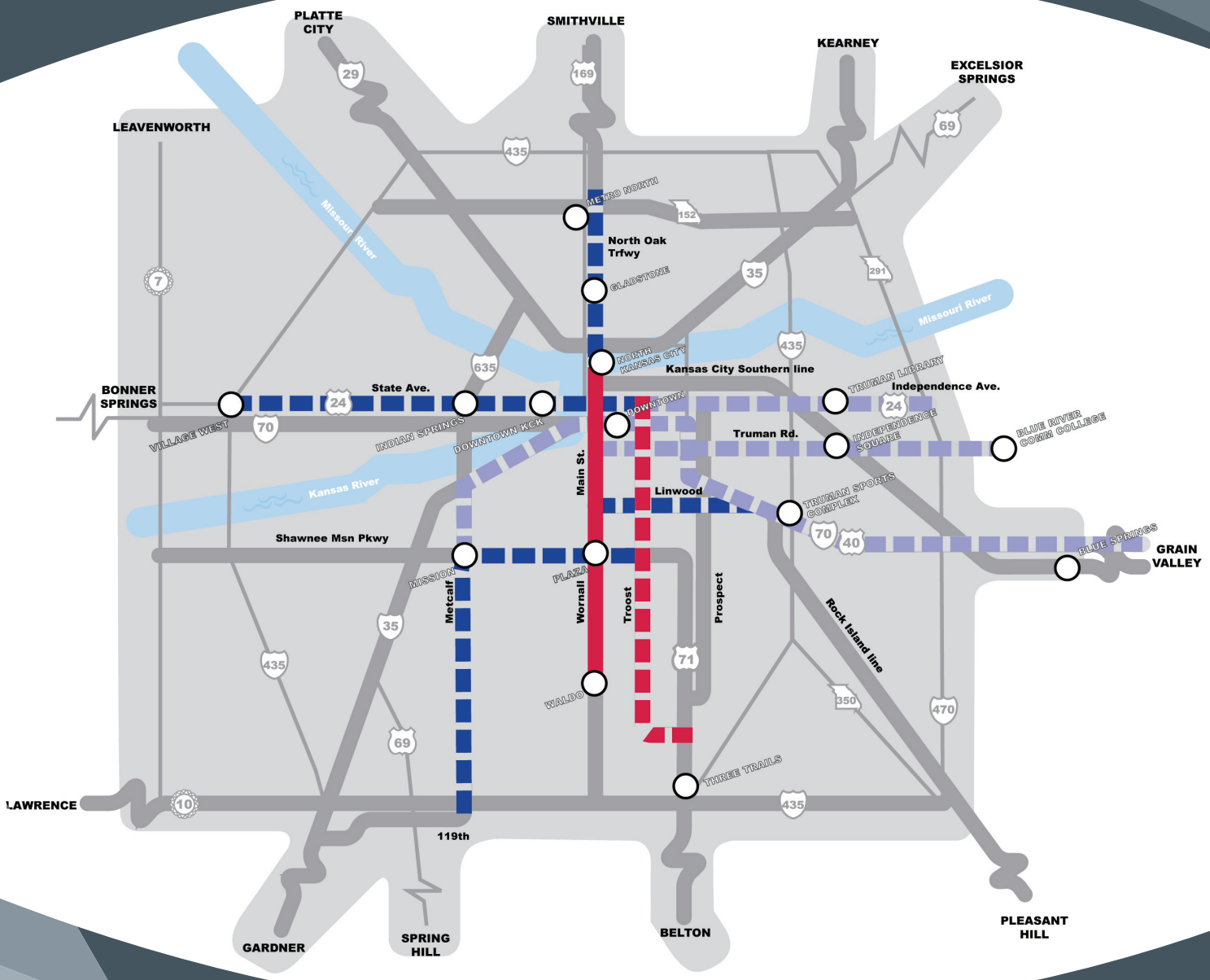
REGIONAL TRANSIT IMPLEMENTATION PLAN

URBAN CORRIDORS

PREPARED FOR MID-AMERICA REGIONAL COUNCIL
BY OLSSON ASSOCIATES



MARCH 2010

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Executive Summary

The Smart Moves Urban Corridors Study provides an implementation strategy to guide the development of a developed rapid transit system capable of delivering area residents and employees across the metropolitan region. The Urban Corridor concept was first articulated in the Smart Moves Regional Transit Vision in 2002 and subsequently updated in 2008. The Urban Corridor network portion of Smart Moves is composed of seven rapid transit corridors.

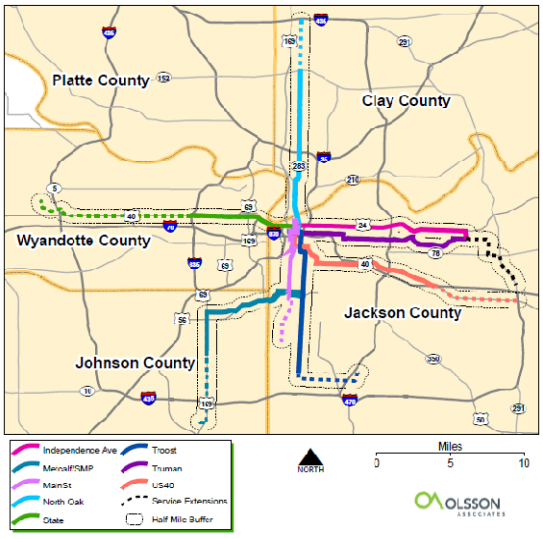
This study is focused on how Bus Rapid Transit (BRT) service could be provided in the defined Urban Corridors. BRT is defined as *"a flexible, rubber-tired rapid transit mode that combines stations, vehicles, services, running ways, and Intelligent Transportation Systems (ITS) elements into an integrated system with a strong positive identity that evokes a unique image…and collectively improves the speed, reliability, and identify of bus transit (page S1)"* [1]

The Urban Corridors are shown in Figure ES-1 and include:

- Main Street MAX. The MAX route operates in Kansas City, Missouri between the River Market, the Kansas City Central Business District (CBD), Crown Center, Westport and the Plaza. The route extends in non-BRT service to 75th Street.

- Troost Avenue. This route will extend BRT service from the Kansas City, CBD south on Troost to 75th Street. From this point the route will continue in non-BRT service to Bannister Road.

Figure ES-1: Urban Corridors



- State Avenue. The State Avenue route alignment will connect the Kansas City, Missouri CBD to downtown Kansas City,

[1] Clinger, J., et al. (2003). *TCRP 90 Bus Rapid Transit* (Vol 1). Washington, D.C., Transportation Research Board

Kansas, and the employment concentrations at the Village West Shopping center in Wyandotte County, Kansas. Service from 47th Street and State Avenue to Village West would be lower frequency.

- Metcalf Avenue/Shawnee Mission Parkway. This transit route would extend between the 119th Street and Metcalf Avenue area in Overland Park, Kansas, to the Plaza/47th and Troost area in Kansas City, Missouri, using Metcalf Avenue, Martway Street, Johnson Drive, and Shawnee Mission Parkway in Johnson County, Kansas.

- North Oak. The North Oak corridor extends from downtown Kansas City, Missouri, north along Burlington Street and North Oak Trafficway to Barry Road or Highway 152. Service from Highway 152 to I-435 would be lower frequency.

- Two eastern Jackson County corridors, one following US 24/Truman Road and a second corridor following US 40. The Urban Corridors for eastern Jackson County has not yet been defined. It could include one or two of three possible eastern alignments: US 24/Independence Avenue, Truman Road, and US 40. Each of these alignments has an eastbound service addition that can be added as a lower frequency of service

These Urban Corridor routes connect population to employment centers and offers rapid transit to areas that have higher levels of transit propensity characteristics including low vehicle ownership rates, higher population and job density, and lower income levels. Table ES-1 displays characteristics of each Urban Corridor route including capital costs and operating costs.

The costs to develop the five new Urban Corridors will vary depending on the features and amenities that would be provided. For planning purposes, assuming a full set of features and amenities to support mixed traffic BRT operation, an ultimate capital cost for the five new corridors was estimated at approximately $92 million[2], with a yearly operating cost estimated to be between $17 million to $21 million. The costs would vary depending on frequency of service and level of capital amenities provided. Federal

[2] Cost assumes BRT shares lanes with general traffic. Implementing fixed guideways would increase the cost.

funding may provide up to 80 percent of the capital cost, leaving local funds to cover the remaining capital costs and operating funds.

Table ES-1 Urban Corridor Characteristics[3]

	MAX	Troost	State Avenue	Metcalf Avenue / Shawnee Mission Parkway	North Oak	US 24 / Truman Road	US 40
Route Termini	3rd & Grand, KCMO to Waldo, KCMO	10th & Main, KCMO to The Trails Transit Center	Village West, KCK to 10th & Main, KCMO	119th & Metcalf Avenue, OP KS to 47th & Troost, KCMO	10th & Main, KCMO to 152 Hwy, Gladstone, MO	10th & Main, KCMO to Independence Transit Center, Ind., MO	10th & Main, KCMO to Blue Ridge Crossing, Ind., MO
Project Status	In Operation	Under Construction	Project Development	Alternatives Analysis	Planning not Initiated	Planning not Initiated	Planning not Initiated
Length (miles):	12	13	15	14	11	10	10
BRT Frequency:	9-30 minutes	10-30 minutes	20-30 minutes	15-20 minutes	15-20 minutes	15-20 minutes	15-30 minutes
Capital Cost (Millions):	$21	$30.6	$25.4	$21	$15.5	$15.5	$15
Operating Cost (millions):	$3.4	$4.3	$2.5	$2	$1.7 to $3	$1.6 to $2.9	$1.6 to $2.9
Revenue Hr by County (%)	Jackson County - 100%	Jackson County - 100%	Jackson County - 21% Wyandotte County - 79%	Jackson County - 18% Johnson County - 82%	Jackson County - 10% Clay County - 90%	Jackson County - 100%	Jackson County - 100%
Major Transit Centers:		10th & Main The Trails Transit Center	47th & State Avenue, KCK 7th & Minnesota Avenue, KCK	East Gateway Transit Center, Mission, KS	Metro Mall North, Gladstone, MO	Independence Transit Center, Ind., MO	Blue Ridge Crossing, KCMO
Stations:	28 BRT Stations	47 BRT Stations	30 BRT Stations	24 BRT Stations	17 BRT Stations	28 BRT Stations	28 BRT Stations
Park & Rides:	3rd at Grand Wornall Road at 74th Terrace	31st & Troost 95th & Troost Bannister & Hillcrest	110th and Parallel Parkway 47th and State Avenue	Rosanna Square 95th & Metcalf Downtown Overland Park 6000 Lamar	152 Highway	Independence Transit Center	Blue Ridge Crossing, Ind., MO
Fixed Guideway / Mixed Traffic:	Both	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Trafifc	Mixed Trafifc	Mixed Trafifc
Daily Ridership Potential	4,200 (A)	10,200	5,500	3,100 (B)	2,300	6,400	5,100

Notes: (A) Current average daily ridership
(B) Ridership based off of long-term projected landuse

The federal funding process may cover up to 80 percent of the capital cost, although projects that contribute more local funds are favored. Local funds are used to cover the remaining capital costs and the majority of the operating costs with a small operating cost portion coming from fare box revenue. These local funds are typically from general revenue funds, or dedicated funding sources such as property taxes and sales taxes. The multiple transit agencies, municipalities, and regional government entities in each corridor will need to coordinate on a funding plan.

The implementation status for the seven Urban Corridors is shown in Table ES-2. One corridor (Main Street MAX) is in operation. A second corridor (Troost MAX) will be operating in late 2010 or early 2011. Planning and/or project development is occurring in two corridors (State Avenue and Metcalf Avenue/Shawnee Mission Parkway). The

[3] MAX and Troost capital and operating cost from KCATA, Metcalf Avenue/Shawnee Mission capital and operating cost from *Metcalf Avenue and Shawnee Mission Parkway Transit Planning Study*, State Avenue capital and operating expense from *State Avenue Phase II report* (unpublished), Olsson Associates derived capital and operating costs for remaining corridors. Cost tables are available in Appendix.

remaining three Urban Corridors have not had a separate corridor study completed to date that evaluates the feasibility of higher level transit.

Table ES-2 Implementation Status

Activity: / Corridor	Planning efforts initiated Status	Evaluate Corridor to determine feasibility of higher level transit, and determine the preferred alternative Status	Prepare Project for submittal of Federal funding review and other funding source Status	Project Development Status	Final Construction Status	In Operation
Main Street Max	✓	✓	✓	✓	✓	✓
Troost MAX	✓	✓	✓	✓	○	--
State Avenue	✓	✓	○	○	--	--
Metcalf Avenue / Shawnee Mission Parkway	✓	✓	○	--	--	--
North Oak	✓	--	--	--	--	--
US 24 / Truman Road	✓	--	--	--	--	--
US 40	✓	--	--	--	--	--

✓ = Complete ○ = In Progress -- = Not Initiated

This study also addresses opportunities for coordination of the individual BRT routes in order to provide a seamless Urban Corridor system. To accomplish this, coordination will be required between urban corridor route operations, transit agencies, and local governments so the combined Urban Corridor routes operate as a single system.

This study has identified several steps that could be taken to enhance the connectivity of the system. These steps include coordinating Transit Signal Priority (TSP) technology, uniform branding elements, uniform fare and transfer policies, communications, and further study for a single downtown transfer location.

Long term steps to more fully optimize the system should include developing a regional framework for TSP coordination similar to Operation Green Light, increase branding coordination to include vehicle type, interline routes, adopting a single communication system for the Urban Corridor routes, and moving operations of the Urban Corridor system to a single operator.

1.0 Introduction

1.1 Purpose of the Project

Local officials and transit providers in the Kansas City metropolitan area have been working on the planning and implementation of an expanded regional transit system. The regional transit plan, entitled Smart Moves, identifies a combination of urban and commuter oriented services. Originally developed in 2002, the Smart Moves initiative articulated a vision for how transit could service the Kansas City area in the years ahead. The Smart Moves Plan has been the product of a collaboration of area residents, local cities, the Mid-America Regional Council (MARC), the Kansas City Area Transportation Authority (KCATA), Unified Government Transit (UGT) and Johnson County Transit (JCT).

The purpose of this project is to provide further definition of a regional bus rapid transit (BRT) proposal on the Urban Corridors as defined in Smart Moves. This work will include incorporating planning studies previously undertaken for the State Avenue and Metcalf Avenue/Shawnee Mission Parkway corridors and developing new information for the North Oak corridor, and for three identified eastern Jackson County corridors. Information developed as part of this project was used to support an application for transit capital project funding from the American Recovery and Reinvestment Act (ARRA).

The study also includes a discussion of how each rapid transit corridor would function together in support of an Urban Corridor rapid transit network. This network spanning the metropolitan area would serve as the backbone to the larger regional transit system and would provide transit service connections between the local transit services offered by the three major transit providers.

1.2 Background

Over many decades, the Kansas City region's transportation system was developed to provide high quality vehicle accessibility. The network of roadways in the region is one of the most extensive in the nation. Statistics made available from the Federal Highway Administration confirm that Kansas City continues to possess the most freeway miles

per person of all urbanized areas with populations greater than 500,000. The Kansas City metro area also has the fourth highest total roadway miles per person, the second highest estimated freeway lane miles per person, and the thirteenth most daily vehicle miles traveled (DMVT) per person. (Source: Chapter 2 MARC 2030 Long Range Transportation Plan; 2003 Highway Statistics, Table HM-72, FHWA).

While many of the region's transportation resources have been directed toward the street and highway system, transit services are provided in much of the Kansas City region. Fixed route transit is provided by three agencies.

The KCATA provides transit service that is concentrated in Jackson County, Missouri, Clay County, Missouri, with service in Platte County, Missouri, Wyandotte County, Kansas, and some service in Johnson County, Kansas. KCATA operates 58 fixed routes and provides commuter orientated express service and all-day local service with service on Saturday and Sunday. KCATA also operates the Kansas City area's first BRT line, the Main Street MAX, and will begin operating a second BRT line, Troost MAX, in late 2010 or early 2011.

Transit service within Wyandotte County is provided by UGT, "The Bus", and through service contracted to the KCATA. Through both service providers, the more urbanized areas within the county have all-day transit service with weekend and evening service. "The Bus" operates four fixed-routes and jointly operates one route with KCATA. The KCATA service has operates five routes into Wyandotte County that connect with Jackson County, Missouri.

JCT, called "The JO", provides fixed-route transit within Johnson County. "The JO" operates 19 fixed-routes. The system is principally orientated towards commuters, with primarily peak-hour service and limited mid-day service, and no evening or weekend service.

1.3 Smart Moves

Transportation professionals have examined a number of potential approaches to providing a higher level of transit service on key regional travel corridors. These efforts are documented in a plan entitled Smart Moves. This transit plan was initially

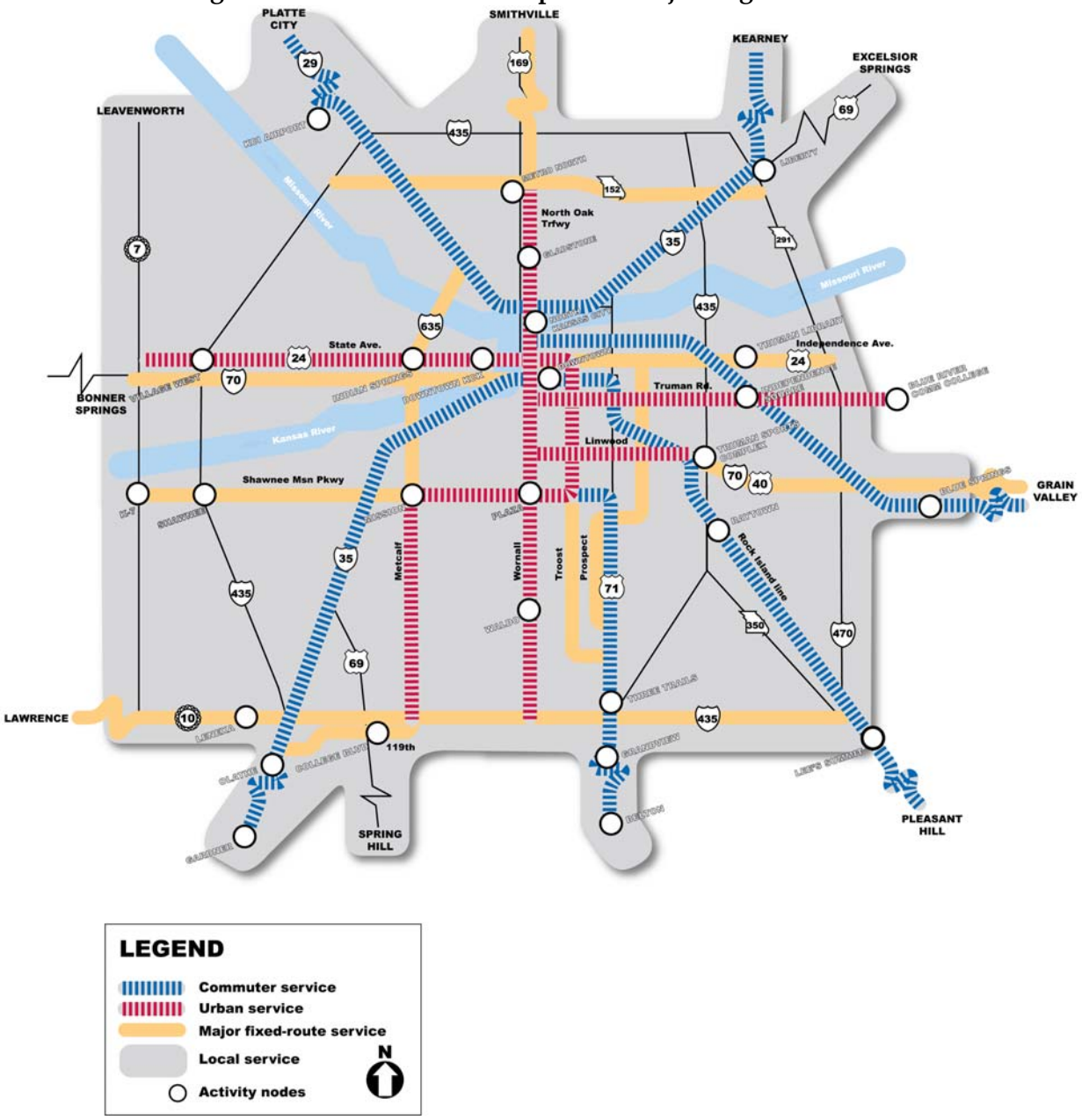
completed in 2002 and updated in 2008. The Smart Moves Plan defines higher capacity transit corridors that would serve the Kansas City metropolitan region.

Smart Moves envisions a public transit system in the Kansas City region that provides a viable and cost-effective transportation choice. The goal of the plan is to develop a public transportation system that will support a regional community into one that is more accessible, walkable, healthy, efficient, and attractive.

The result of Smart Moves was a conceptual regional transit network of urban service routes, commuter service routes, major fixed-route service, and local transit service. Urban service would provide a balance between accessibility and speed, utilizing light rail, BRT and bus while Commuter service, described in Smart Moves as express bus, commuter rail, or light rail, would connect outlying suburbs and the urbanized core. Localized transit service would provide connections between neighborhoods and feed passengers into the higher speed transit services.

In order to provide geographical context to the identified transit service corridors and to better facilitate trips, Smart Moves identified nodes that would typically attract trips from throughout the metropolitan region. These nodes represent activity or employment centers and were identified through technical analysis and public meetings. The Smart Moves concept connected regional nodes both along major corridors and at corridor junctions. This relationship between routes and node locations makes the rapid transit system a viable alternative to deliver area residents and employees to important activity and employment destinations throughout the metropolitan region. Figure 1-1 displays the Smart Moves concept with major regional nodes.

Figure 1-1 Smart Moves concept with Major Regional Nodes

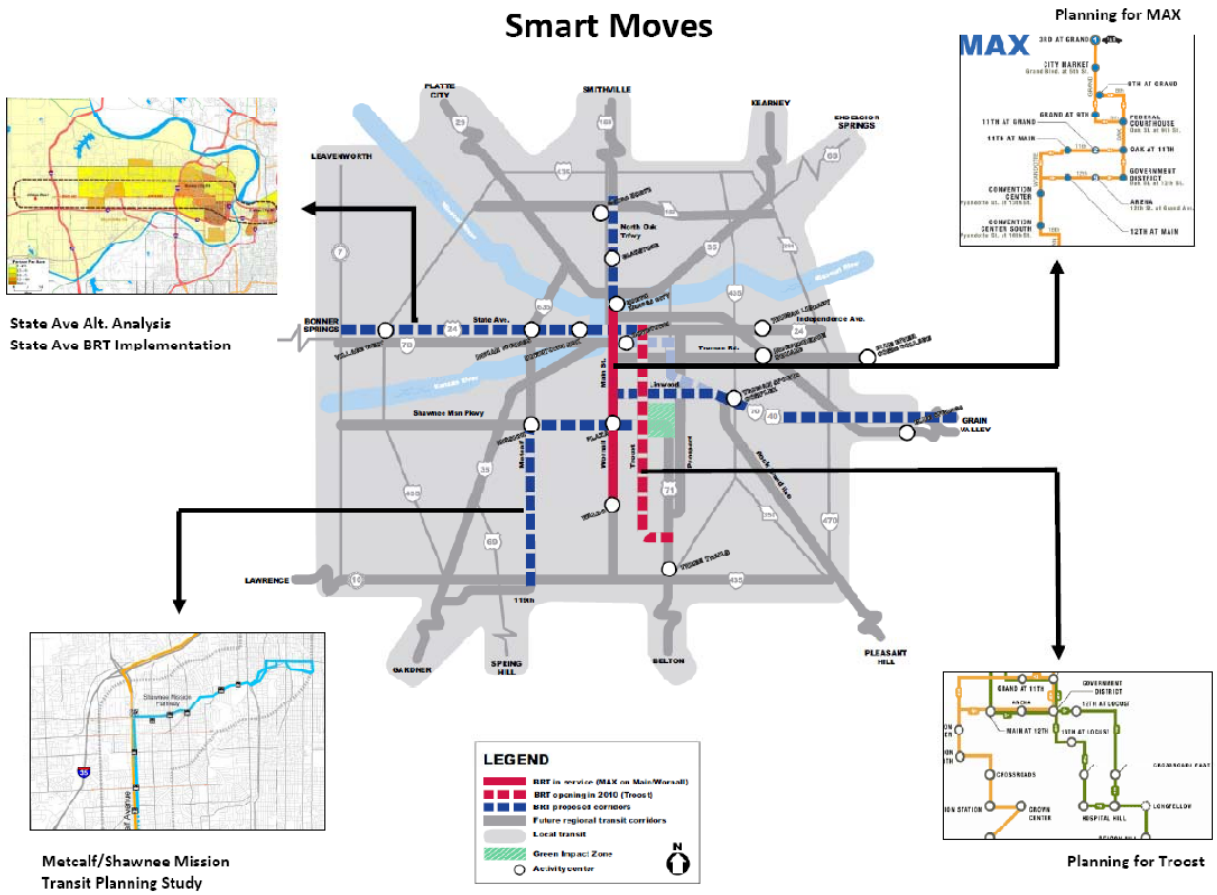


Source: Smart Moves Regional Transit Vision – 2008 Update

Several on-going studies and projects have been initiated to implement Smart Moves. BRT service began on the Main Street Corridor in Kansas City, Missouri in 2005. A BRT route on Troost Avenue, also in Kansas City, Missouri, will be operating by fall 2010 or early 2011. Planning for BRT on State Avenue in Kansas City, Kansas is moving into a project development stage. An alternatives analysis of transit options including BRT is

being performed on Metcalf / Shawnee Mission Parkway in Overland Park, Mission and other communities in Kansas. Figure 1-2 displays how these projects correspond with the Smart Moves concept.

Figure 1-2 Urban Corridors and Ongoing Studies



1.4 Urban Corridors

This study is focused on how BRT service could be provided in the defined Urban Corridors. BRT is defined as *"a flexible, rubber-tired rapid transit mode that combines stations, vehicles, services, running ways, and Intelligent Transportation Systems (ITS) elements into an integrated system with a strong positive identity that evokes a unique image…and collectively improves the speed, reliability, and identify of bus transit (page S1)"* [4] BRT can include some or many of these elements. What has evolved in the Kansas City

[4] Clinger, J., et al. (2003). *TCRP 90 Bus Rapid Transit* (Vol 1). Washington, D.C., Transportation Research Board

region is a flexible definition of BRT where factors such as cost, available funding, and ridership demand influence the level of BRT characteristics that would be employed on a particular route.

The Smart Moves Plan identifies an Urban Corridor network. The Urban Corridors are shown in Figure 1-3 and include:

- Main Street MAX. The MAX route operates in Kansas City, Missouri between the River Market, the Kansas City CBD, Crown Center, Westport and the Plaza. The route extends in a lower frequency service to 75th Street.

- Troost Avenue. This route will extend BRT service from the Kansas City, CBD south on Troost Avenue to 75th Street. From this point the route will continue as a lower frequency service to Bannister Road.

- State Avenue. The State Avenue route alignment will connect the Kansas City, Missouri (CBD) to downtown Kansas City, Kansas, and the employment concentrations at the Village West Shopping center in Wyandotte County, Kansas. Service from 47th Street & State Avenue to Village West would be lower frequency.

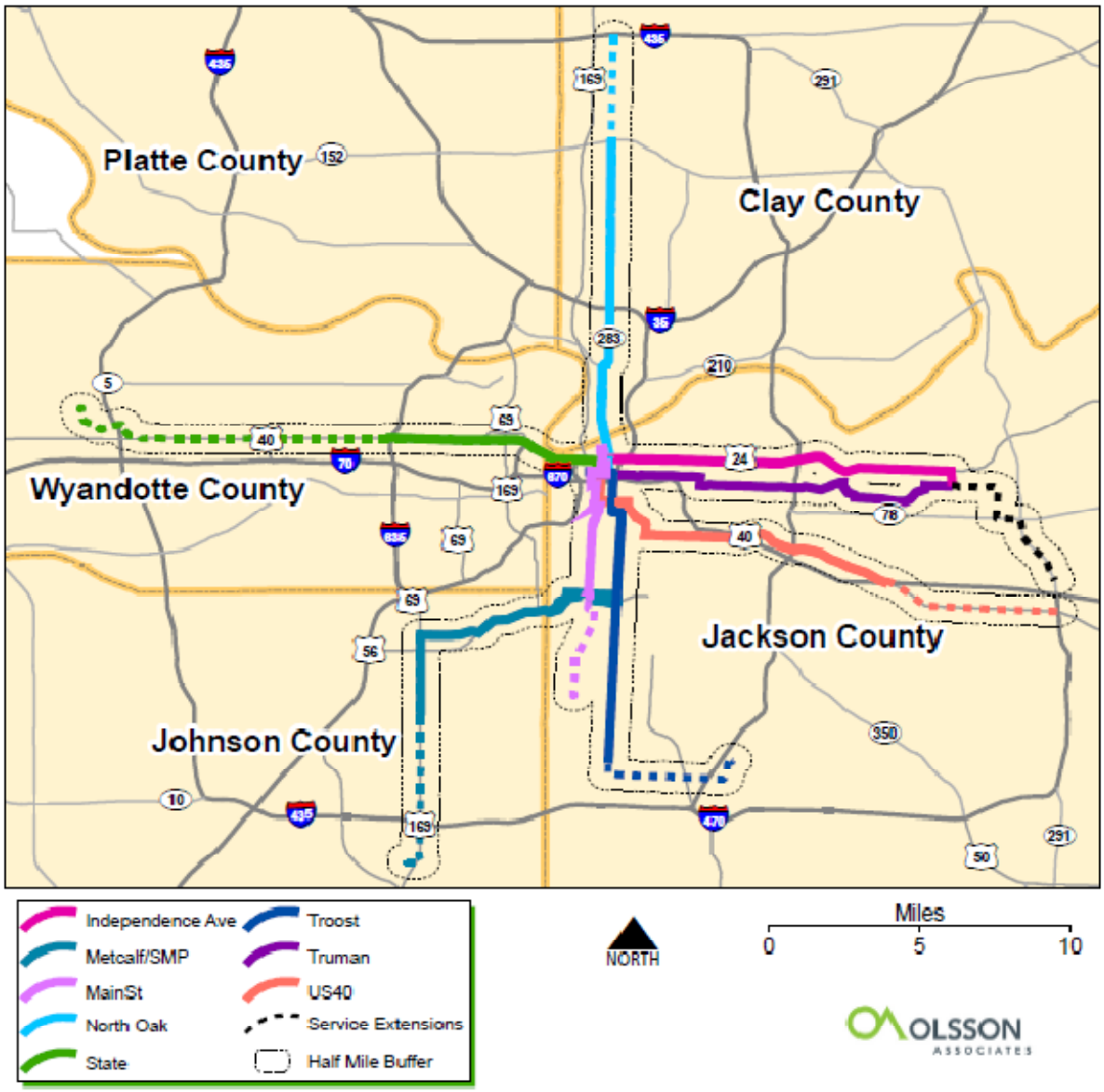
- Metcalf Avenue/ShawneeMission Parkway. This transit route would extend between the 119th Street and Metcalf Avenue area in Overland Park, Kansas, to the 47th Street and Troost Avenue area in Kansas City, Missouri, using Metcalf Avenue, Martway Street, Johnson Drive, and Shawnee Mission Parkway in Johnson County, Kansas.

- North Oak. The North Oak corridor extends from downtown Kansas City, Missouri, north along Burlington Street and North Oak Trafficway to Barry Road or Highway 152. Service from Highway 152 to I-435 would be at a lower frequency.

- Eastern Jackson County routes, roughly following US 24 / Truman Road and / or US 40. The Urban Corridor for eastern Jackson County has not yet been defined. It could include one or two of three possible eastern corridors: US 24 / Independence

Avenue, Truman Road, and US 40. Each of these alignments has an eastbound service addition that can be added at a lower frequency of service

Figure 1-3 High Capacity Corridors – Kansas City Metro Area



The above Urban Corridors can be seen as an initial system of bus rapid transit corridors. Additional corridors, such as Prospect Road in Kansas City, Missouri, and 7th Street Trafficway in Kansas City, Kansas may merit further study for possible implementation as part of an expanded Urban Corridor system.

1.5 Consultation/Input

A process of key stakeholder meetings contributed to the development of the regional transit implementation plan. These key stakeholders included representatives from the three major transit providers, JCT, the KCATA, and UGT; representatives from the Missouri Department of Transportation (MoDOT), and representatives from the region's designated MPO, the MARC. The key stakeholder group held regular meetings to direct the consultant group in the focus and scope of the project. In addition to the key stakeholders, a series of meetings was held with the various communities within the study area regarding the specific BRT route accessing their area. These meetings discussed specific route alignment issues, opportunities and difficulties with particular station types and locations, and determined the level of support for the BRT alignments.

The meetings with key stakeholders and community representatives built upon the public input process that contributed to the 2008 update to Smart Moves. In the Smart Moves update, 25 community discussions were held with citizens in all seven counties in the region.

Further citizen input was received through online discussion forums and surveys. Two technical workshops were subsequently held to evaluate alternatives and solutions, and to identify corridors that participants felt were the highest service priorities in the region. Throughout the process of updating Smart Moves, policy meetings were held with area decision makers to convey the public engagement process content and obtain feedback on preliminary transit concepts developed through technical assessment and public input. These policy workshops included Jackson County and Northern Cass County, Johnson County Transportation Council, Platte and Clay County, Platte County mayors, Unified Government of Wyandotte County/Kansas City, Kansas, and northeast Johnson County mayors.

2.0 Urban Corridor System Data

The characteristics of the households and employment that would be served by transit services in the Urban Corridors are described and compared to the metropolitan region characteristics. This section summarizes information for the areas within ½ mile of an Urban Corridor route. The characteristics examined are employment density, residential density, income distribution, existing transit boarding locations, households with access to one or fewer vehicles, distribution of minority populations, and major attractions.

2.1 Employment Density

Linking areas of high residential density to high employment density is also an important Urban Corridor component, and is a central factor in accessing potential transit ridership. The Kansas City metropolitan area, as defined by the U.S. Census has an employment density of 0.5 employees per acre. Employee concentration in the half-mile surrounding the Urban Corridors is significantly higher at 17.2 employees per acre than the Kansas City metropolitan average. The BRT service area has an even higher density of employees per acre at 19.6. Figure 2-1 illustrates how the Urban Corridor network provides access to many of the regions employment concentrations.

2.2 Residential Density

In addition to employment density, access to residential density is another important factor in assessing potential transit ridership. The Kansas City metropolitan area, as defined by the U.S. Census has a residential density of 0.7 persons per acre. The areas accessed by the Urban Corridors have an average population density of 5.9 persons per acre. The BRT service area has an even higher average population density of 6.2. Figure 2-2 displays how the Urban Corridor network accesses population centers.

2.3 Income

Areas with lower income are more likely to utilize transit than populations with higher incomes. The mean income within the corridor system is $35,014 and within the BRT

service area is $31,307 compared to $46,193 for the Kansas City metropolitan area. The income characteristics are shown in Figure 2-3.

2.4 Vehicle Ownership

Figure 2-4 displays the percentage of households who own one vehicle or fewer throughout the corridors network. Areas with lower access to personal vehicles are more likely to utilize transit than populations with higher access to personal vehicles. In the areas surrounding the Urban Corridor network 58 percent of the households have access to one or fewer vehicles. In the area surrounding the BRT service area 61.4 percent have access to one or fewer vehicles, compared to 40.8 percent of households for the Kansas City metropolitan area.

2.5 Minority Population

The minority population as a percentage of the entire population surrounding the corridor system is 35.8 percent and 39.6 percent for the population surrounding the BRT service area. These areas have a higher minority proportion compared to a minority population of 19.2 percent for the entire metropolitan area.

Minority populations served by the corridor network are shown in Figure 2-5. Five of the seven Urban Corridors have significant portions with higher minority population densities.

Figure 2-1 Urban Corridors and Employment Concentrations

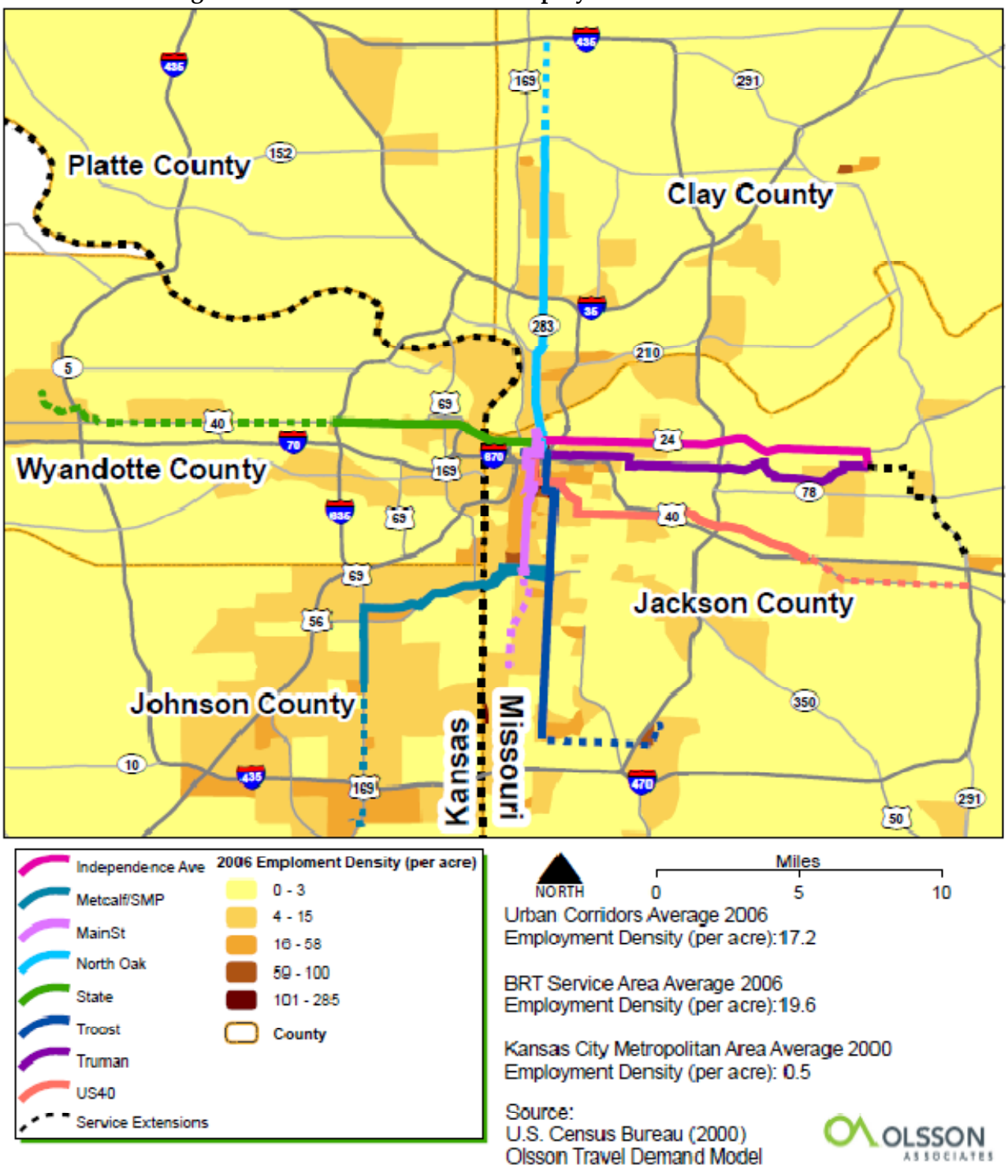


Figure 2-2 Urban Corridors and Population Density

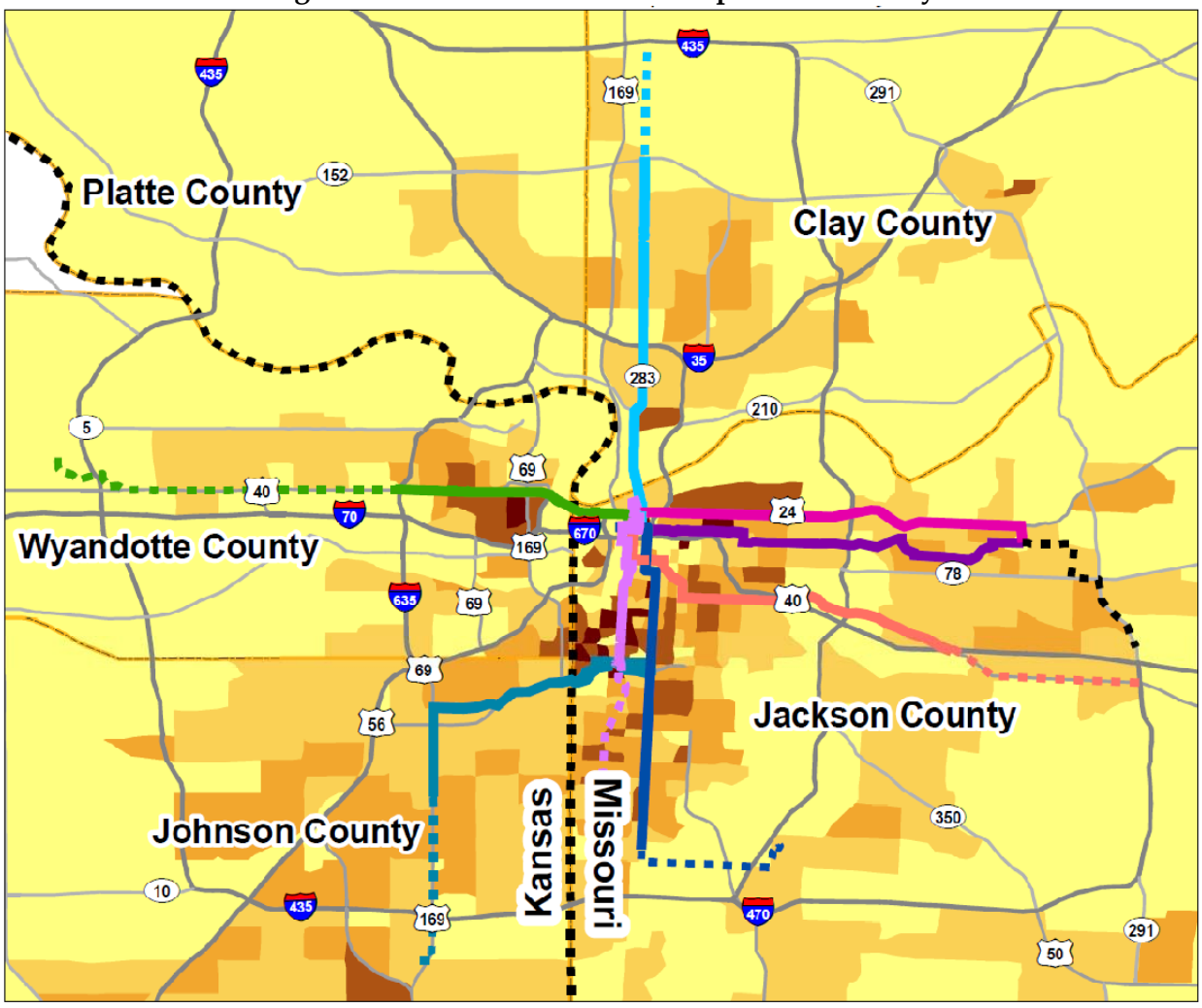


Figure 2-3 Urban Corridors and Median Household Income

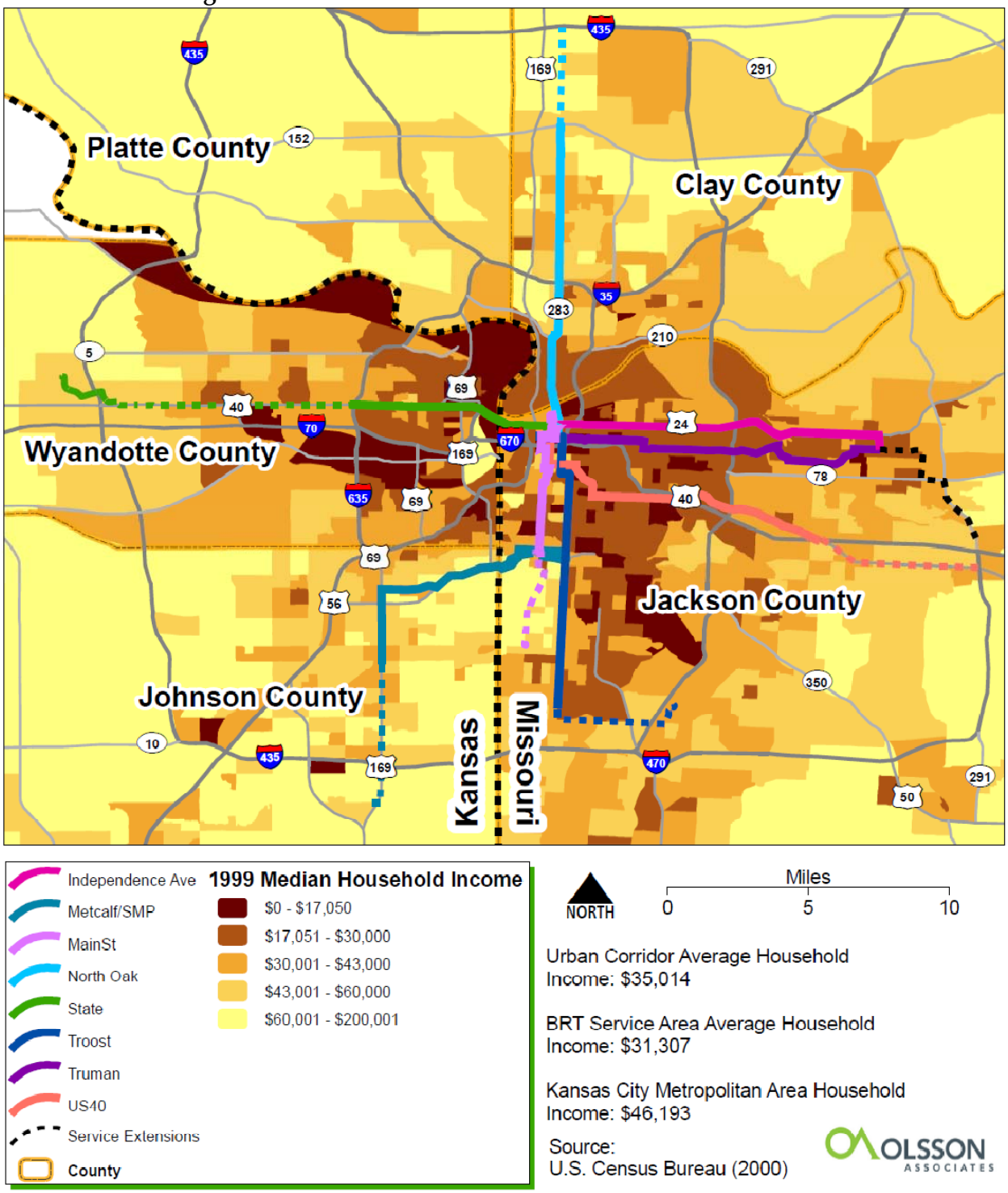


Figure 2-4 Urban Corridors and Percentage of Households with ≤ 1 Vehicle

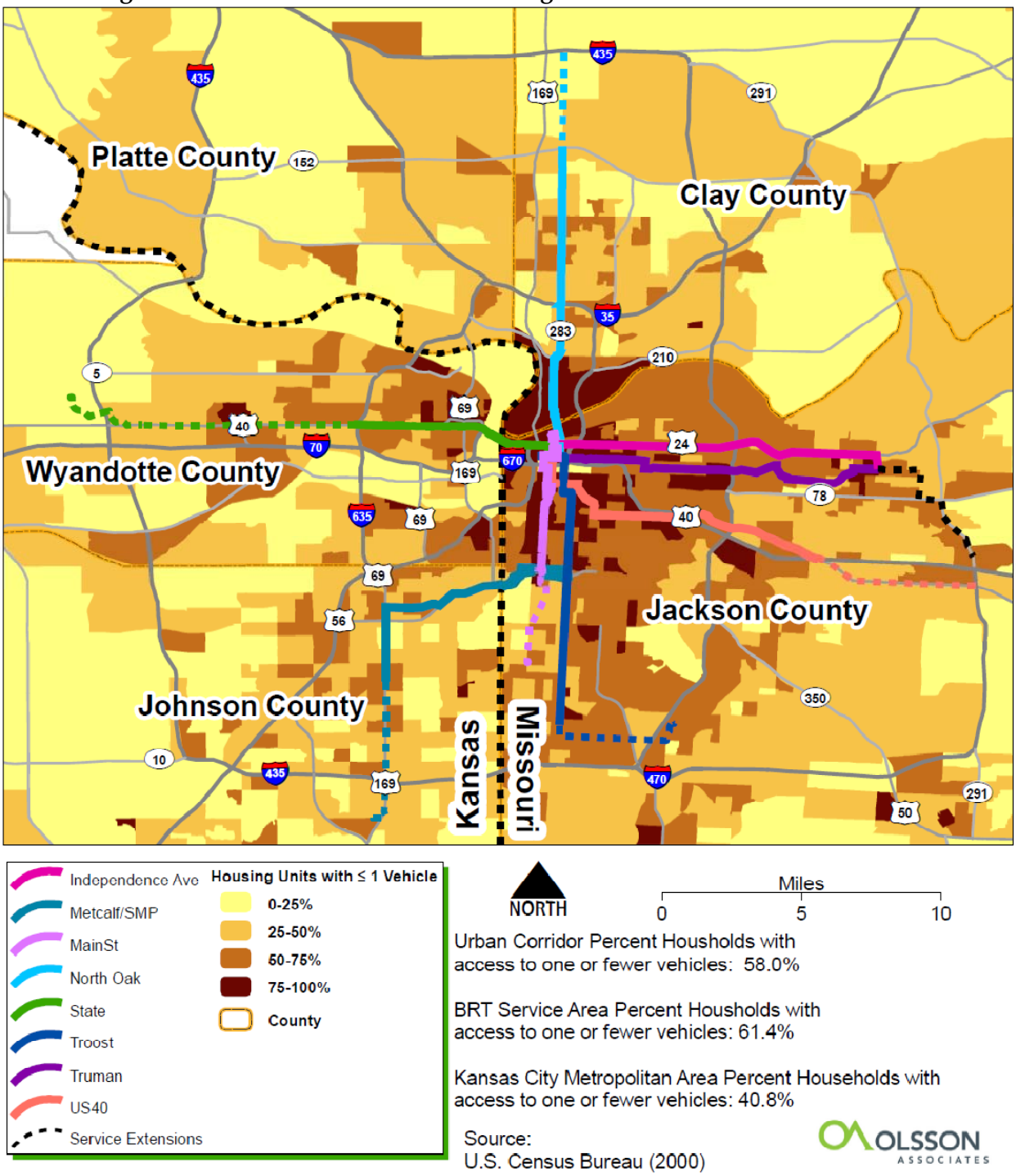
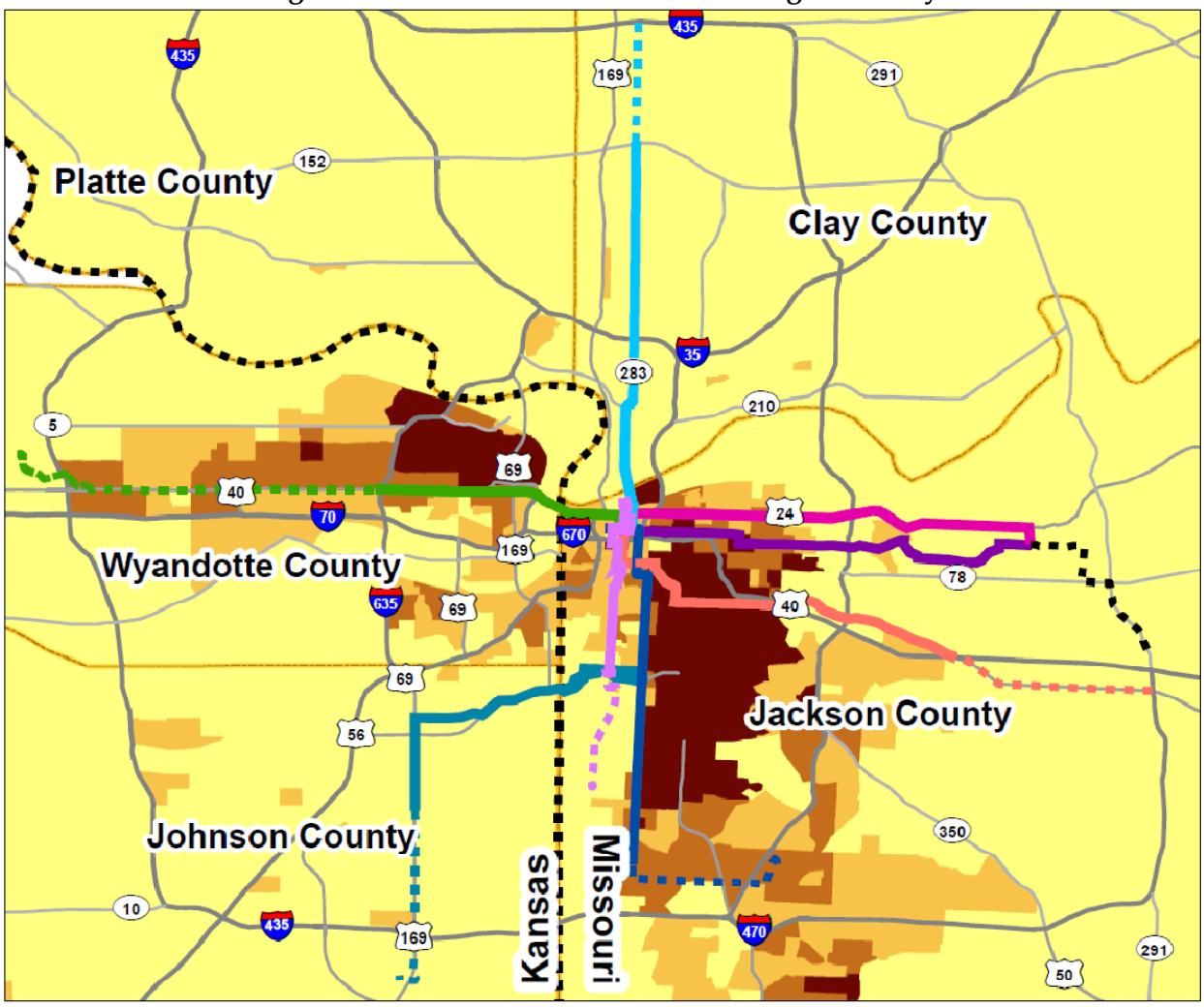


Figure 2-5 Urban Corridors and Percentage Minority



2.6 Existing Transit

Current transit service in the Urban Corridor service area ranges from six to ten minute peak frequency in the Kansas City, Missouri urban core, to thirty minute frequency in Kansas City, Kansas, to commuter orientated service in Johnson County, Kansas, and Independence, Missouri. Figure 2-6 displays the Urban Corridor system with current transit services. General service characteristics are provided in Table 2-1.

2.7 Summary

A summary of the characteristics of the population that would be served by BRT service in the Urban Corridors is provided in Table 2-1. This system of Urban Corridor routes would serve to link concentrations of low and medium income populations with many of the region's concentrations of employment. The system of routes serves areas of higher residential density and concentrations of the population with lower vehicle ownership, and would be implemented on many of the regions existing higher ridership corridors.

Figure 2-6 Urban Corridors and Existing Transit Service

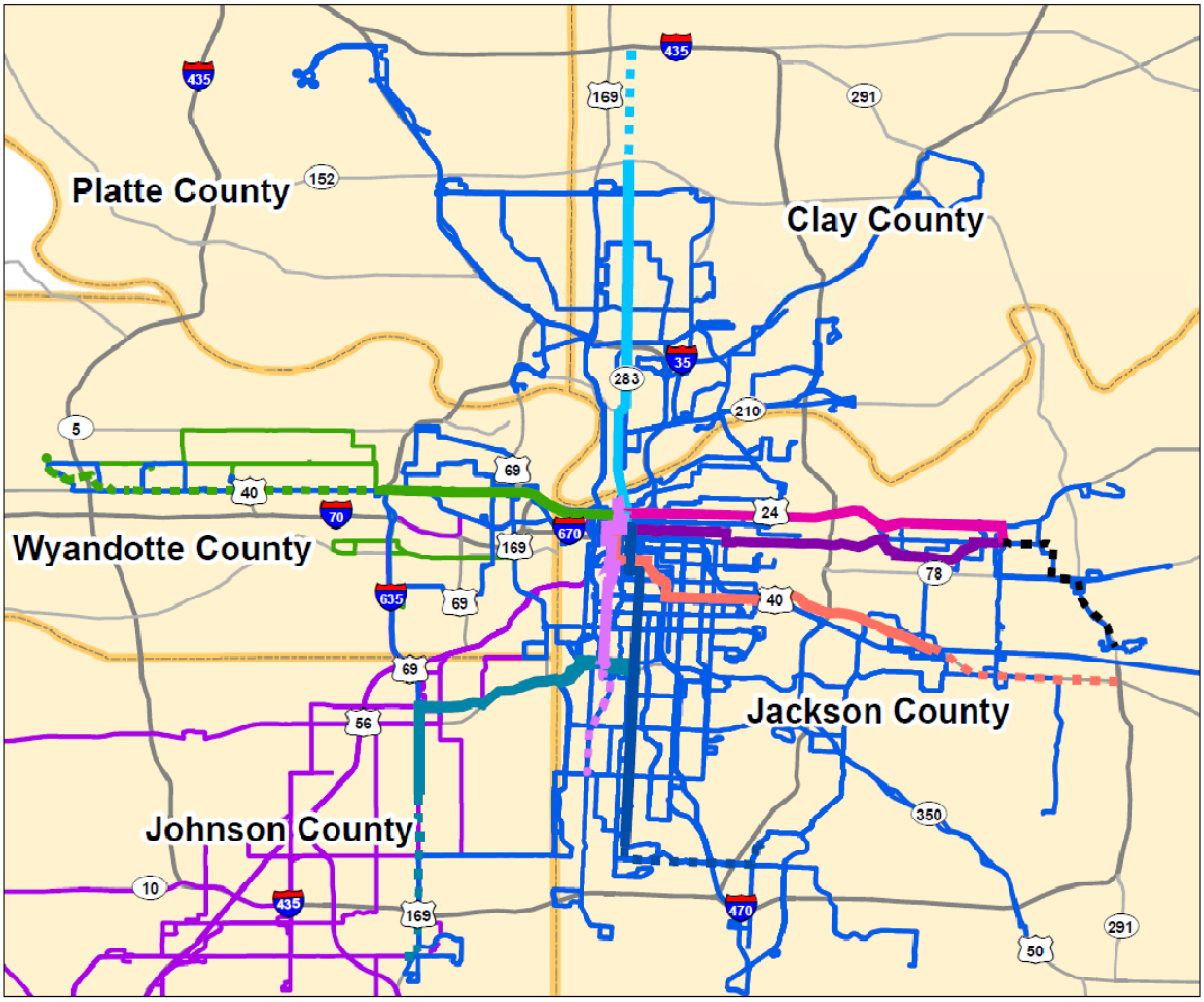


Table 2-1 Demographic Summary

	State Avenue	Metcalf Avenue / Shawnee Mission Parkway	North Oak	Truman Road	US 24 / Independence Ave	US 40	Troost	Main St
Corridor Employment Density Per Acre	24.4	19.4	41.1	31.6	33.9	36.9	25.5	32.4
BRT Service Area Employment Density Per Acre	41.8	20.2	35.4	30.2	30.1	32.9	30.0	44.3
Corridor Population Density Per Acre	2.9	8.5	3.1	4.3	4.7	4.3	4.6	5.6
BRT Service Area Population Density Per Acre	4.6	9.3	2.6	4.2	3.7	3.5	5.5	6.0
Corridor Median Income	$ 30,236	$ 46,881	$ 39,066	$ 25,271	$ 26,950	$ 25,476	$ 30,118	$ 39,197
BRT Service Area Median Income	$ 24,277	$ 45,571	$ 36,182	$ 22,864	$ 24,922	$ 22,575	$ 30,269	$ 25,921
Corridor % of Households with access to 0 or 1 vehicles	57.4%	53.6%	50.8%	59.5%	61.8%	62.5%	60.6%	61.3%
BRT Service Area % of Households with access to 0 or 1 vehicles	61.7%	55.8%	54.1%	62.1%	64.5%	66.1%	61.7%	71.7%
Corridor Minority Population Percentage	49.1%	16.7%	18.7%	31.2%	29.7%	57.1%	56.7%	25.6%
BRT Service Area Minority Population Percentage	50.5%	17.8%	20.2%	36.6%	34.3%	65.8%	56.3%	33.3%
Total Corridor Population	32,127	58,413	30,479	56,326	56,875	38,517	57,648	47,950
Total BRT Service Area Population	22,076	42,112	26,865	55,056	43,735	28,889	47,125	28,013
Total Corridor Employment	53,353	96,271	56,546	59,646	46,363	94,739	126,084	138,486
Total BRT Service Area Employment	47,536	50,869	55,538	56,582	43,299	86,939	98,365	126,796
Existing Route Daily Ridership	3,300	225	1,000	3,650	3,800	2,700	8,300	4,200
Current Transit Frequency (Peak / Off-Peak minutes)	30/30	30 - Peak Only	30/60	15/15	15/15	20/40	10/15	10/15

Source: *Kansas City Metropolitan Area : U.S. Census 2000*
Urban Corridors: U.S. Census 2000 projected to 2006
KCATA
JCT

3.0 Corridor Development

The purpose of this section is to describe the transit characteristics in each corridor if a BRT or similar type service were to be provided. This section provides an overview of the capital and operating characteristics of service that could be provided within each corridor. This portion focuses on the corridors that are currently in the formal planning process or are being considered for the planning process. This information was developed based upon the review of technical information and from discussions with each community.

Transit center locations within each corridor were identified through discussions with technical staff from cities within each corridor, and also with technical staff of the KCATA and JCT.

Placing Park & Rides in the corridor at locations to facilitate using both the express service and BRT service would allow customers from outside the traditional half-mile walking zone of high-quality transit service to utilize these service improvements.

Transit stations are an important aspect of BRT service. The distinctive stations include upgraded features such as high quality, lighted shelters, distinguishing concrete markings on the shelter pad, trash cans, and a distinctive monument sign that will allow customers to identify the stop as being serviced by the regional rapid transit system. The monument sign will feature system information and next bus information giving passengers real-time updates on when the next BRT vehicle will arrive.

Utilizing TSP technology throughout the corridor will help allow BRT vehicles to maintain scheduled times through modifying existing traffic signals with extended green times or shortened red times to improve transit system reliability and increase services to transit markets.

Operational characteristics for BRT include service frequency, type of service and operating costs. Service frequency is defined as the frequency that transit vehicles serve a single location along one route. The federal Very Small Starts and Small Starts funding programs specify a peak service frequency of 10 minutes and an off peak service frequency of 15 minutes. In some cases, a lower frequency may be more appropriate for

the potential transit demand in the corridor. Both types of service would include many of the same BRT amenities.

The type of service considered in each Urban Corridor is a version of mixed traffic BRT.

In the Metcalf and Shawnee Mission Parkway corridors, a fixed guideway is being considered. A fixed guideway is a roadway lane dedicated to only serve transit vehicles. The guideway may be separated from general traffic through grade separation, physical lane barriers, or roadway stripping. Generally these guideways would be adjacent to general traffic lanes. Costs presented here do not include the fixed guideway elements.

Commuter express service as defined here would operate on parallel freeways or highways with limited stops and higher travel speeds. This type of service currently operates on Metcalf Avenue to I-35 and on US 40 to I-70. The service can be complimentary of the BRT service in Urban Corridors. Commuter express service is noted for those corridors where it could potentially be added.

Table 3-1 displays the currently defined characteristics of each corridor. A discussion of each corridor follows. Based on a conceptual level of cost estimating, capital costs for the five Urban Corridor routes that could be implemented in the future are approximately $92 million. The annual operating expenses for the entire Urban Corridor system are estimated to be between $17 million and $21 million[5]. The table also displays the percentage of revenue hours that each corridor operates by county. Operating costs are subject to change according to labor, material, and inflation pressures.

[5] Operating costs were determined using the relevant transit agency costing methodology, and are year 2010 figures. These costs also do not itemize annual maintenance costs for transit shelters which may be captured in the costing methodology. KCATA has determined that itemized annual shelter maintenance costs are $6,302.70 per unit.

Table 3-1 Characteristics by Corridor

	MAX	Troost	State Avenue	Metcalf Avenue / Shawnee Mission Parkway	North Oak	US 24 / Truman Road	US 40
Route Termini	3rd & Grand, KCMO to Waldo, KCMO	10th & Main, KCMO to The Trails Transit Center	Village West, KCK to 10th & Main, KCMO	119th & Metcalf Avenue, OP KS to 47th & Troost, KCMO	10th & Main, KCMO to 152 Hwy, Gladstone, MO	10th & Main, KCMO to Independence Transit Center, Ind., MO	10th & Main, KCMO to Blue Ridge Crossing, Ind., MO
Project Status	In Operation	Under Construction	Project Development	Alternatives Analysis	Planning not Initiated	Planning not Initiated	Planning not Initiated
Length (miles):	12	13	15	14	11	10	10
BRT Frequency:	9-30 minutes	10-30 minutes	20-30 minutes	15-20 minutes	15-20 minutes	15-20 minutes	15-30 minutes
Capital Cost (Millions):	$21	$30.6	$25.4	$21	$15.5	$15.5	$15
Operating Cost (millions):	$3.4	$4.3	$2.5	$2	$1.7 to $3	$1.6 to $2.9	$1.6 to $2.9
Revenue Hr by County (%)	Jackson County - 100%	Jackson County - 100%	Jackson County - 21% Wyandotte County - 79%	Jackson County - 18% Johnson County - 82%	Jackson County - 10% Clay County - 90%	Jackson County - 100%	Jackson County - 100%
Major Transit Centers:		10th & Main The Trails Transit Center	47th & State Avenue, KCK 7th & Minnesota Avenue, KCK	East Gateway Transit Center, Mission, KS	Metro Mall North, Gladstone, MO	Independence Transit Center, Ind., MO	Blue Ridge Crossing, KCMO
Stations:	28 BRT Stations	47 BRT Stations	30 BRT Stations	24 BRT Stations	17 BRT Stations	28 BRT Stations	28 BRT Stations
Park & Rides:	3rd at Grand Wornall Road at 74th Terrace	31st & Troost 95th & Troost Bannister & Hillcrest	110th and Parallel Parkway 47th and State Avenue	Rosanna Square 95th & Metcalf Downtown Overland Park 6000 Lamar	152 Highway	Independence Transit Center	Blue Ridge Crossing, Ind., MO
Fixed Guideway / Mixed Traffic:	Both	Mixed Traffic	Mixed Traffic	Mixed Traffic	Mixed Trafifc	Mixed Trafifc	Mixed Trafifc
Daily Ridership Potential	4,200 (A)	10,200	5,500	3,100 (B)	2,300	6,400	5,100

Notes: (A) Current average daily ridership
(B) Ridership based off of long-term projected landuse

3.1 Main Street MAX

The Main Street MAX is the Kansas City region's first BRT line, and began operating in July 2005. The service was the first route in operation that could be directly attributed to Smart Moves. BRT service along Main Street was first studied as a feasibility study, with a following alternatives analysis that determined BRT as the locally preferred alternative.

3.1.1 Alignment

The Main Street MAX connects the Kansas City, Missouri CBD to employment and entertainment centers at the Plaza and the Waldo area. This alignment passes through areas of high population density and minority concentration, and connects population and employment centers. Fixed guideway elements exist for peak periods.

3.1.2 Operating Characteristics

Main Street MAX operates at a 10 minute peak frequency between downtown Kansas City, Missouri and the Plaza. Service between the Plaza and Waldo continues at a lower frequency. This BRT service operates in mixed traffic with bus-only lanes in the downtown area used during peak hours. The annual operating cost is approximately $3.4 million.

3.1.3 Capital Needs

The Main Street MAX has experienced a level of federal, state, and local investment that has allowed it to offer the highest level of transit amenities in the Kansas City region. Passengers along the entire length of the Main Street MAX corridor benefit from the BRT stations that include illuminated monument signs with real-time arrival information, high-quality transit shelters, TSP, and bus-only lanes that are in operation during peak hours. Additional station improvements may be needed to facilitate transfer opportunities between a future Metcalf Avenue/ShawneeMission Parkway BRT service and the Main Street MAX. These improvements would occur in the vicinity of 47th Street and Main Street in Kansas City, Missouri.

3.2 Troost MAX

The Troost MAX will be the Kansas City region's second BRT line when it begins operation in fall 2010 or early 2011. This service was an element of Smart Moves, and is the outcome of a feasibility study and alternatives analysis that determined BRT as the locally preferred alternative.

3.2.1 Alignment

The Troost MAX will operate as a parallel north-south service one mile east of the Main Street MAX. Connecting population and employment centers, the alignment passes through areas of high population density and minority neighborhoods. There are no fixed guideway elements.

3.2.2 Operating Characteristics

Troost MAX will operate a 10 minute headway all day between downtown Kansas City, Missouri, and 75th Street. Service will continue south of 75th Street to the Bannister Transit Center at a lower frequency. The annual operating cost is expected to be approximately $4.3 million.

3.2.3 Capital Needs

Stations and passenger amenities similar to those used on Main Street MAX are currently being constructed for Troost MAX. These amenities include illuminated monument signs with real-time arrival information, high quality transit shelters and TSP technology. In addition, Troost MAX includes environmental features such as rain gardens at several MAX stations to capture and filter water run-off, solar-powered lighting, recycling receptacles, solar-powered trash compactors, and pervious concrete at Park & Rides facilities. Additional station improvements may be needed to facilitate transfer opportunities between a future Metcalf Avenue/Shawnee Mission Parkway BRT service and Troost MAX. These improvements would occur in the vicinity of 47th Street and Troost Avenue in Kansas City, Missouri.

3.3 State Avenue

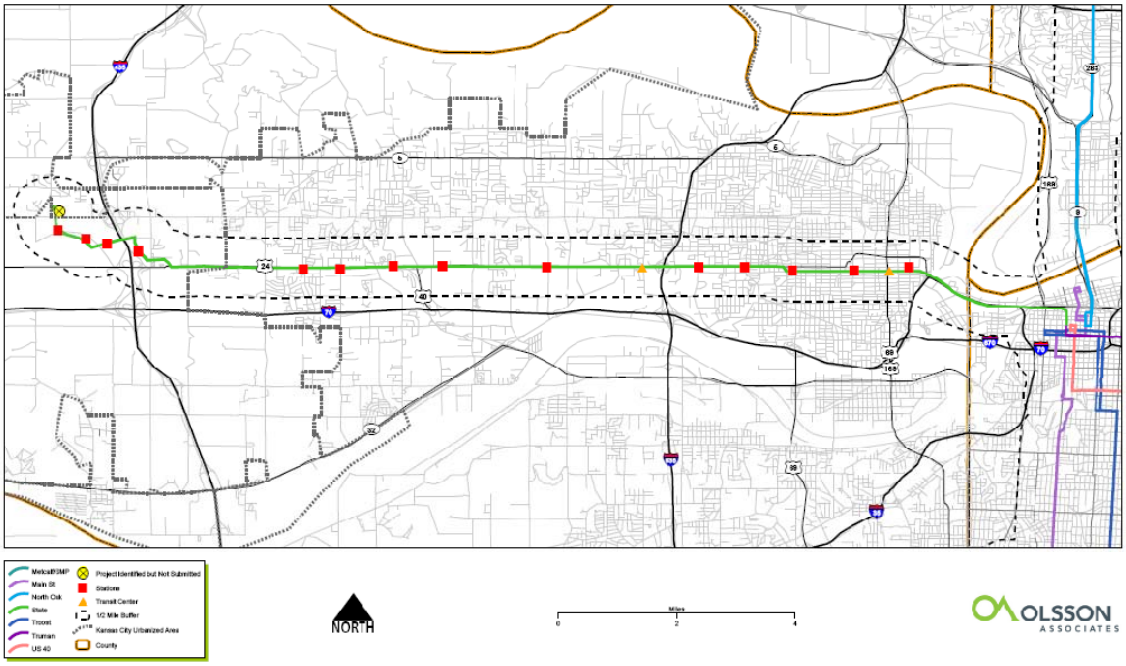
An Alternatives Analysis following the federal Very Small Starts planning process was completed for the State Avenue route with BRT selected as the locally preferred alternative. Currently State Avenue BRT is in the project development phase where specific alignments, station locations, and operational characteristics are being defined. Meetings were attended by the project team and the Unified Government to discuss and describe specific alignments, station and transit center locations and operation costs. These meetings included a number of technical staff meetings, two Citizen Steering Committee meetings and two public meetings.

3.3.1 Alignment

The State Avenue route alignment connects the Kansas City, Missouri CBD to downtown Kansas City, Kansas, to the employment concentrations at the Village West Shopping center and numerous destinations in between. Figure 3-1 displays the alignment. Currently, the existing transit facilities and infrastructure supporting transit services in the corridor include transit centers, sheltered stops, and non-sheltered stops. There are no fixed-guideway elements and no technology infrastructure such as TSP or next-bus information available to passengers traveling in this corridor.

Moving east to west, the BRT alignment would extend from the 10th and Main Street transfer center in downtown Kansas City Missouri onto I-70, and enter into Kansas City, Kansas at Minnesota Avenue. The alignment would remain on Minnesota until 18th Street where it would move to State Avenue until it reaches the Village West area. The BRT route will circulate through the Village West area primarily using Village West Parkway.

Figure 3-1 State Avenue Alignment and Station Locations



3.3.2 Operating Characteristics

The State Avenue corridor has employment destinations at both ends of the corridor offering the potential to serve employment trips in each direction. A frequency consistent with the Small Starts planning process of 10 minute peak, and 15 minute off-peak service is planned between 47th Street and State Avenue Transit Center and downtown Kansas City, Missouri. Service between 47th Street and State Avenue and Village West will continue at a lower frequency. This BRT service will operate in mixed traffic. The annual operating cost is expected to be $2.5 million.

3.3.3 Capital Needs

The State Avenue BRT will incorporate TSP, real-time signage, four transit centers, and approximately 30 stations over the 15 mile corridor length. The existing 10th and Main Transit Center would be utilized, and three new transit centers would be constructed. The new transit centers are located in downtown Kansas City, Kansas at 7th Street and Minnesota Avenue, at 47th Street and State Avenue across from the former Indian Springs Center site, and a location near Village West Parkway and Parallel Parkway. The Village West location may have a Park & Ride lot, and the 47th Street and State Avenue site may have a future Park & Ride lot.

The new 47th Street and State Avenue Transit Center would replace the transit center currently at the site of the former Indian Springs Shopping Center. Amenities at the current Indian Springs transit center are limited and include a single bus shelter, trash receptacle and limited route informational signage. The absence of lighting, very limited landscaping, and poor pavement conditions, combined with the uncertain redevelopment timeline of the former shopping center, initiated building a new transit center across the street.

The existing sheltered stops along the proposed BRT route are for the most part not enhanced. The more recent shelters along Village West Parkway in the western portion of the corridor are more substantial and higher quality in nature.

The cost for these physical improvements in the corridor is approximately $19 million. In addition, to maintain service consistent with BRT standards, approximately 11 BRT vehicles will need to be acquired at a cost of $6.8 million. Some of these vehicles may use hybrid technology. The total capital cost for this corridor is approximately $25.4 million, and are detailed in Appendix Table A-4.

3.4 Metcalf Avenue/Shawnee Mission Parkway

A transit feasibility study was completed for the Metcalf Avenue and Shawnee Mission Parkway corridor in 2009. An Alternatives Analysis following the Federal Small Starts planning process is anticipated to be initiated in 2010. Meetings were attended by the project team with JCT, the City of Mission, the City of Overland Park and other

community representatives to discuss and describe specific alignments, station and transit center locations and operation costs.

These studies built upon *Vision Metcalf*. This visioning process was a long range corridor study centered on Metcalf Avenue in Overland Park, Kansas. The study prescribed higher future land use density than currently exists, and recognized that a higher level of transit service such as BRT would be required to serve this additional land use density.

3.4.1 Alignment and Facilities

The BRT alignment would connect employment activity centers in Overland Park, Kansas, with the Plaza or Troost area in Kansas City, Missouri. From the Rosanna Square Park & Ride at 119th Street and Metcalf Avenue in Overland Park, Kansas, the alignment is planned to proceed north on Metcalf Avenue to Martway Street, and then proceeds east generally on Martway Street, Johnson Drive, and Shawnee Mission Parkway respectively, and various streets east to Troost Avenue in Kansas City, Missouri.

BRT service along this route will provide a strong transit connection between low-income areas and areas of high minority populations to regional job centers in Overland Park, Kansas. This route provides a strong transit connection between two counties, two states, and multiple communities. The Metcalf Avenue/Shawnee Mission Parkway corridor is displayed in Figure 3-2.

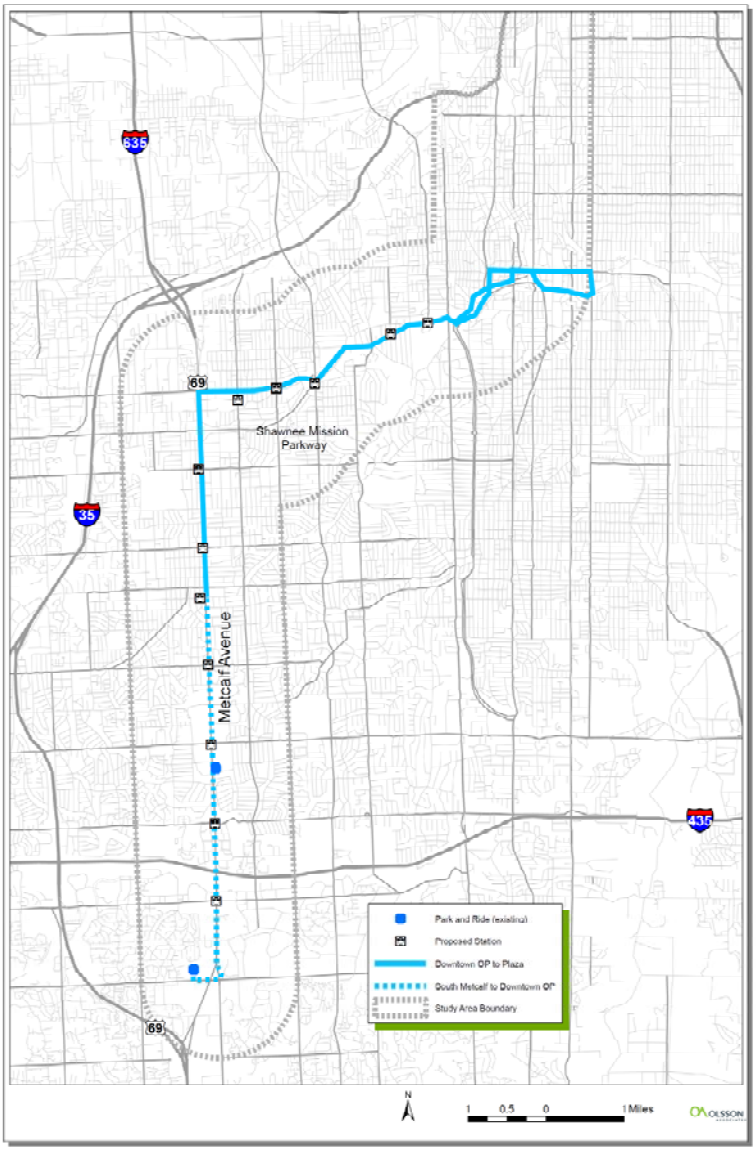
3.4.2 Operating Characteristics

BRT will operate between 47th Street and Troost Avenue in Kansas City, Missouri, with downtown Overland Park, Kansas at a frequency of 15 to 20 minutes. Service will continue at lower frequency of 30 minutes to the 119th Street and Metcalf Avenue area in the southern portion of the corridor. JCT is expected to operate the BRT service, and is examining the possibility of operating BRT with a fixed transit guideway on Metcalf Avenue and possibly in a section of the route in Mission. This alternative will be examined in an Alternative Analysis Study to be completed in 2010-11. The yearly operating cost is expected to be $2 million using JCT's cost characteristics;.

3.4.3 Capital Needs

This existing transit infrastructure consists of a transit center, two Park & Ride lots, unsheltered stops, and a limited number of sheltered stops. There are no fixed guideway elements, and except for areas where the proposed Metcalf Avenue/Shawnee Mission Parkway BRT route intersects the existing Main Street MAX BRT alignment in Kansas City, Missouri, no technology infrastructure such as TSP or next-bus information are currently available to passengers traveling in this corridor.

Figure 3-2 Metcalf Avenue/Shawnee Mission Parkway BRT



The 6000 Lamar Transit Center acts as a primary hub of the JCT system, and is owned and operated by Johnson County. It is located at the Johnson County Northeast Government offices and serves as a transfer point between numerous routes. The center provides sheltered waiting areas, and has room for multiple transit vehicles to utilize the center simultaneously. This location provides space for a limited number of Park & Ride customers.

Two designated Park & Ride facilities exist immediately adjacent to the currently defined BRT route. These Park & Rides are located at 119th Street and Metcalf Avenue,

and 95th Street and Metcalf Avenue, and serve JCT routes. The facilities are not enhanced, with limited signage, displays, or infrastructure directing users to the Park & Ride lot. The 6000 Lamar Transit Center also functions as a Park & Ride.

The Metcalf Avenue/Shawnee Mission Parkway BRT will incorporate TSP, real-time signage, enhanced branding, and approximately 24 stations over the 15 mile corridor length. In addition, the two existing Park & Ride facilities will be upgraded with transit shelters and monument signs, and additional Park & Ride lots will be placed throughout the corridor. A new East Gateway Transit Center is proposed between Roeland Drive and Nall Avenue at Martway Street to replace the current transit station at 6000 Lamar Avenue. The cost for these physical improvements in the corridor is approximately $8.5 million. In addition, to maintain service consistent with BRT standards, approximately 8-10 BRT vehicles will need to be acquired at a cost of $4.8 million to $8.8 million. Portions of the corridor have been identified as possible candidates for fixed guideway elements. Including the fixed guideway elements, the total capital needs identified for the Metcalf Avenue/Shawnee Mission Parkway BRT corridor total approximately $238 million.

3.5 North Oak

The North Oak corridor is seen by officials of KCATA, MARC, and local municipalities as a candidate for additional study to further complete the Urban Corridor network. The consultant group met with technical staff from the Missouri cities of Kansas City, North Kansas City, and Gladstone to discuss enhancing transit services and capital facilities along the existing North Oak Route as a possible first step for providing BRT service. Meetings to discuss the North Oak BRT reviewed an alignment, and focused on potential station locations and funding commitments.

Numerous plans support enhanced transit service in this area. The *Burlington Corridor Plan*[6] serves as the vision for development along Burlington Street, and was a direct implementation of the 2006-2007 City of North Kansas City, Council's Strategic Action Plan. The Burlington Corridor study area encompasses the land between the northern

[6]Available at:
http://www.nkc.org/UltimateEditorInclude/UserFiles/Common/Document/Burlington_Corridor_Study_-_Final_06-24-2009_114206.pdf

and southern-most city limits of North Kansas City, Swift Avenue on the east, and the city limits on the west, with Burlington Street running north-south through the center of the study area.

The study recognized that Burlington Street is featured in Smart Moves as an Urban Service corridor, and is a possible candidate for light rail or BRT. The Burlington Corridor recommendations for transit include support for the continued use of Burlington Street as a major transit corridor; the incorporation of provisions for future rapid bus and/or light rail service into future upgrades; and the development of the corridor in a manner that is not only compatible with, but supportive of transit use (both local and regional) including higher density development near major stops.

The Street Design Recommendation portion of *Burlington Corridor Plan* depicts light rail as a very likely possibility on Burlington Street (if connected to the proposed light rail corridor in Kansas City, Missouri's master plan) but recognizes that BRT can easily coexist with on-street traffic in the outer lanes as a precursor to light rail, and includes lanes that could be used as bus lanes in streetscape recommendations throughout the corridor. The study also identified 29th Avenue and Burlington Street as a possible light rail stop that would act as a more significant destination and gateway into the northern portion of Burlington Street, a light rail stop at 18th Street, and a light rail stop at 12th street to act as a destination for the southern study area and enhance the gateway onto the corridor.

The 2008 City of Gladstone comprehensive plan, titled *Gladstone on the Move – Citizens Making a Difference*[7], mentions light rail and BRT on North Oak Trafficway throughout the document. It also identified the need to implement "transit oriented development" concepts in the North Oak corridor, and promote moderate-to-higher density mixed use and residential use along North Oak to support transit, and as part of an effort to create "livable" mixed use "village centers". The plan supports transit center or station placement using a core-periphery land use concept where higher density development is established to support transit usage.

North Oak Trafficway and 70th Street is identified as the location for a primary transit center to support a proposed Downtown Village Center at that location, secondary

[7]Available at http://www.gladstone.mo.us/CommunityDev/documents/comp_plan.pdf

transit centers would occur on North Oak Trafficway at 64th Street, Englewood Road, and 75th Terrace. The plan recognizes that these locations remain conceptual in nature until later studies could be implemented. Along with the more conceptual support for transit, the plan also recommends adopting Transit Orientated Development and Transit Impact Zone regulations if rapid transit is extended to Gladstone.

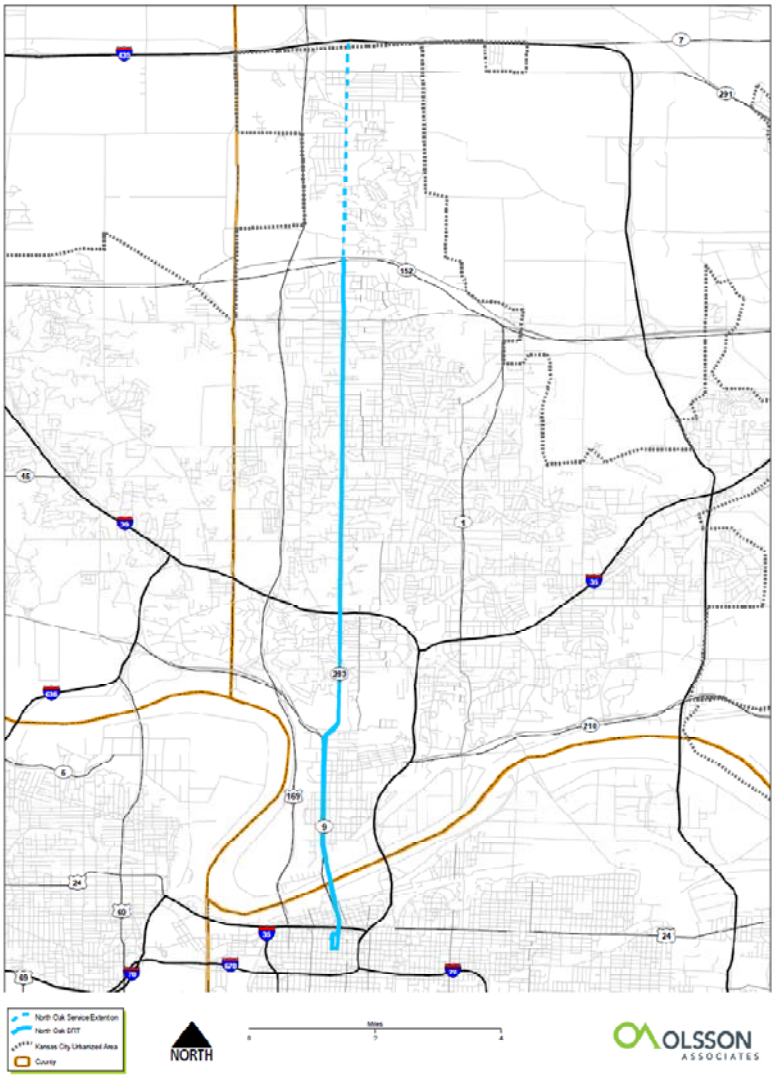
The City of Kansas City, Missouri completed the North Oak Corridor Plan in 2006 as a detailed guide for development/redevelopment, transportation and land use decisions. North Oak is a visible commercial corridor that connects downtown Kansas City with its growing suburban neighborhoods in the northland. North Oak runs through North Kansas City (called Burlington Avenue) and through the City of Gladstone before reentering the city limits of Kansas City, Missouri. The Corridor Plan focused on the area south of Englewood Road and north of 32nd. Street. The Plan promotes a multi-modal transportation environment, recommends accommodating existing and future transit improvements with improved neighborhood connections, higher density housing where appropriate and nodal commercial development to support transit usage.

3.5.1 Alignment

This corridor alignment would provide a north-south connection through North Kansas City, Gladstone and portions of Kansas City, Missouri located north of the Missouri River. A BRT service would provide a rapid transit service with more limited stops along a route similar to the existing KCATA *Route 142 North Oak* and terminating at Highway 152. This route would connect downtown Kansas City, Missouri, with residential areas in North Kansas City and Gladstone, Missouri using the Heart of America Bridge to exit downtown Kansas City, Missouri, and proceed north on Burlington Street in North Kansas City, before continuing north on North Oak Traffic Way in Gladstone, Missouri.

An express service would provide long-distance, limited access service from the Smithville, Missouri, area to downtown Kansas City, Missouri, using Highway 169. This express bus service would make limited stops in Smithville, Missouri, and the area around Highway 152 or Barry Road. The alignment is displayed in Figure 3-3.

Figure 3-3 North Oak Alignment



3.5.2 Operating Characteristics

The North Oak corridor has employment destinations oriented toward the Kansas City, Missouri CBD. A frequency consistent with the Small Starts planning process of 10 minute peak, and 15 minute off-peak may be considered, but for planning purposes, a lower frequency of 15 to 20 minutes in the peak and 30 minutes in the off-peak was assumed. This BRT service will operate in mixed traffic. The annual operating cost is expected to be $1.7 million to $3 million depending on service frequency.

3.5.3 Capital Needs

Implementing BRT service and an express bus service along the North Oak corridor will involve adding more vehicles and passenger amenities than what is currently provided in the corridor. Rolling stock estimates include 6 to 11 low floor, distinctive vehicles for BRT service, pre-delivery inspections, Automatic Vehicle Location (AVL) systems on each vehicle, and TSP equipment on each vehicle. Vehicles similar to those used for *MAX* would cost approximately $600,000 each, with a total cost of approximately $3.7 million to $6.8 million.

A Park & Ride area exists at a satellite parking lot at Metro Mall North, but has limited signage, displays, or infrastructure indicating the presence of a Park & Ride to users. Through this study process, it was determined that the Metro North Park & Ride would need to be upgraded or moved to a new, more accessible location. This Park & Ride facility in the Barry Road or Highway 152 area would serve customers of both the express service and BRT service. Upgrading an existing facility to include distinctive monument signs and shelter facilities would cost approximately $250,000. Using existing parking lots such as those used at Metro Mall North would limit costs, but would still require agreements with the retail center, capital improvements for passenger facilities, and may require yearly pavement maintenance on portions of the retail center's parking lot.

A second potential Park & Ride location could be in Smithville. A Park & Ride lot in the Smithville area would facilitate users of the proposed express service to downtown Kansas City, Missouri. Costs for new Park & Ride facilities are highly dependent on the price and availability of right-of-way. A new Park & Ride facility in Smithville using existing right-of-way could cost approximately $250,000.

Technical staff from the City of Gladstone, Missouri, the City of North Kansas City, Missouri, and KCATA met with the consultant group to discuss locations for improved transit facilities. These discussions identified 17 possible BRT station locations in the North Oak corridor. A BRT station has a unit cost of $140,500. Utilizing a bus pull-out would increase the cost by up to $200,000.

TSP implementation in the corridor, even without Small Starts funding, would be a modest investment since the corridor already has upgraded traffic signals as part of the area's Operation Green Light program.

Order-of-magnitude capital costs are displayed in Appendix Table A-1. Bus pull-out costs are detailed in Appendix Table A-12

3.6 Eastern Jackson County

US 24/Independence Avenue, Truman Road, and US 40 were designated in Smart Moves as having either urban service with a BRT transit mode or as major fixed route service. US 24 was identified in Smart Moves as a major fixed route corridor, while Truman Avenue was identified as an Urban Service corridor. The US 24/Truman Road corridor could be studied for two possible BRT routes, or a single merged route.

Smart Moves and other local planning documents identify US 40 as a rapid transit corridor with both commuter service and major fixed route service. Local and express transit service currently operates on portions of this corridor. If higher capacity transit options were to be explored, this service would provide a transit connection from southern Independence, Missouri to residential areas in Kansas City, Missouri, and on into downtown Kansas City, Missouri.

Currently, Route 24 provides local transit service on Independence Avenue. It has peak frequency of 15 minutes within the city limits of Kansas City and 60 minute frequency to the transit center at the Square in Independence. Route 24X provides four peak directional commuter service trips into downtown Kansas City, Missouri on Truman Road.

Technical staff from the City of Independence, Missouri met with the consultant group to discuss alignments and locations for improved transit facilities on these three transit corridors. Transit capital improvements were discussed that would set the foundation for later high capacity transit use while benefitting existing transit service.

3.6.1 Alignment and Facilities

Figure 3-4 displays three possible eastern BRT alignments: US 24/Independence Avenue, Truman Road, and US 40. The US 24 alignment is approximately 10.2 miles

long. The corridor connects the 10th & Main Transit Center in downtown Kansas City, Missouri, with the Independence, Missouri, Transit Center at Truman Road and Nolan Road. The corridor follows US 24 along the entire length from downtown Kansas City, Missouri, until approximately Noland Road where the corridor turns south to access the Independence Transit Center.

The Truman Road alignment length is approximately 9.5 miles. Similar to the US 24 alignment, a Truman Road alignment would connect downtown Kansas City, Missouri with the Transit Center at Truman Road and Noland Road. BRT service on either of these alignments could be examined for future implementation. Access to major new developments would be provided in the in the I-70 and I-470 area by introducing a lower frequency transit service to connect to the Independence Center.

For planning purposes, US 24/Independence Avenue and Truman Road are described as a single US 24/Truman Road corridor.

A higher capacity transit service using US 40 would connect downtown Kansas City, Missouri, with Blue Ridge Crossing in southern Independence, Missouri. The alignment would proceed southeasterly using Grand Avenue and Bruce R. Watkins Expressway (US 71) to 31st Street, before proceeding onto US 40. The route length is approximately 10 miles. This service could take the form of either express service or BRT service. The service could be extended to serve the destination centers in the I-70 and I-470 area.

3.6.2 Operating Characteristics

The US 24/Truman Road corridor and US 40 corridor are primarily oriented to the traditional commute pattern to the Kansas City, Missouri CBD. However, new development in eastern Independence provides a second major destination point. Further study is needed to determine the frequency and service plan for this corridor. For the purposes of this study, a frequency consistent with the federal Small Starts planning process of 10 minute peak, and 15 minute off-peak was assumed to operate from downtown Kansas City, Missouri to the Independence Transit Center. A less frequent service similar to BRT could connect the Independence Transit Center to the I-70 and I-470 area around Independence Center. The BRT service will operate in mixed

traffic. The US 24/Truman Road alignment and US 40 alignment would each have an estimated operating cost of $1.6 million to $2.9 million.

Figure 3-4 Possible Eastern Corridor BRT Alignments

3.6.3 Capital Needs

Implementing higher use transit service such as BRT or express bus service along the US 24/Truman Avenue corridor and US 40 corridor would require additional vehicles and passenger amenities than what is currently being utilized in the corridor. Because both US 24 and Truman Avenue are of similar lengths, the costs presented here could be applied to either alignment. Bus capital cost estimates for distinctive low-floor BRT vehicles equipped with AVL systems TSP equipment would cost approximately $600,000 each, with a total cost of approximately $3.2 million to $6.2 million.

Transit centers currently exist in these corridors. They include the Independence Square Transit Center, with multiple shelters, off-street loading areas for transit vehicles, and may include restroom facilities for transit drivers. A second existing transit center is at

the Blue Ridge Crossing. Through this planning process, a potential location for a third transit center was identified in I-70 and I-470 area.

Planning efforts have not reached a level to determine specific transit station locations. BRT service normally has wider station spacing than the sub-quarter mile spacing associated with local bus service. In the Kansas City area, this station spacing is typically one- half mile apart, but may be as close as one- quarter mile in areas of high density, or spaced as far as one mile or more in route portions with lower residential or employment density.

The US 24/Independence Avenue alignment has a slightly longer length at 10.2 miles than the Truman Avenue's alignment length of 9.5 miles. An average station spacing of one station pair per 0.75 miles would allow for a variety of station spacing throughout the corridor. The spacing would place 14 station pairs in the corridor. It is assumed that a third of station pairs would require a bus pull-out. The length of an extension between Independence Transit Center and Independence Center is 5.5 miles, and would require eight station pairs using the average station spacing of one station per 0.75 miles.

The US 40 alignment is 10 miles long and would require 14 station pairs in the corridor if implemented as a BRT service, which is more accessible (i.e. more stations) than an express service. An express service of the same length would require considerably fewer station pairs. A route extension from Blue Ridge Crossing to US 40 and I-470 is 4.7 miles. A spacing of one station per 0.75 miles would require seven station pairs.

TSP implementation along US 24/Independence Avenue and portions of US 40, even without Small Starts funding, would be a modest investment since those corridors already have upgraded traffic signals as part of the area's Operation Green Light program[8]. Truman Road is not part of the Operation Green Light program and would likely require higher costs for TSP implementation.

Order-of-magnitude capital costs are displayed in the Appendix Table A-2 through Table A-3.

[8] Operation Green Light map available at
http://www.marc.org/transportation/ogl/pdfs/maps/EJackson.pdf

3.7 Cost Overview

Based on the information presented in this section, Table 3-2 presents a summary of the cost information for all of the Urban Corridors.

Table 3-2 Cost Overview

	State Avenue	Metcalf Avenue / Shawnee Mission Parkway	North Oak	US 24 / Truman Road	US 40	MAX	Troost
Capital Cost (Millions):	$25.4	$21	$15.5	$15.5	$15	$21	$30.6
Operating Cost (millions):	$2.5	$2	$1.7 to $3	$1.6 to $2.9	$1.6 to $2.9	$3.4	$4.3

4.0 Urban Corridor Network Integration

The seven urban corridors described in Section 3 form the Urban Corridor network. This transportation system includes the relationships between each rapid transit corridor, features that may enhance connections between corridors, and potentially support other local transit service.

This system is now coming into place one corridor at a time. The Main Street MAX already operates along Main Street in Kansas City, Missouri. The Troost MAX will begin operating in late 2010 or early 2011 and will link the Bannister Mall area with downtown Kansas City, Missouri. As planning moves toward implementation of BRT in the State Avenue Corridor and the Metcalf Avenue/Shawnee Mission Parkway Corridors, an Urban Corridors transit system will begin to emerge. As planning and implementation for the North Oak Corridor and corridors in Eastern Jackson County takes place, a full Urban Corridor System will be realized.

The purpose of Section 4 is to discuss the interrelationship between each Urban Corridor by adding additional definition regarding potential route connections that would enhance the entire Urban Corridors System. In this section, short-term opportunities are discussed to enhance system connections. Longer term measures that could lead to a more fully integrated system are also described in this section.

4.1 Short-term Opportunities to Enhance System Connections

There are a number of opportunities to provide transit services in the Urban Corridors that would enhance viewed each BRT route to be part of an Urban Corridor network. A number of elements could be applied on each BRT route to create a unified system. These include: TSP technology, branding, uniform fare and transfer policies, communication, and a downtown KCMO transfer location. These enhancements could be considered short-term opportunities that are achievable within the constraints of the current system.

4.1.1 Transit Signal Priority (TSP)

TSP technology allows communication to occur between transit vehicles and traffic signals. TSP can be deployed to extend green lights or delay red lights when transit vehicles are behind schedule. This signal preemption allows transit vehicles to go through intersections before lights turn red, resulting in increased service reliability. This technology is typically not used to increase travel speed.

Different municipalities throughout the Kansas City metropolitan area set different standards for the application of TSP technology and may utilize different equipment. This will require transit agencies to coordinate with various municipalities to implement TSP, and may result in routes experiencing uneven TSP results along their alignment. The different TSP systems may also require multiple sets of emitter equipment on each BRT vehicles to allow TSP to be used along the entire alignment length.

4.1.2 Branding

Consistent branding could help communicate the idea of one Urban Corridor system to the public. It is recognized that different transit agencies and different routes may acquire different vehicle types for specific routes. This diversity may also express itself in terms of station designs that reflect the particular nature of the specific location or city. However, for the public to perceive a unified system, key branding features among the different Urban Corridor routes should be identified. A consistent element will create a regional awareness of a BRT system spanning the metropolitan area. This key brand element may express itself as uniform monument signs at each BRT station, a key logo on BRT vehicles, and a branding element within the name of each BRT route to signify a relationship with other Urban Corridor routes.

In addition to vehicles and station elements, timetables among the BRT routes could share the same brand identity. This will allow passengers unfamiliar with the local transit system to quickly identify those BRT routes that connect regions of the metropolitan area.

4.1.3 Uniform Fare and Transfer Policies

The Urban Corridor systems use routes operating in different transit agency jurisdictions. The same fare and transfer policy should be applied to all of the routes in order to reinforce the function of the Urban Corridor network. This will allow passengers to more easily transfer from one Urban Corridor route to a second Urban Corridor route, even if those routes are operated by different transit agencies. This policy, if applied to all Urban Corridor routes could address a standard fare structure, accepting transfers from other Urban Corridor routes, and accepting transfers from local transit agencies.

4.1.4 Communication

Currently, the three transit agencies in the metropolitan area operate separate dispatching centers and utilize three different radio communication systems. This may present operational difficulties as different routes will be unable to communicate with each other to coordinate transfer opportunities. Agencies operating the Urban Corridor routes should create policies detailing how communication between BRT routes will be handled.

4.1.5 Downtown Kansas City, Missouri Transfer Location serving Urban Corridor Routes

As currently planned, the Urban Corridor routes will connect at multiple points in downtown Kansas City, Missouri. State Avenue BRT and Troost MAX will access the existing Downtown Transit Center located at 10th and Main. The closest the Main Street MAX would get to the downtown transit center is 11th Street and Main Street. The route alignments for the North Oak and the eastern Jackson County routes have not been set. It is yet to be determined if these routes would access the downtown transit center or would use 11th and 12th Streets similar to the Main Street MAX. While the walk from the 10th and Main Transit Center to 11th Street and Main Street would not be strenuous to most users, some enhancement would be needed to support a system connection. This could include placing wayfinding signs that connect the two stop to support the perception of seamless transfers for users.

To effectively serve multiple BRT routes, the transfer location in downtown Kansas City, Missouri would need to be enhanced. The alignment for Main Street MAX could be realigned to directly serve the 10th and Main Transit Center. Way-finding techniques could be used to provide visual connections between the transit center and the Main Street MAX station. These way-finding techniques could include properly orientated maps at the Transit Center focusing on downtown transit options, specialized sidewalk paving or a sidewalk canopy that visually and physically links the two locations, additional way-finding signs, or a combination of multiple techniques.

4.1.6 Transfers between each Route

Transfers between routes can be enhanced by using a pulse system. In this case, Urban Corridor routes would converge in downtown at the same time and dwell in one spot to allow passengers to transfer among the Urban Corridor routes. The Metcalf Avenue/Shawnee Mission Parkway BRT in the currently planned alignment will not access the 10th and Main Transit Center, but will connect with Main Street MAX and Troost MAX in the area of 47th Street at Main Street and at Troost Avenue. Connections to transfers along 47th Street, can be timed based on the downtown Kansas City, Missouri pulse connection

Those activity and employment centers first identified as regional nodes in Smart Moves can be further evaluated as transfer points for the Urban Corridor system. Regional nodes that occur at the junctions of multiple Urban Corridors or the intersection of an Urban Corridor and several local transit routes could be given particular focus.

4.2 Long-term Opportunities for System Optimization

Several of the features described in Section 4.1 can be realized as part of the current system and will allow passengers to see the system as operating as one continuous system. Reaching full operational economies for the entire Urban Corridors system could require more significant changes in how the system is operated, and may only be achieved through in-depth coordination of local governmental entities and transit agencies. The following items suggested here are long-term opportunities to help achieve a true single system.

4.2.1 Transit Signal Priority (TSP)

As the full Urban Corridor system would come in place, TSP systems across the metropolitan area will require regional coordination similar to the region's Operation Green Light initiative. Regional coordination will allow TSP standards to be applied uniformly throughout the region and will allow transit vehicles to carry only one set of TSP emitter equipment. This uniform set of TSP standards and equipment will allow BRT vehicles to benefit from a system-wide set of standards along the entire route, and will assist with route interlining, and vehicle rotation among the routes.

4.2.2 Branding

In the longer term, successful branding should encompass uniform vehicle types. A uniform vehicle type will give an optimized system several benefits. Urban Corridor brand awareness will increase and customer confusion will decrease if BRT routes all share one vehicle type. Cost-effective purchasing can be more fully realized as greater amounts of the same vehicle types are purchased. Uniform vehicle types will also allow transit vehicles to be rotated among different BRT routes resulting in an even vehicle replacement program. Finally, different BRT routes utilizing the same vehicle type will allow interlining – operating two routes in one vehicle – to be achieved. This will allow true one-seat rides on the Urban Corridor system across the entire geographic span.

4.2.3 Interline Routes

Route interlining involves a single vehicle alternating operation between two separate routes. This increases the number of "one seat ride" passengers that are not required to transfer between these two routes. Interlining different routes in the Urban Corridor system will allow passengers to travel from one side of the metropolitan region to the opposite side without transferring buses. In addition, cost efficiencies may be realized in cases where two interlined routes require fewer vehicles to operate than would be required if the routes were operated independently of one another.

4.2.4 Seamless Communications

Seamless Urban Corridor fleet communication would help optimize BRT route operations. This would be achieved using a single dispatching center and single communication system used by all of the BRT routes.

4.2.5 Single Operator

Operating the Urban Corridor system under one agency or operator would offer several operational benefits. A single operator could use a single dispatching center and radio communication system to improve intra-Urban Corridor route communications. Operational issues such as TSP coordination with local municipalities, interlining of routes, and vehicle rotation among routes would be simplified through the use of a single agency.

4.2.6 Single Urban Corridor Hub and Transfer Center

All of the Urban Corridors could be realigned to serve the 10th and Main Transit Center (or similar location) to more fully optimize the Urban Corridor network. The Metcalf Avenue/Shawnee Mission Parkway BRT route terminating in downtown Kansas City, Missouri would allow the route to be interlined with another Urban Corridor route. This would also allow some passengers the possibility of a one-seat ride between Johnson County, Kansas and eastern Jackson County, Missouri. This realignment would also require a maximum of only one transfer to take full advantage of the entire Urban Corridor system.

The system would be optimized by creating a single transfer location for the entire Urban Corridor system. Ideally, this single location would share loading platforms and also serve the majority of local transit routes serving in the area, as well as be available to serve future transit modes such as commuter rail, light rail, or streetcar. A location with these elements would enable passengers to quickly disembark from one route and board another route on the same platform. Further study would need to be performed to identify opportunities for a share transfer location. With a larger location, passenger amenities could be provided in the surrounding area.

4.3 Connections to Other Transit Modes

The Urban Corridor system, including express buses, will exist as part of a regional transit system that delivers users across longer lengths of the metro area. On either end of their trip on a BRT or express route, users may have to depend on other transit modes to access their final destinations. These transit modes include local transit service, and in the future may include streetcar, commuter rail or light rail. The numerous transit modes in the Kansas City area will have to coordinate service times, alignments, and transit center locations with other transit modes to give transit users a seamless and reliable transit system that crosses state, county, municipal, and agency lines.

4.3.1 Local Transit Service

The area defined by Smart Moves encompasses the service area of three agencies that provide local fixed-route transit service. These agencies are JCT, KCATA, and UGT. Connections between BRT, express routes, and local transit service would be encouraged at the major transit hubs located in each agencies service area. These connections would include coordinating service span, transfer times, and alignments.

In addition to the major transit hubs, BRT service and local transit will interact at several Park & Ride lots throughout the metro area. These Park & Rides will allow commuters from outside the Urban Corridor service area to access the BRT routes.

4.3.2 Commuter Service

Commuter service options are being studied in Phase II and Phase III of the Regional Transit Implementation Plan. The options being studied in Missouri include an I-70 Commuter Service between Kansas City and Odessa; a Rock Island Railroad Commuter Service connecting downtown Kansas City to Pleasant Hill; a US 71 Commuter Service from midtown Kansas City to Cass County; a KCI Airport/I-29 Commuter Service from downtown Kansas City to KCI Airport with possible extensions to Platte City; and a I-35 North Commuter Service connecting downtown Kansas City with Liberty. Transfer opportunities and locations between BRT service and Commuter service will be identified in on-going collaboration as the two services are further studied.

5.0 Next Steps

Section 5 describes the federal process, and suggested next steps to develop the current, developing, and future Urban Corridors into a system of rapid transit routes capable of meeting the needs of the employees and residents in the Kansas City area. Next steps for each corridor vary according to its current stage of planning, but coordination among local communities, transit agencies, and other government entities should be pursued to ensure that each corridor is developed to become fully integrated into the Urban Corridor system.

As a broad overview, corridors already in operation or pending operation should continue to be refined and modified to more fully integrate into the system. Corridors that are currently in the planning process should continue onto project development and moving towards system integration. Those corridors where planning activities haven't been initiated would implement corridor evaluations to determine a locally preferred alternative following the federal process. Then local communities coordinating with transit agencies would determine their level of commitment to move forward from the corridor evaluation to project development. Planning activities and corridor development would occur in a phased approach as funds become available. Table A-13 in the Appendix displays the implementation matrix for the Urban Corridor system.

Section 5 presents the federal process, and then discusses the next steps for each corridor. This includes discussion of how each corridor can be coordinated to create an optimized system.

5.1 Federal Process

Steps to develop the Urban Corridor routes can follow a prescribed Federal Transit Administration (FTA) process. This process can be used to submit projects to FTA funding through the Small Starts or Very Small Starts programs. An alternatives analysis report is required that identify the need, costs, and locally preferred alternative of each Urban Corridor.

Small Starts projects must cost less than $250 million, and have either fixed-guideway facilities for 50 percent of the project length or a combination of substantial transit stations, TSP, low-floor vehicles, special service branding, service frequency of 10 min peak/15 min off-peak and a 14 hour service span. Eligible projects for the Very Small Starts program have total project costs of less than $50 million, and cost less than $3 million per mile, excluding vehicles. In addition, they offer the same combination of features, service span, and frequency as Small Starts projects. Very Small Starts projects also have to demonstrate an existing corridor ridership exceeding 3,000 riders a day. The Small Starts and Very Small Starts projects follow the same project development process of:

- Alternatives Analysis
- Project Development
- Project Construction Grant Agreement
- Construction

A second option is to utilize Section 5309 Bus Facility grants which have fewer requirements than Small Starts or Very Small Starts. Federal funds may cover up to 80 percent of capital costs for a selected project. Projects that demonstrate a higher portion of local funding commitment however are more favored in the federal funding process. Projects chosen for this federal funding will need to be funded over a series of years, rather than a single award capable of funding the entire project.

Table 5-1 displays the current status of each corridor, the studies, and the time and cost required for those studies that have taken place to date, and a general estimate for the time and cost required for planning studies not yet initiated. Discussion of the next steps required for each corridor and the interconnected system follows the table. Steps required for FTA submittal are identified. This discussion also includes the parties that would be involved in the next steps, and the length of time that would be required for each step.

Table 5-1 Project Status and Planning Studies

Activity: / Corridor	Planning efforts initiated Status	Evaluate Corridor to determine feasibility of higher level transit, and determine the preferred alternative Status	Prepare Project for submittal of Federal funding review and other funding source Status	Project Development Status	Final Construction Status	In Operation
Main Street Max	✓	✓	✓	✓	✓	✓
Troost MAX	✓	✓	✓	✓	○	--
State Avenue	✓	✓	○	○	--	--
Metcalf Avenue / Shawnee Mission Parkway	✓	✓	○	--	--	--
North Oak	✓	--	--	--	--	--
US 24 / Truman Road	✓	--	--	--	--	--
US 40	✓	--	--	--	--	--

✓ = Complete ○ = In Progress -- = Not Initiated

5.2 Main Street MAX Next Steps

Corridor Evaluation

Complete

Project Submittal for Funding Review

Complete

Project Development

Complete

Funding

Capital Funding for Main Street MAX was provided by 80 percent federal funding and 20 percent local funding. A variety of sources provided federal funding for initial capital costs. The local match for capital funding was provided by proceeds from a 1 cent sales tax which funds the KCATA. Annual operating costs of $3.4 million are funded through the sales tax and general revenue fund, as well as fare box revenue.

Final Construction

Complete

Coordinating for System Optimization

As described in Section 4, the transfer point between Main Street MAX and the 10th and Main Transit Center is at 11th Street and Main Street. As more Urban Corridor routes accessing the 10th and Main Transit Center are implemented, an alignment modification should be studied for the Main Street MAX to provide direct access to the 10th and Main Transit Center, or another location providing shared access with the other Urban Corridor routes.

Along with a shared transfer location, the Main Street MAX should also evaluate coordinating its schedule to effectively support connections as new Urban Corridor routes are implemented.

5.3 Troost MAX Next Steps

Corridor Evaluation

Complete

Project Submittal for Funding Review

Complete

Project Development

Complete

Funding

Capital Funding for Troost MAX has been provided by 80 percent federal funding and 20 percent local funding. Very Small Starts provided federal funding for initial capital costs. The local match for capital funding is provided by proceeds from a one cent sales tax which funds the KCATA. Annual operating costs of $4.3 million will be funded through the sales tax and general revenue fund, as well as fare box revenue.

Final Construction

In Progress

Coordinating for System Optimization

The Troost MAX should evaluate coordinating its schedule to effectively support connections as new Urban Corridor routes are implemented. This coordination could occur for transfer opportunities with Urban Corridor routes at downtown Kansas City, Missouri, and at Troost Avenue and 47th Street with the Metcalf Avenue/Shawnee Mission Parkway Urban Corridor route.

5.4 State Avenue BRT Next Steps

Corridor Evaluation

Complete

Project Submittal for Funding Review

In Progress

Project Development

Assuming a favorable FTA review under the Small Starts/Very Small Starts program the project will move into the project development phase. Project development in both the Small Starts and Very Small Starts programs combines preliminary engineering and final design work. To move into project development, the following criteria must be met: completed Alternatives Analysis, adopted LPA, LPA included within MARC's long-range plan, and complete a NEPA scoping. If the Very Small Starts Program is not used, transit corridor enhancements may be made in an incremental fashion over a longer period of time utilizing formula capital funds or new grant programs.

Funding

Capital Funding for State Avenue BRT may be provided by 80 percent federal funding and 20 percent local funding. Very Small Starts funding, Section 5309 Bus Facility grants, or a combination of both may provided federal funding for initial capital costs. The local match for capital funding may be provided by the Unified Government's general revenue fund or a dedicated revenue source. Annual operating costs of $2.5 million may be funded through the fare box revenue and the general revenue fund. In 2007 for comparison, fare box revenue accounted for 14 percent of KCATA's operating revenue.

Final Construction

Once the project development phase is completed, the project would move into the construction phase. Preliminary cost estimates for the State Avenue Urban Corridor is approximately $25.4 million. This construction cost would include streetscape elements, station construction including station pads, reconstructed curbs and gutters along route portions, and installing a TSP system. Vehicle acquisition is also included in the cost. Funding opportunities will determine if construction proceeds as a corridor project or in incremental stages. Figure A-1 displays the layout for the 7th Street and Minnesota Avenue Transit Center in Kansas City, Kansas. Figure A-2 displays the layout for the 47th Street and State Avenue Transit Center in Kansas City, Kansas.

Coordinating for System Optimization

Opportunities to interline the State Avenue Urban Corridor route with other Urban Corridor routes can be evaluated as more routes are implemented.

5.5 Metcalf Avenue/Shawnee Mission Parkway Next Steps

Corridor Evaluation

Alternatives Analysis to be completed in 2010-11.

Project Submittal for Funding Review

After an LPA is reached, local communities in each corridor and JCT will need to discuss their desire to move forward with the project, evaluate and choose a funding strategyand prepare the project for FTA review per the selected funding program.

Project Development

Assuming a favorable FTA review under the Small Starts program, the project will move into the Project Development phase. Project Development in the Small Starts program combines preliminary engineering and final design work. To move into Project Development, the following criteria must be met: completed Alternatives Analysis, adopted LPA, LPA included within MARC's long-range plan, and complete a NEPA scoping.

Funding

Capital Funding for Metcalf Avenue/Shawnee Mission Parkway BRT may be provided by 80 percent federal funding and 20 percent local funding. If the preferred alternative includes a fixed guideway, this project may be funded through the federal Small Starts program. Additional federal capital funding may be provided through the general Section 5309 Bus Facilities grants. Johnson County, Kansas, and the Cities of Overland Park, Kansas, Mission, Kansas, and other cities in the corridor will need to provide the remaining local match either through general revenue funds or revenue sources such as sales taxes or property taxes. Annual operating costs of $2 million may be funded

through the fare box revenue, general revenue fund, or other funding sources such as sales tax or property tax.

Final Construction

Once the Project Development phase is completed the project would move into the Construction phase. Construction may include fixed guideway for a portion of the route, streetscape elements, station construction including station pads, reconstructing curbs and gutters along route portions, and installing a TSP system. Figure A-3 in the Appendix displays a layout for an enhanced Park & Ride at Metcalf Mall South in Overland Park, Kansas. Figure A-4 displays a layout for the East Gateway Transit Center in Mission, Kansas.

Coordinating for System Optimization

As the Urban Corridor network evolves, alignment modifications may be evaluated to access a single transfer point shared with the entire Urban Corridor system. This modification would provide users access to the entire Urban Corridor system through a single transfer point.

5.6 North Oak Next Steps

Corridor Evaluation

The next step towards implementing an Urban Corridor route along North Oak Trafficway is for officials and technical staff from the City of North Kansas City, Missouri, City of Kansas City, Missouri, City of Gladstone, Missouri, and KCATA to initiate a Corridor Evaluation Study. Similar studies have taken approximately eight months to complete and have cost approximately $150,000 to $300,000. Eighty percent of the funding for these studies could potentially come from federal funding programs, while the remaining twenty percent have come from local sources.

The corridor evaluation study would include a simplified definition-based Alternatives Analysis followed by Project Justification which evaluates cost effectiveness and land use. The outcome of Corridor Evaluation would be the selection of a Locally Preferred Alternative (LPA). During this process, it can be determine whether the corridor will be

eligible as a Very Small Start. The project can only become eligible for Very Small Starts funding after average daily ridership in the corridor grows to 3,000 or more.

Project Submittal for Funding Review

After an LPA is reached, local communities in each corridor and KCATA will need to discuss their desire to move forward with the project, evaluate and choose a funding strategy and prepare the project for FTA review per the selected funding program.

Project Development

Assuming a favorable FTA review under the Very Small Starts program, the project will move into the Project Development phase. Project Development in both the Small Starts and Very Small Starts programs combines preliminary engineering and final design work. To move into Project Development, the following criteria must be met: completed Alternatives Analysis, adopted LPA, LPA included within MARC's long-range plan, and complete a NEPA scoping. If the Very Small Starts Program is not used, transit corridor enhancements may be made in increments over a longer period of time utilizing formula capital funds or new grant programs.

Funding

Capital Funding for North Oak BRT may be provided by 80 percent federal funding and 20 percent local funding. Section 5309 Bus Facility grants may be used now for incremental improvements. The cities of North Kansas City, Missouri, Gladstone, Missouri, and other cities in the corridor as well as Clay County, Missouri, will need to provide the 20 percent local match either through general revenue funds or revenue sources such as sales taxes or property taxes. Annual operating costs between $1.7 million to $3 million depending on the frequency of service may be funded through the fare box revenue and local funds.

Final Construction

Once the Project Development phase is completed the project would move into the Construction phase. Depending on the alternative that is chosen during the corridor evaluation process, the project could include streetscape elements, station construction

including station pads, reconstructed curbs and gutters along route portions, and installing a TSP system.

For System Optimization

Opportunities to interline the North Oak Urban Corridor route with other Urban Corridor routes can be evaluated as more routes are implemented.

5.7 US 24/Truman Road Corridor and US 40 Corridor Next Steps

Corridor Evaluation

The next step for corridors in eastern Jackson County is for local communities and the KCATA to initiate a Corridor Evaluation Study or Transit Corridor Study in each corridor. Similar studies have taken approximately eight to 12 months to complete and have cost approximately $150,000 to $300,000 per corridor. Eighty percent of the funding for these studies could potentially come from federal funding programs, while the remaining twenty percent would need to come from local sources.

The corridor evaluation study would include a simplified definition-based Alternatives Analysis followed by Project Justification which evaluates cost effectiveness and land use. The outcome of Corridor Evaluation would be the selection of a Locally Preferred Alternative (LPA). During this process, it can be determine whether the corridor will be eligible as a Very Small Start.

Project Submittal for Funding Review

After an LPA is reached, local communities in each corridor and KCATA will need to discuss their desire to move forward with the project, evaluate and choose a funding strategy and prepare the project for FTA review per the selected funding program.

Project Development

Assuming a favorable FTA review under the Very Small Starts program the project will move into the Project Development phase. Project Development in both the Small

Starts and Very Small Starts programs combines preliminary engineering and final design work. To move into Project Development, the following criteria must be met: completed Alternatives Analysis, adopted LPA, LPA included within MARC's long-range plan, and complete a NEPA scoping. If the Very Small Starts Program is not used, transit corridor enhancements may be made in increments over a longer period of time utilizing formula capital funds or new grant programs.

Funding

Capital Funding for Urban Corridor routes on US 24/Truman Road and US 40 may be provided by 80 percent federal funding and 20 percent local funding. Section 5309 Bus Facility grants or Very Small Starts funding may provide federal funding for initial capital costs. Jackson County, Missouri, and the cities of Kansas City, Missouri, Independence, Missouri, and other cities in the corridors or county government will need to provide the 20 percent local match either through general revenue funds or revenue sources such as sales taxes or property taxes. Annual operating costs of $1.6 - $2.9 million, depending on the frequency of service, may be funded through the fare box revenue and the general revenue fund.

Final Construction

Once the Project Development phase is completed, the project would move into the Construction phase. Depending on the alternative that is chosen during the corridor evaluation process, the project could include streetscape elements, station construction including station pads, reconstructed curbs and gutters along route portions, and installing a TSP system.

Coordinating for System Optimization

Opportunities to interline Urban Corridor routes in eastern Jackson County with other Urban Corridor routes can be evaluated as more routes are implemented.

6.0 Conclusion

Twenty-seven thousand daily riders use transit along the alignments to be served by a future Urban Corridors system. The frequency of this current service ranges from under 10 minutes for the MAX route already in operation, to commuter orientated peak-only service in the outlaying regions. The Urban Corridor system is projected to increase ridership to thirty-seven thousand daily riders when fully implemented, and with 10 or 15 minute peak headways, will present area residents and employees with true choice for traveling across the metropolitan area.

In addition to monies already spent on Main Street MAX and Troost MAX, capital costs for the Urban Corridor routes are approximately $92 million, with annual operating expenses for the entire Urban Corridor system of between $17 million and $21 million. Federal funds may contribute a large portion of funding for capital costs. Local funds will be required to match a minimum of 20 percent of capital costs, and will be required to fund the majority of the operating costs. Going through the federal process for capital funding, and allocating local funds to be used for local match and operating expenses will require coordination between local municipalities, counties, local transit agencies, and regional and state governmental agencies.

In conjunction with the development of each corridor, several steps should be taken to enhance the connectivity of the system. These steps include coordinating TSP technology, uniform branding elements, uniform fare and transfer policies, communications, and further study for a single downtown transfer location.

Long term steps to fully optimize the system should include developing a regional framework for TSP coordination similar to Operation Green Light, increase branding coordination to include vehicle type, interline routes, adopt a single communication system for the Urban Corridor routes, and move operations of the Urban Corridor system to a single operator.

The costs to enhance system connectivity in the short term, and optimize the system in the long term have not been calculated. However, fuller integration of individual Urban Corridor routes into a single system will allow greater operational efficiencies and a more uniform experience for users.

Appendix

Table A-1

North Oak Capital Cost Estimates

Item	Description	Quantity	Units	Unit Price	Extension
1	STATION IMPROVEMENTS	17	EA	$ 50,000	$ 850,000
2	SHELTERS	17	EA	$ 50,000	$ 850,000
3	MARKERS	17	EA	$ 35,000	$ 595,000
4	PARK & RIDE LOTS	2	EA	$ 250,000	$ 500,000
5	REAL TIME SIGNS	17	EA	$ 5,500	$ 93,500
6	FARSIDE BUS PULL-OUT	5	EA	$ 200,000	$ 1,000,000
7	NEARSIDE BUS PULL-OUT	5	EA	$ 200,000	$ 1,000,000
8	MIDBLOCK BUS PULL-OUT	2	EA	$ 120,000	$ 240,000
9	PAVEMENT/SITE IMPROVEMENTS		CORRIDOR WIDE		$ 305,867
10	TRANSIT SIGNAL PRIORITY		CORRIDOR WIDE		$ 288,480
11	PROFESSIONAL SERVICE		CORRIDOR WIDE		$ 1,445,019
12.a	BRT VEHICLES AT 10 MIN FREQUENCY	11	EA	$ 600,000	$ 6,600,000
12.b	BRT VEHICLES AT 15 MIN FREQUENCY	7	EA	$ 600,000	$ 4,200,000
12.c	BRT VEHICLES AT 20 MIN FREQUENCY	6	EA	$ 600,000	$ 3,600,000
13	10% CONTENTENGY		CORRIDOR WIDE		10%
	Total		$ 11,844,652	TO	$ 15,144,652

Table A-2

US 24 / Truman Road Capital Cost Estimates

Item	Description	Quantity	Units	Unit Price	Extension
1	STATION IMPROVEMENTS	28	EA	$ 50,000	$ 1,400,000
2	SHELTERS	28	EA	$ 50,000	$ 1,400,000
3	MARKERS	28	EA	$ 35,000	$ 980,000
4	PARK & RIDE LOTS	2	EA	$ 250,000	$ 500,000
5	REAL TIME SIGNS	28	EA	$ 5,500	$ 154,000
6	FARSIDE BUS PULL-OUT	5	EA	$ 200,000	$ 1,000,000
7	NEARSIDE BUS PULL-OUT	5	EA	$ 200,000	$ 1,000,000
8	MIDBLOCK BUS PULL-OUT	2	EA	$ 120,000	$ 240,000
9	PAVEMENT/SITE IMPROVEMENTS		CORRIDOR WIDE		$ 528,185
10	TRANSIT SIGNAL PRIORITY		CORRIDOR WIDE		$ 739,640
11	PROFESSIONAL SERVICE		CORRIDOR WIDE		$ 2,005,311
12.a	VEHICLES AT 10 MIN FREQUENCY	10	EA	$ 600,000	$ 6,000,000
12.b	VEHICLES AT 15 MIN FREQUENCY	7	EA	$ 600,000	$ 4,200,000
12.c	VEHICLES AT 20 MIN FREQUENCY	5	EA	$ 600,000	$ 3,000,000
12	10% CONTENTENGY		CORRIDOR WIDE		10%
	Total		$ 14,241,850	TO	$ 17,541,850

Table A-3

US 40

Item	Description	Quantity	Units	Unit Price	Extension
1	STATION IMPROVEMENTS	28	EA	$ 50,000	$ 1,400,000
2	SHELTERS	28	EA	$ 50,000	$ 1,400,000
3	MARKERS	28	EA	$ 35,000	$ 980,000
4	PARK & RIDE LOTS	2	EA	$ 250,000	$ 500,000
5	REAL TIME SIGNS	28	EA	$ 5,500	$ 154,000
6	FARSIDE BUS PULL-OUT	5	EA	$ 200,000	$ 1,000,000
7	NEARSIDE BUS PULL-OUT	5	EA	$ 200,000	$ 1,000,000
8	MIDBLOCK BUS PULL-OUT	2	EA	$ 120,000	$ 240,000
9	PAVEMENT/SITE IMPROVEMENTS		CORRIDOR WIDE		$ 528,437
10	TRANSIT SIGNAL PRIORITY		CORRIDOR WIDE		$ 367,880
11	PROFESSIONAL SERVICE		CORRIDOR WIDE		$ 1,911,505
12.a	BRT VEHICLES AT 10 MIN FREQUENCY	10	EA	$ 600,000	$ 6,000,000
12.b	BRT VEHICLES AT 20 MIN FREQUENCY	5	EA	$ 600,000	$ 3,000,000
12.c	BRT VEHICLES AT 30 MIN FREQUENCY	4	EA	$ 600,000	$ 2,400,000
12	10% CONTENTENGY		CORRIDOR WIDE		10%
	Total		$ 13,070,005	TO	$ 17,030,005

Table A-4 State Avenue BRT Estimated Capital Cost Summary

State Avenue Bus Rapid Transit - Capital Cost Summary

22-Feb-10

				Stations Cat. 20	Sitework Cat. 40					Systems Cat. 50	
Station Number	Station Location	Station Name	Direction	Shelter/Marker and Platform Cat. 20.01	Demolition, clearing, earthwork Cat. 40.01	Site utilities, utility relocation Cat. 40.02	Site structures, retaining walls Cat. 40.05	Pedestrian accommodations, Landscaping Cat. 40.06	acessways, roads and parking Cat. 40.07	Communications Cat. 50.05	Station Total
	12th St and Wyandotte Street, KCMO	12th Street	EB	$65,820	$9,510	$10,000	$0	$12,550	$13,000	$5,600	$116,480
	10th St and Main Street TC, KCMO	10th & Main Transit Center	WB, EB	$61,500	$0	$10,000	$0	$0	$0	$5,600	$77,100
	8th St and Main Street, KCMO	8th Street	WB	$65,820	$9,510	$10,000	$0	$10,750	$13,000	$5,600	$114,680
	8th St and Main Street, KCMO	8th Street	EB	$65,820	$9,510	$10,000	$0	$10,750	$13,000	$5,600	$114,680
	Independence Ave and Wyandotte St, KCMO	Independence Ave	WB	$65,820	$9,510	$10,000	$0	$27,020	$13,000	$5,600	$130,950
	6th St and Central St, KCMO	6th Street	EB	$65,820	$9,510	$10,000	$0	$12,850	$13,000	$5,600	$116,780
	5th St and Minnesota Ave	5th Street	WB	$153,880	$16,010	$10,000	$0	$21,350	$169,650	$8,000	$378,890
	5th St and Minnesota Ave	5th Street	EB	$153,880	$16,010	$10,000	$0	$21,350	$169,650	$8,000	$378,890
	7th St and Minnesoate Ave	7th Street	WB	$152,380	$9,510	$10,000	$0	$23,150	$169,650	$5,600	$370,290
	7th St and Minnesoate Ave	7th Street	EB	$152,380	$9,510	$10,000	$0	$23,150	$169,650	$5,600	$370,290
	7th St and Minnesota Ave TC	7th Street Transit Center	WB, EB				$3,000,000				$3,000,000
	10th St and Minnesota Ave	10th Street	WB	$153,880	$9,510	$10,000	$0	$10,750	$13,000	$5,600	$202,740
	10th St and Minnesota Ave	10th Street	EB	$153,880	$9,510	$10,000	$0	$12,550	$13,000	$5,600	$204,540
	18th St and Minnesota Ave	18th Street	WB	$162,380	$9,510	$10,000	$0	$10,750	$13,000	$5,600	$211,240
	18th St and Minnesota Ave	18th Street	EB	$65,820	$9,510	$10,000	$0	$10,750	$13,000	$5,600	$114,680
	29th St and State Ave	29th Street	WB	$65,820	$9,510	$10,000	$0	$10,750	$13,000	$5,600	$114,680
	29th St and State Ave	29th Street	EB	$65,820	$9,510	$10,000	$0	$10,750	$13,000	$5,600	$114,680
	38th St and State Ave	38th Street	WB	$65,820	$9,510	$10,000	$0	$61,210	$13,000	$5,600	$165,140
	38th St and State Ave	38th Street	EB	$65,820	$9,510	$10,000	$0	$21,450	$13,000	$5,600	$125,380
	47th St and State Ave	47th Street	WB	$152,380	$9,510	$10,000	$0	$31,700	$169,650	$5,600	$378,840
	47th St and State Ave	47th Street	EB	$152,380	$9,510	$10,000	$0	$23,420	$169,650	$5,600	$370,560
	47th St and State Ave TC	47th St Transit Center	WB, EB	$192,000	$218,600	$20,000	$0	$38,900	$390,150	$0	$859,650
	57th St and State Ave	57th Street	WB	$153,880	$9,510	$10,000	$0	$21,350	$13,000	$5,600	$213,340
	57th St and State Ave	57th Street	EB	$153,880	$9,510	$10,000	$0	$21,350	$13,000	$5,600	$213,340
	67th St and State Ave	67th Street	WB	$153,880	$9,510	$10,000	$0	$21,350	$168,550	$8,000	$371,290
	67th St and State Ave	67th Street	EB	$65,820	$9,510	$10,000	$0	$21,350	$168,550	$8,000	$283,230
	College Drive and State Ave	Community College	WB	$153,880	$9,510	$10,000	$0	$35,700	$168,550	$8,000	$385,640
	College Drive and State Ave	Community College	EB	$153,880	$9,510	$10,000	$0	$28,600	$168,550	$8,000	$378,540
	78th st and State Ave	78th Street	WB	$153,880	$9,510	$10,000	$0	$18,850	$168,550	$8,000	$368,790
	78th St and State Ave	78th Street	EB	$153,880	$9,510	$10,000	$0	$18,850	$168,550	$8,000	$368,790
	82nd St and State Ave	82nd Street	WB	$152,380	$9,510	$10,000	$0	$23,420	$168,550	$8,000	$371,860
	82nd St and State Ave	82nd Street	EB	$65,820	$9,510	$10,000	$9,000	$35,300	$168,550	$8,000	$306,180
	98th St and State Ave	98th Street	WB	$152,380	$9,510	$10,000	$0	$19,550	$102,900	$0	$294,340
	98th St and State Ave	98th Street	WB	$152,380	$9,510	$10,000	$0	$19,550	$26,800	$0	$218,240
	Cabela Drive and Village West Parkway	Cabela Drive	WB	$61,500	$0	$0	$0	$2,000	$0	$0	$63,500
	Cabela Drive and Village West Parkway	Cabela Drive	EB	$153,880	$9,510	$10,000	$0	$6,900	$85,550	$8,000	$273,840
	France Family Drive and Village West Parkwa	France Family Drive	WB	$61,500	$0	$0	$0	$2,000	$0	$0	$63,500
	France Family Drive and Village West Parkwa	France Family Drive	EB	$153,880	$9,510	$10,000	$0	$6,900	$85,550	$8,000	$273,840
	Sunflower Lane and Village West Parkway	Sunflower Lane	WB	$61,500	$0	$0	$0	$2,000	$0	$0	$63,500
	Sunflower Lane and Village West Parkway	Sunflower Lane	EB	$153,880	$9,510	$10,000	$0	$6,900	$85,550	$8,000	$273,840
	Village West Transit Center	Village West Transit Cente	WB, EB	$142,000	$4,000	$10,000	$9,000	$21,350	$0	$0	$186,350
		Station Subtotals:		**$3,558,080**	**$241,750**	**$260,000**	**$18,000**	**$537,350**	**$2,204,050**	**$155,200**	**$13,003,110**
	Other Capital Items:										
	Transit Signal Priority										**$1,863,690**
	Vehicles										**$6,791,250**
	Right of Way										**$10,025**
	Professional Services										**$1,370,000**
		Other Capital Items Subtotal:									**$10,034,965**
	Summary										
		All Costs Contingency (10%):		**$355,808**	**$24,175**	**$26,000**	**$1,800**	**$53,735**	**$220,405**	**$15,520**	**$2,303,808**
		Package Totals		**$3,913,888**	**$265,925**	**$286,000**	**$19,800**	**$591,085**	**$2,424,455**	**$170,720**	**$25,341,883**

Source: State Avenue Phase II Report (unpublished)

Table A-5 Metcalf/Shawnee Mission Parkway Estimated Capital Cost Summary

Comparative Costs	Near-term BRT (Mixed Traffic)	Long-term BRT (Fixed Guideway)
Estimated Annual Ridership	342,000	1,315,350
Annual Operating Cost	$2,025,000	$2,924,075
Capital Costs		
Rolling Stock*	$12,802,500	$18,321,250
Infrastructure	$8,172,765	$219,800,000
Capital Total:	$20,975,265	$238,121,250

*Calculations are based on estimates for highly distinctive vehicles.

Source: Metcalf Avenue and Shawnee Mission Parkway Transit Planning study, pg ix

Table A-6 Elasticity model projecting Troost BRT ridership

	Riders	Service Hours	In-Vehicle Time	Out-vehicle Time	Fuel Price	BRT	Fares
Local	8304	195	60	8.74	2.75		1.25
BRT		213	48	8.74	3		1.25
Change		0.09	-0.20	0.00	0.09		0
Elasticity		0.35	-0.29	-0.49	0.08		0.3
Elasticity Factor		0.03	0.06	0.00	0.01	0.12	0.00
	1.23	1.03	1.06	1.00	1.01	1.12	1.00
Rider check	10229						

Table A-7 Elasticity model projecting North Oak BRT ridership

	Riders	Service Hours	In-Vehicle Time	Out-vehicle Time	Fuel Price	BRT	Fares
Local	975	42	32	9.99	2.75		1.25
BRT		147	25.6	8.53	3		1.25
Change		2.50	-0.20	-0.15	0.09		0
Elasticity		0.35	-0.29	-0.49	0.08		0.3
Elasticity Factor		0.88	0.06	0.07	0.01	0.12	0.00
	2.40	1.88	1.06	1.07	1.01	1.12	1.00
Rider check	2338						

Table A-8 Elasticity model projecting Truman Road BRT ridership

	Riders	Service Hours	In-Vehicle Time	Out-vehicle Time	Fuel Price	BRT	Fares
Local	3634	110	35	9.99	2.75		1.25
BRT		216	28	7.5	3		1.25
Change		0.96	-0.20	-0.25	0.09		0
Elasticity		0.35	-0.29	-0.49	0.08		0.3
Elasticity Factor		0.34	0.06	0.12	0.01	0.12	0.00
	1.79	1.34	1.06	1.12	1.01	1.12	1.00
Rider check	6509						

Table A-9 Elasticity model project US 24 BRT ridership

	Riders	Service Hours	In-Vehicle Time	Out-vehicle Time	Fuel Price	BRT	Fares
Local	3758	110	35	9.99	2.75		1.25
BRT		216	28	8.53	3		1.25
Change		0.96	-0.20	-0.15	0.09		0
Elasticity		0.35	-0.29	-0.49	0.08		0.3
Elasticity Factor		0.34	0.06	0.07	0.01	0.12	0.00
	1.71	1.34	1.06	1.07	1.01	1.12	1.00
Rider check	6428						

Table A-10 Elasticity model projecting US 40 BRT ridership

	Riders	Service Hours	In-Vehicle Time	Out-vehicle Time	Fuel Price	BRT	Fares
Local	2714	60	35	10	2.75		1.25
BRT		129.6	28	7.5	3		1.25
Change		1.16	-0.20	-0.25	0.09		0
Elasticity		0.35	-0.29	-0.49	0.08		0.3
Elasticity Factor		0.41	0.06	0.12	0.01	0.12	0.00
	1.88	1.41	1.06	1.12	1.01	1.12	1.00
Rider check	5112						

Table A-11 Metcalf/Shawnee Mission Parkway BRT projected ridership.

Projected Transit Ridership			
	Daily Metcalf Express	Daily BRT Route	Total Annual Ridership
Existing	120	105	57,375
Near-term Initial	230	480	259,000
Near-Term Built Out	320	750	342,000
Long Term	600	2,640-3,640	1,315,350

Note: Near-term initial and built out ridership projections from elasticity model, long term based on Vision Metcalf land use densities.

Source: Metcalf Avenue and Shawnee Mission Parkway Transit Planning Study, Page 112

Figure A-1: 7th Street and Minnesota Avenue Transit Center (Kansas City, Kansas)

Figure A-2: 47th Street and State Avenue Transit Center (Kansas City, Kansaas)

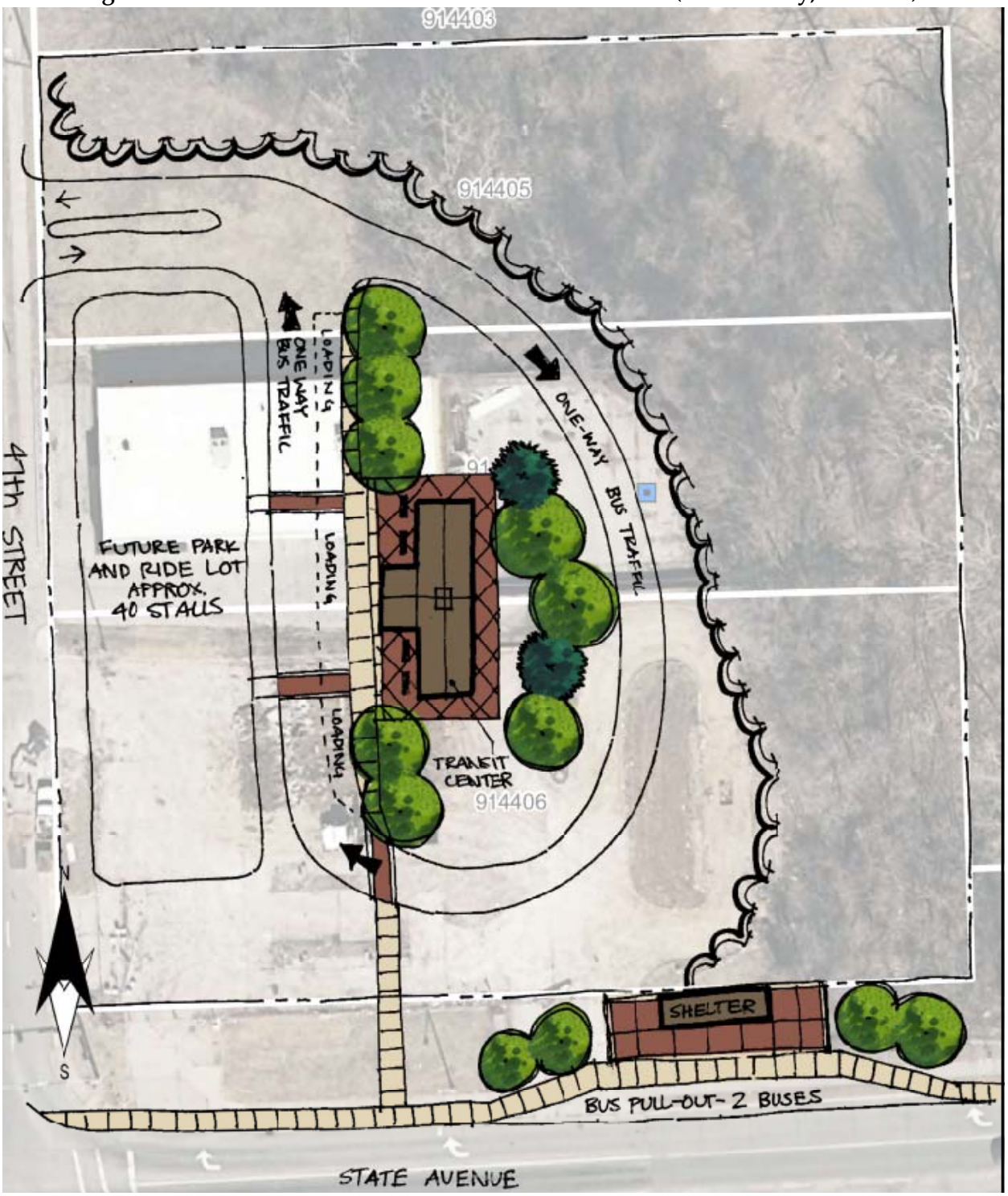


Figure A-3: Future Enchanced Metcalf South Mall Park & Ride (Overland Park, Kansas)

Figure A-4: Future Enhanced East Gateway Transit Center (Mission, Kansas)

Table A-12 Bus Pull-out Assumptions

Item	Description	Estimating Assumptions	Quantity	Units	Unit Price	Extension	Notes
Assumptions for Farside Pull-Out Pricing							
1	TRAFFIC SIGNAL		1	EA	$ 75,000	$ 75,000	
2	STREET LIGHT		1	EA	$ 8,000	$ 8,000	
3	RR CURB		1	EA	$ 2,500	$ 2,500	
4	RR PAVEMENT		1	EA	$ 30,000	$ 30,000	
5	WHEELCHAIR RAMP		1	EA	$ 4,000	$ 4,000	
6	SIDEWALK		1	EA	$ 2,000	$ 2,000	
7	STORM SEWER		1	EA	$ 15,000	$ 15,000	
8	MANHOLE ADJUSTMENT		2	EA	$ 750	$ 1,500	
9	WATERVALVE ADJUSTMENT		2	EA	$ 500	$ 1,000	
10	FIRE HYDRANT RELOCATION		1	EA	$ 5,000	$ 5,000	
11	TREE REMOVAL		1	EA	$ 2,500	$ 2,500	
12	PAVEMENT MARKINGS		1	EA	$ 2,500	$ 2,500	
13	PERMENENT SIGNS		1	EA	$ 5,000	$ 5,000	
14	TRAFFIC CONTROL		1	EA	$ 8,000	$ 8,000	
15	SURVEYING		1	EA	$ 2,000	$ 2,000	
16	SOD/RESTORATION		1	EA	$ 6,000	$ 6,000	
17	MOBILIZATION		1	EA	$ 20,000	$ 20,000	
				Total:		$ 190,000	
				Rounding:		$ 200,000	
Assumptions for Nearside Pull-Put Pricing							
1	TRAFFIC SIGNAL		1	EA	$ 75,000	$ 75,000	
2	STREET LIGHT		1	EA	$ 8,000	$ 8,000	
3	RR CURB		1	EA	$ 3,000	$ 3,000	
4	RR PAVEMENT		1	EA	$ 35,000	$ 35,000	
5	WHEELCHAIR RAMP		1	EA	$ 4,000	$ 4,000	
6	SIDEWALK		1	EA	$ 3,000	$ 3,000	
7	STORM SEWER		1	EA	$ 15,000	$ 15,000	
8	MANHOLE ADJUSTMENT		2	EA	$ 750	$ 1,500	
9	WATERVALVE ADJUSTMENT		2	EA	$ 500	$ 1,000	
10	FIRE HYDRANT RELOCATION		1	EA	$ 5,000	$ 5,000	
11	TREE REMOVAL		1	EA	$ 2,500	$ 2,500	
12	PAVEMENT MARKINGS		1	EA	$ 2,500	$ 2,500	
13	PERMENENT SIGNS		1	EA	$ 5,000	$ 5,000	
14	TRAFFIC CONTROL		1	EA	$ 8,000	$ 8,000	
15	SURVEYING		1	EA	$ 2,000	$ 2,000	
16	SOD/RESTORATION		1	EA	$ 6,000	$ 6,000	
17	MOBILIZATION		1	EA	$ 20,000	$ 20,000	
				Total:		$ 196,500	
				Rounding:		$ 200,000	
Assumptions for Midblock Pull-Out Pricing							
1	STREET LIGHT		1	EA	$ 8,000	$ 8,000	
2	RR CURB		1	EA	$ 3,000	$ 3,000	
3	RR PAVEMENT		1	EA	$ 30,000	$ 30,000	
4	SIDEWALK		1	EA	$ 3,000	$ 3,000	
5	STORM SEWER		1	EA	$ 20,000	$ 20,000	
6	MANHOLE ADJUSTMENT		2	EA	$ 750	$ 1,500	
7	WATERVALVE ADJUSTMENT		2	EA	$ 500	$ 1,000	
8	FIRE HYDRANT RELOCATION		1	EA	$ 5,000	$ 5,000	
9	TREE REMOVAL		1	EA	$ 5,000	$ 5,000	
10	PAVEMENT MARKINGS		1	EA	$ 2,500	$ 2,500	
11	PERMENENT SIGNS		1	EA	$ 2,500	$ 2,500	
12	TRAFFIC CONTROL		1	EA	$ 5,000	$ 5,000	
13	SURVEYING		1	EA	$ 1,500	$ 1,500	
14	SOD/RESTORATION		1	EA	$ 5,000	$ 5,000	
15	MOBILIZATION		1	EA	$ 20,000	$ 20,000	
				Total:		$ 113,000	
				Rounding:		$ 120,000	

Table A-13 Corridor Implementation Matrix

TIGER Evaluation	Project	Environmental	Engineering	Right of Way	Local funding	Local Plans	Maintain existing transit system	Economic development	Existing Boardings	Low Income	Submitted for TIGER Grant Application	Cost
State Avenue Capital Projects	7th & Minnesota Avenue Transit Center	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 3,000,000
	47th & State Avenue Transit Center	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 3,000,000
	Village West Transit Center	--	--	--	--	✓	✓	✓	✓	--	No	$ 3,000,000
	Corridor Wide 30 Stations	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 4,267,500
	47th & State Pedestrian Ammenities	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 13,206
	67th & State Pedestrian Ammenities	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 25,580
	78th & State Pedestrian Ammenities	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 12,140
	KCKCC & State Pedestrian Amenities	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 18,264
Metcalf Avenue / Shawnee Mission Parkway Capital Projects	Enhance Rosana Square Park & Ride	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$300,000
	Enhance Metcalf South Mall Park & Ride	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 300,000
	Enhance East Gateway Transit Center	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 2,000,000
	Corridor Wide Traffic Signal Priority	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 500,000
	Corridor Wide 24 Stations	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 3,414,000
	Mission Transit Maintenance Facility	--	--	--	--	✓	✓	✓	--	--	No	$ 10,000,000
	Pedestrian Improvements 87th- I-435	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 4,000,000
North Oak Capital Projects	Corridor Wide 15 Bus Stop Amenities	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 375,000
	Pedestrian Improvements	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 225,000
	Park & Ride at 152	✓	--	--	✓	✓	✓	✓	--	✓	No	$ 2,560,500
	Cherry Street Transit Center	✓	✓	--	--	--	✓	✓	--	✓	No	$ 1,000,000
Truman / US 24 Capital Projects	Corridor Wide 6 Bus Stop Pair Amenities	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 300,000
	Transit Center Enhancements	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 50,000
	Traffic Signal Priority	✓	--	✓	--	--	✓	✓	✓	✓	No	$ 300,000
US 40 Capital Projects	Corridor Wide 6 Bus Stop Pair Amenities	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 300,000
	Transit Center Enhancements	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes	$ 150,000

Total Project Cost: $ 39,111,191
Total Submitted Project Cost: $ 22,250,691

Updated 9/01/09