Purpose and Need Executive Summary

JACKSON COUNTY
COMMUTER CORRIDORS
ALTERNATIVES ANALYSIS

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 1~~Figure 1~~* shows the study area (shaded in light blue).

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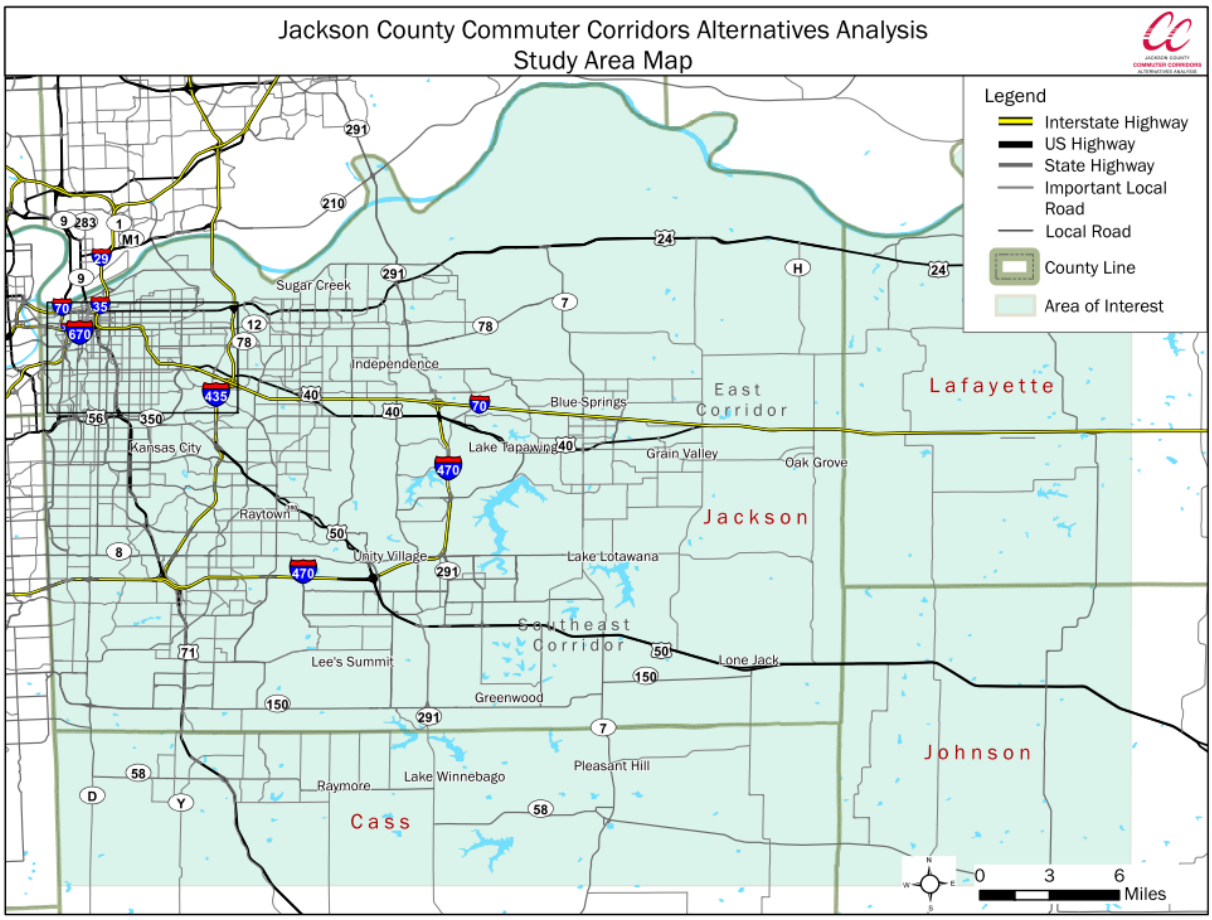

Figure 1 – Jackson County Commuter Corridors Study Area

Project Background

The need for transit improvements along the two corridors has been identified in numerous planning documents, dating back as far as the 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:

- 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 2*~~*Figure 2*~~, 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.

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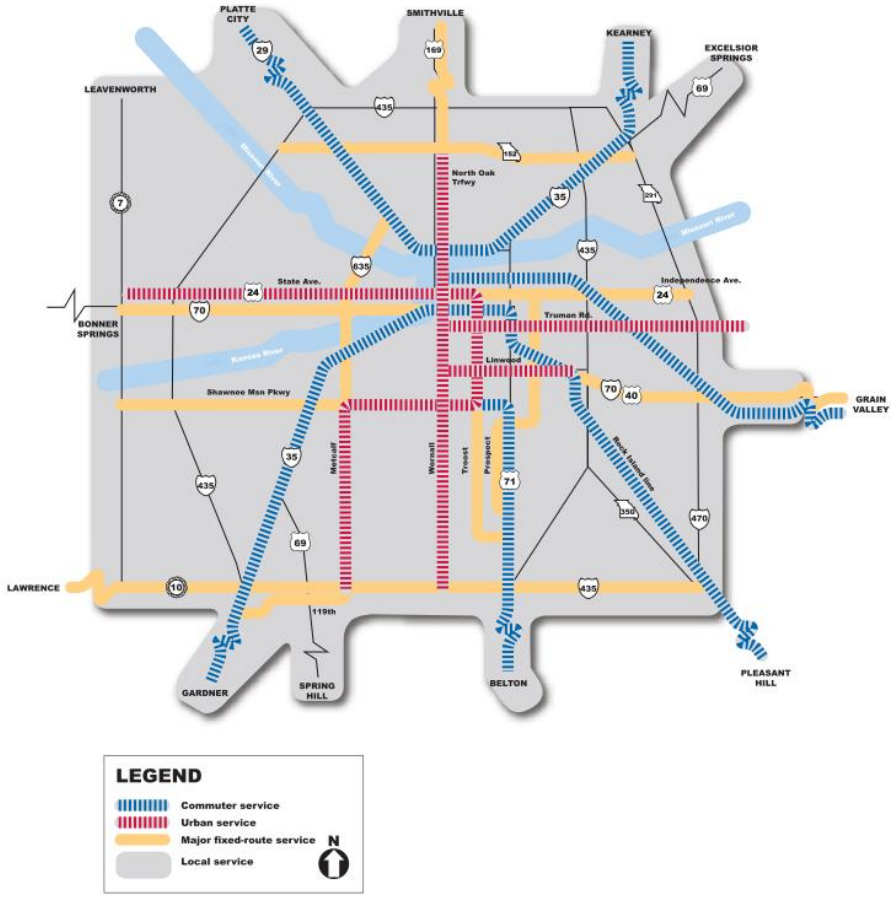

Figure 2 - Smart Moves Conceptual Map

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.