor is governed by two components of the City of Kansas City's FOCUS comprehensive plan, adopted in 1997. The FOCUS Kansas City Plan is based upon the concept of emphasizing connections between activity, cultural and entertainment centers. The two component plans that cover the geographic area of the North/South Corridor, The Northland Plan and The Urban Core Plan, call for more compact, interconnected development patterns designed around multi-modal activity centers. While these plans suggest greater development densities around transportation nodes and activity centers, in general these plans do not anticipate wholesale land use conversions due to the built-out nature of Kansas City's urban core. However, the plans do consider the conversion of general commercial, retail and medium density residential developments found at activity and transportation nodes to mixed-use commercial, retail, and residential developments.

Travel Patterns

Travel patterns within the North/South Corridor are influenced by the three distinct employment centers and the availability of connections over the Missouri River. The three major employment centers, the downtown CBD, Crown Center, and the Country Club Plaza, are linearly spread in a north-south fashion through the Corridor. These three activity centers contain the highest employment densities in the Kansas City metropolitan area. Due to the north-south orientation of these major employment and activity centers, the dominant travel patterns in the Corridor are also oriented in this manner. Commuting movements from residents north of the Missouri River to destinations in the CBD generally utilize one of three Missouri River crossings, which include the Heart of America Bridge (MO Route 9), the Broadway Bridge, or the I-29/35 (Paseo) Bridge. South of the Missouri River, Main Street, Southwest Trafficway, Broadway Boulevard,

Grand Boulevard, and Troost Avenue operate as the major transportation Corridors and generally serve to connect the three major employment centers. North of the River, travel patterns are influenced by those routes with direct connections to Missouri River crossings. Those routes include Burlington Street (Route 9) and its direct connection to North Oak Trafficway and US 169. US 169 also directly connects with the Broadway Bridge. East-west movements through the North/South Corridor are generally considered secondary to north-south movements and are typically made as connecting actions.

Travel in the North/South Corridor has been influenced by two recent behavioral trends. The first trend, a resurgence in the popularity of urban living, has led to an increase in the number of residential units available in the CBC as well as the number of residents that call the CBC home. The second involves a short term increased use of transit influencing travel in the North/South Corridor. Various factors have contributed to an increase in transit ridership across the KCATA system and the North/South Corridor, with a recent sharp increase in fuel prices likely driving a greater amount of travelers to utilize transit. Other factors include an overall push by many to reduce the amount of carbon emissions they produce and the availability of fast and reliable transit options such as the introduction of bus rapid transit in the Main Street corridor.

What Are the Study Goals and Objectives?

In response to the purpose and need of the proposed project and in cooperation with stakeholders, KCATA developed specific measures of effectiveness that were used to guide the analysis of the selected alternatives.

The evaluation measures will help identify which alternatives are most effective at achieving the region's goals and objectives in a cost-effective manner. Table 2-1 displays the study goal and objectives. Other factors to be considered in selecting the preferred alternative include: (1) the ability to avoid, minimize, and mitigate adverse impacts to the human and natural environments; (2) community and stakeholder support; (3) the cost/benefit of the preferred alternative; and (4) the sustainability of the financial plan for the transit improvements.

Table 2-1: Goals and Objectives

Goals	Objectives	Measures of Effectiveness
Goal 1 *Improve transit service and increase transit ridership*	Expand transit's role in circulation within the Central Business Corridor	Number of employment centers/attractions served by alternative
	Improve reliability of transit for travel from Northland to CBC	Travel times Number of single-seat rides
	Provide better service for transit dependents to jobs within the CBC	Analysis of single-seat rides Number of single-seat rides
	Support better transit service for convention/visitors travel	Number of activity centers/hotels served Travel times
Goal 2 *Enhance transit access to and from transit-dependent neighborhoods*	Provide direct transit access to transit dependent neighborhoods	Number of transit-dependent neighborhoods directly served
	Reduce transit travel times to the CBC for transit-dependent neighborhoods	Travel times Average travel speeds Number of transfers Transfer wait times
Goal 3 *Support for economic development and redevelopment in the North/South Corridor*	Improve transit accessibility from targeted residential areas	Populations within ¼-mile of transit stations in low income/minority census tracts
	Improve transit accessibility to targeted employment/commercial areas	Employment centers within ¼-mile of transit stations
	Establish transit nodes to help focus development at targeted locations	Stations with transit-supportive land use policies and zoning in place. Qualitative assessment of development opportunities along the alignment
	Enhance the urban environment adjacent to transit facilities	Qualitative assessment of consistency with neighborhood plans and FOCUS Existing and planned activity centers served

Figure 2-1: 2000 Population Density

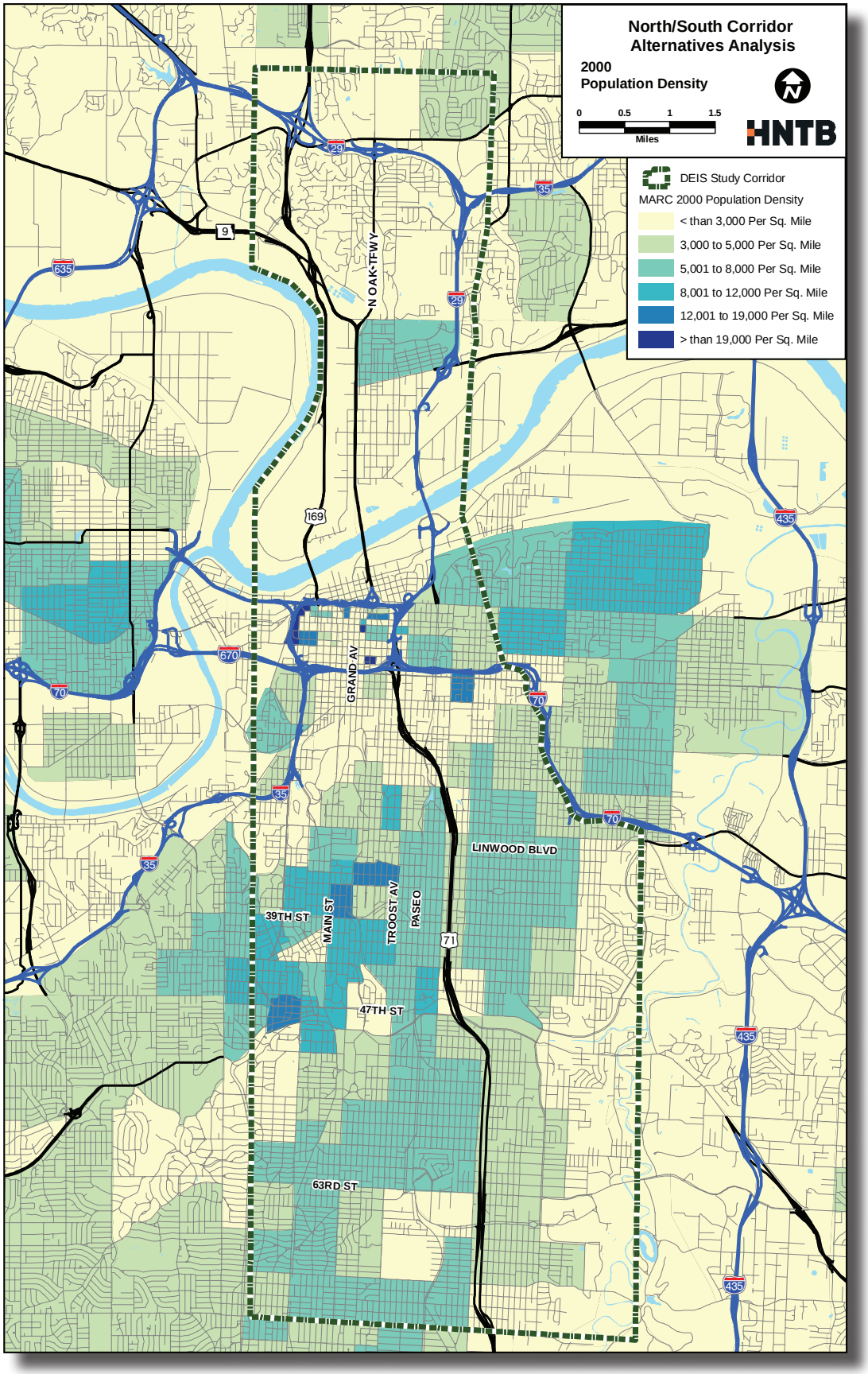


Figure 2-2: 2030 Population Density

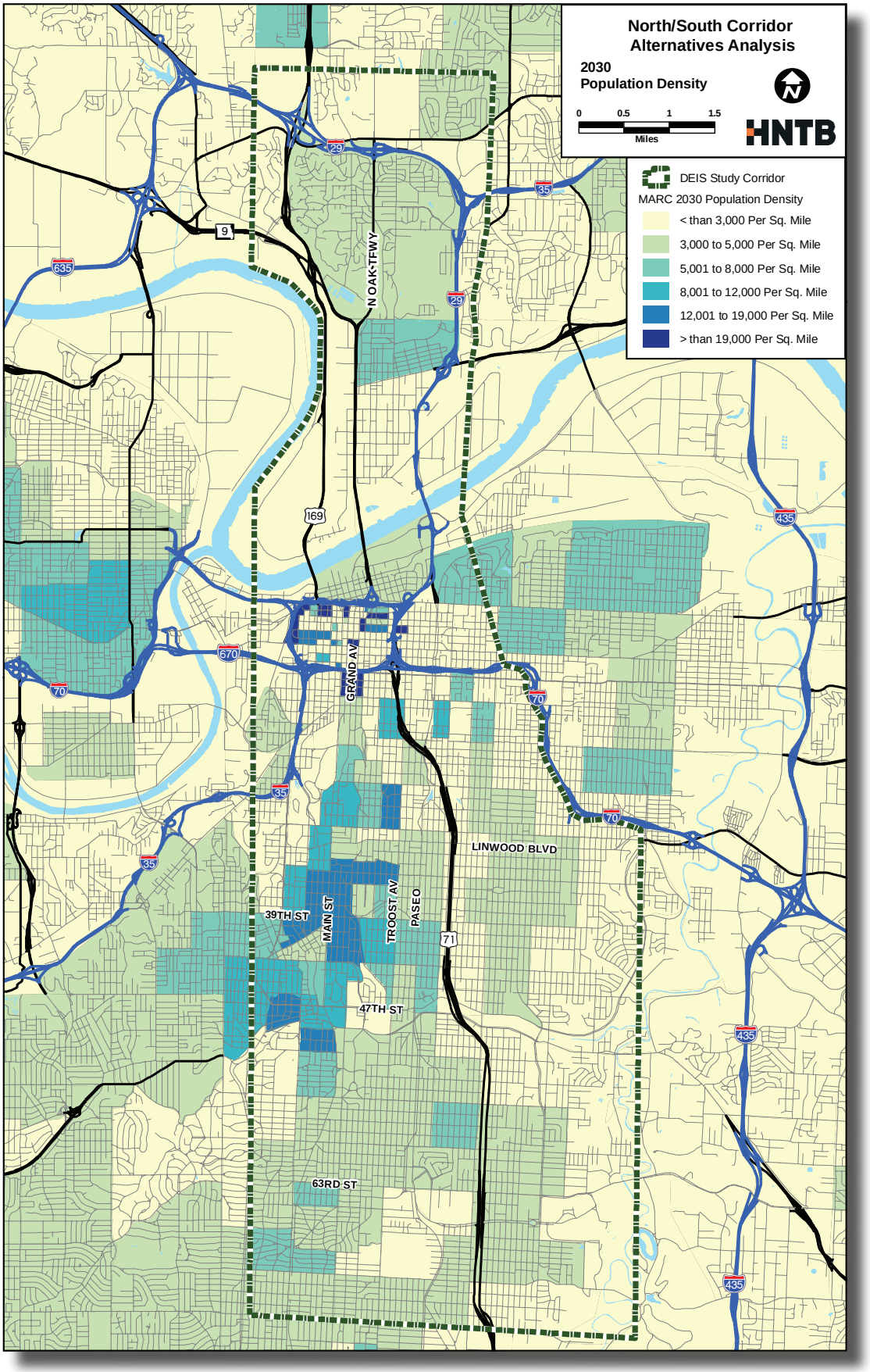


Figure 2-3: 2000 Employment Density

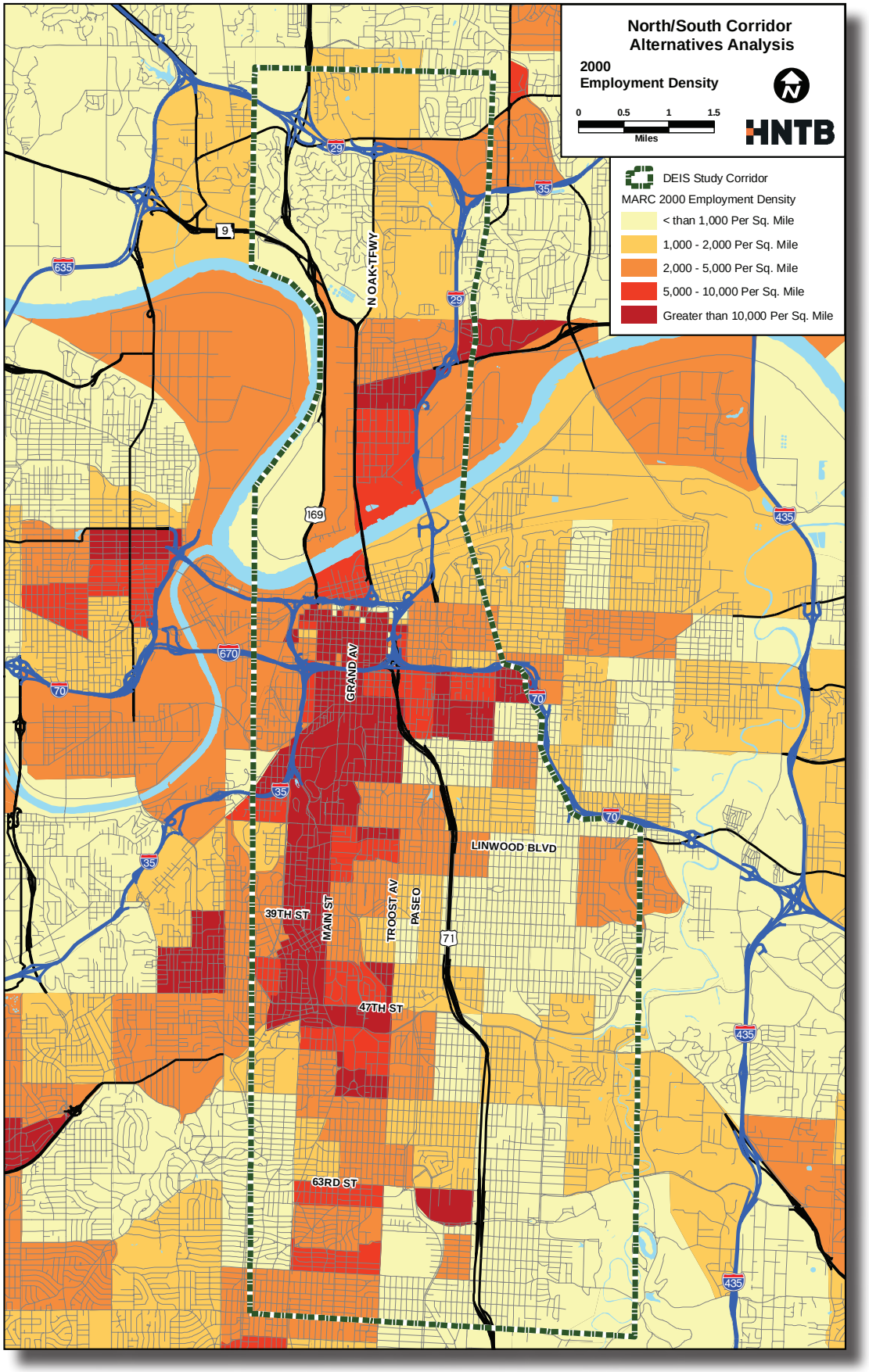


Figure 2-4: 2030 Employment Density