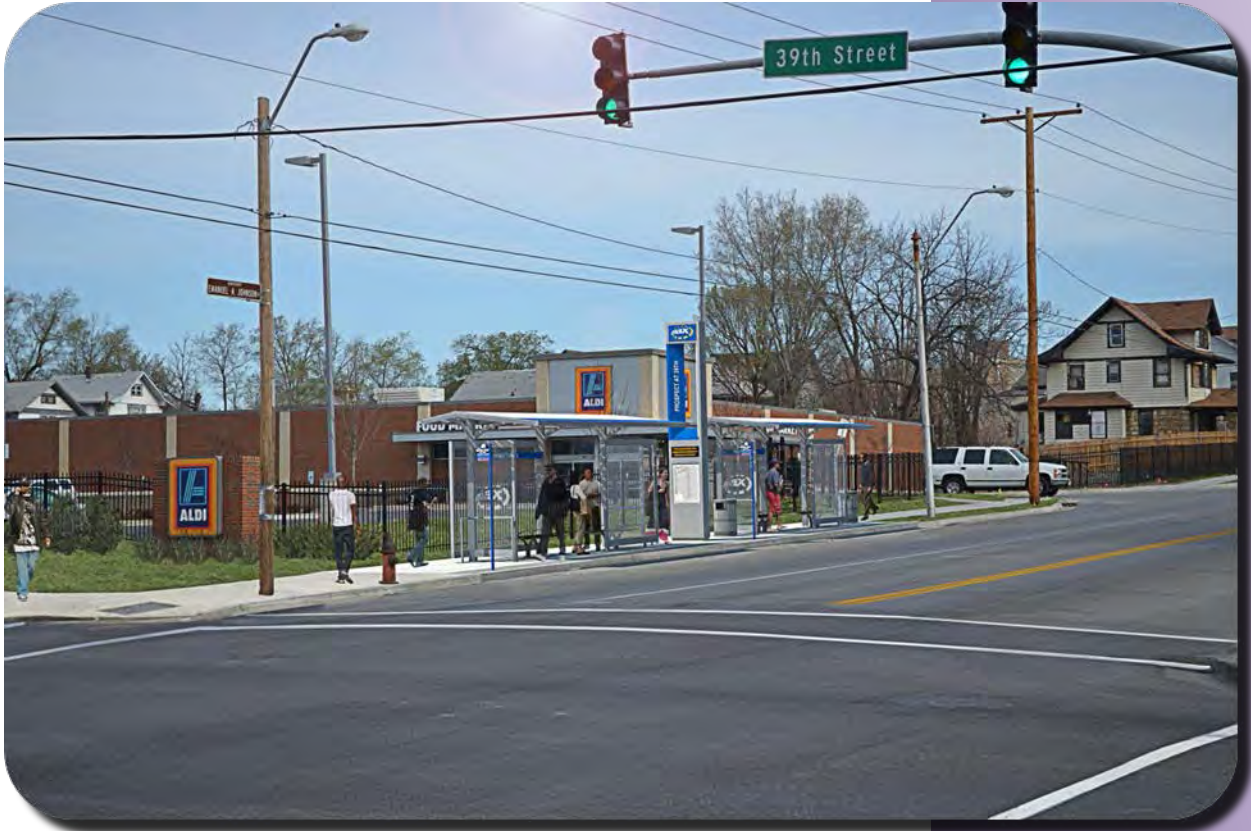


Prospect MAX



Planning Assessment Study June 2014

Prepared for:
**Kansas City Area
Transportation Authority**



Prepared by:
HNTB Corporation



**Phillips-West Public Relations
Taliaferro & Browne, Inc.**

Table of Contents

- 1.0 Executive Summary**
- 2.0 Introduction**
 - 2.1 Project History and Relevant Studies**
 - 2.2 Project Status**
 - 2.3 Purpose Statement**
 - 2.4 Project Objectives**
- 3.0 Overview of the Prospect Corridor**
 - 3.1 Socioeconomic Characteristics**
 - 3.2 Current Transit Service**
- 4.0 Prospect MAX Operations Plan**
 - 4.1 Prospect MAX Route and Station Sites**
 - 4.2 Routing Alternatives Considered**
 - 4.3 Transit Running Times**
 - 4.4 Service Plan Alternatives**
 - 4.5 Off Board Fare Collection**
 - 4.6 Operating Cost**
 - 4.7 Effects on Other KCATA Routes**
 - 4.8 Preferred Operating Plan**
- 5.0 Capital Plan Summary**
 - 5.1 Prospect Corridor Station Design and Specifications**
 - 5.2 Downtown Transit Emphasis Corridor Stations**
 - 5.3 Local Bus Stop Improvements**
 - 5.4 Station Capital Costs**
 - 5.5 Transit Centers**
 - 5.6 Corridor Capital Infrastructure Improvements**
- 6.0 Assessment of Project Impacts and Benefits**
 - 6.1 Ridership**
 - 6.2 Traffic Impacts**
 - 6.3 Other Benefits – Development**
 - 6.4 Environmental Summary**
- 7.0 Public Participation Summary**
- 8.0 Implementation Plan**
 - 8.1 Funding and Financing Plan**
 - 8.2 FTA New Starts Criteria and Evaluation**
 - 8.3 Project Development Schedule**
- 9.0 Conclusions**

Appendences

- A. Prospect Run Times**
- B. Advisory Committee List**
- C. KC EDC Development Toolkit**

Report Prepared By:

**HNTB Corporation
Phillips-West Public Relations
Taliaferro & Browne Inc.**

1.0 Executive Summary

The Executive Summary will be complete by July 11th, 2014.

2.0 Introduction

2.1 Project History and Relevant Studies

The Kansas City Area Transportation Authority (KCATA) initiated the Prospect MAX Planning Assessment Study to evaluate the Prospect Avenue Corridor in Kansas City, Missouri to determine transit improvements which include implementing MAX bus rapid transit service. Prospect MAX was first identified as a potential BRT corridor in the *North/South Corridor Alternatives Analysis* in 2008. This study primarily evaluated the potential for light rail transit in Kansas City's central north/south corridor, but also identified other transit improvements in the study area. The idea of MAX service on Prospect Avenue was further evaluated in a feasibility study in 2012, the *Prospect Avenue Enhanced Bus Service Evaluation*, October 2012. Later, in 2013, the Mid-America Regional Council (MARC), in partnership with KCATA, Jackson County and Kansas City, Missouri, conducted the US 71 Transit Study to evaluate how to enhance transit options along the corridor from downtown Kansas City extending south to Grandview. This study included Prospect MAX in the locally preferred alternative along with future premium express bus service on US 71. The Prospect MAX Planning Assessment, which began in June 2013, was initiated to move the project towards implementation.

The following is a summary of previous relevant studies that have been adopted by KCATA, Kansas City, Missouri or the Mid-America Regional Council. The studies all contain recommendations or goals that directly impact Prospect Avenue. These studies all indicate that Prospect Avenue is an important transit corridor and provide a vision for how transit service should be expanded.

FOCUS

Forging Our Comprehensive Urban Strategy is Kansas City's comprehensive plan that was adopted by the City in 1994. The city and the residents partnered to create a plan the whole community could support. The goal of the plan is to make the city a thriving, people centered community and a successful model for other American cities to follow.

- The plan identifies several areas along Prospect Avenue as proposed mixed use centers and calls for transportation improvements within these areas
- Calls for the creation of a multi-modal transit system.

Source: bit.ly/18vr3qs

Heart of the City Area Plan

The Heart of the City Area Plan encompassing an area bounded by I-70, The Paseo, Cleaver II Boulevard and the Blue River was prepared by the Kansas City Department of Planning and Development in 2011. The purpose of the plan is to build on previous planning efforts and react to current challenges to define a concerted long range vision

for the Heart of the City. The plan identifies Prospect Avenue as one of three primary transit corridors in the Plan's area. It also calls for the prioritization of Bus Rapid Transit on Prospect Avenue. The four primary goals of the plan are:

- People First – Focus on human investments, creating residents that are productive, healthy and caring.
- Create Jobs – Increase employment opportunities within the Heart of the City and provide job skills.
- Promote Sustainability – Use sustainable practices to guide policy recommendations and development decisions.
- Repopulation – Increase population and focus on rebuilding desirable urban neighborhoods.

Source: bit.ly/15C0AVZ

Transportation Outlook 2040

Transportation Outlook 2040 is the long range transportation plan for the Kansas City region. The plan was prepared by the Mid-America Regional Council and approved in 2010. The plan sets forth a guide in how the region will manage, operate, and invest in the region's multimodal transportation system.

- The plan identifies Prospect Avenue for BRT service in the future.
- The plan calls for the expansion of transit service.

Source: <http://www.marc.org/2040/>

Smart Moves

Smart Moves is the plan for the future expansion and enhancement of regional transit services in the Kansas City area. The plan was updated in 2008 by the Mid-America Regional Council. Through the public involvement process of the plan, Prospect Avenue was identified as a high priority corridor. Also, within the plan, Prospect Avenue is referred to as a major fixed route which calls for the use of BRT. The goals of the plan are:

- Strengthen communities and improve the quality of life of residents and visitors throughout the region by making transit an equal or better option to automobile travel.
- Expand and enhance multimodal transit service throughout the metropolitan region.
- Support the economy through accessible transportation options.
- Safeguard the environment and improve public health through increased transit ridership.

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

Comprehensive Service Analysis

The KCATA conducted a comprehensive service analysis to address the changes that have occurred since the last study, including demographic, geographic, and funding. The CSA began in 2011 and was completed in 2013. The CSA accesses current data and seeks to improve service and increase operating efficiency.

- The plan identifies the Prospect route, 71, as being one of the highest ridership routes in the system.
- The plan calls for consolidating stops along Route 71 to speed up service.
- The plan also calls for the increase in service levels on the 71 route.

Source: http://www.kcata.org/maps_schedules/comprehensive_service_analysis/

Swope Area Plan

The *Swope Area Plan* is in the process of being updated by the Kansas City Department of Planning and Development. The Swope Area is bounded by Cleaver II Boulevard, Oldham Road, The Paseo and the Blue River. The vision for the area states that the Swope Area will be a community of desirable urban neighborhoods which provide a high quality of life by offering diverse choices for housing, transportation, shopping and services, employment, quality schools, culture, and recreation in a secure and well maintained environment. The goals of the plan identify Prospect Avenue as an enhanced transit corridor. The five primary goals of the plan are:

- Targeted – Build on previous investments and areas of citywide impact.
- Livable – Revitalize neighborhoods and provide needed services and amenities.
- Connected – Improve connections and improve transportation options.
- Thriving – Support enhanced areas of employment and create thriving business districts.
- Sustainable – Create a sustainable community.

Source: bit.ly/16UMzI7

U.S. 71 Transit Study

The purpose of this study was to evaluate transit service in Jackson County. The study was completed by Parsons Brinckerhoff in 2013. It was intended to build on and coordinate with the Jackson County Commuter Corridor Alternative Analysis. The study identifies a preferred transit alternative that best meets the transportation needs of Jackson County that will also support economic development and the reviving of activity centers. The tier 2 alternative analysis identified strategies that have an impact on Prospect Avenue.

- Advance Prospect MAX
- Advance design and federal funding request for Prospect BRT.

Source:

http://www.kcsmartmoves.org/pdf/us71/US71_TierTwo_SreeningRPT_DRAFT_05-20-13.pdf

Green Impact Zone

The Green Impact Zone is a 150-square block area (pdf) of Kansas City, Mo., that has experienced severe abandonment and economic decline. The boundaries of the Green Impact Zone are 39th Street to the north, 51st Street to the south, Troost Avenue on the west, and Prospect Avenue on the east. The zone has experienced extreme abandonment, with about 25 percent of its properties in vacant lots and another one-sixth in vacant structures. The Green Impact Zone initiative was an effort to concentrate resources — with funding, coordination, and public and private partnerships — in one specific area to demonstrate that a targeted effort can literally transform a community. This national model for place-based investment began in 2009 in the heart of Kansas City's urban core.

The city of Kansas City, Mo., provided core funding to support administration and planning, neighborhood capacity building and outreach efforts. MARC, the Green Impact Zone and numerous community partners leveraged the city's initial investment through competitive public and private grants, which benefited not only the Green Impact Zone but also other areas across the region.

Kansas City's initial investment helped leverage additional federal grants and even more private funds. The following list itemizes more than \$178 million in investments that were either facilitated by the Green Impact Zone concept or came about as a result of zone partnerships.

- **SmartGrid** — \$48 million in DOE and KCP&L funds for a SmartGrid demonstration project in the zone and surrounding neighborhoods.
- **TIGER** — \$50 million in DOT funds for transportation infrastructure (\$26.2 million in the zone) and improved transit access across the region. Among the projects included are improved transit amenities at the stops.
- **EnergyWorks KC** — a \$20 million EECBG grant to Kansas City and partners for energy retrofits in the zone and six other KC neighborhoods.
- **Sustainable Communities** — \$4.25 million in HUD funds for sustainability planning in the region, including \$145,000 for housing work in the zone.
- **Brownfields Development** — a \$1 million EPA grant for brownfields development in Jackson County, with a particular focus on the zone.
- **Housing Rehabilitation** — 23 Properties and \$172,500 donated by Wells Fargo to the Ivanhoe Neighborhood Council.
- **Weatherization** — \$2.7 million in MDNR funding for an ongoing city program, adding 115 homes in the zone where weatherization was completed.

- **Related Investments** — Troost Bridge, \$9 million; Troost BRT, \$24.5 million; NSP3, \$1.8 million; NHS (Federal Home Loan Bank) \$283,000; EDA (Climate Sustainability Center Study) \$250,000.
- **Blue Hills Contractor Incubator Project** — \$2.2 million of a \$3.1 million renovation of the 5008 Prospect building, which will serve as a contractor's incubator and Blue Hills Community Services offices.
- **Bancroft School Development** — a \$14 million redevelopment of the vacant Bancroft School with affordable housing units and community space.

Source: <http://www.marc.org/TIGER/greenimpactzone.asp>

Prospect Ave. Enhanced Bus Service Evaluation

The KCATA initiated an effort to evaluate Prospect Avenue to determine corridor improvements. The evaluation was completed in 2012. The improvements evaluated included MAX service or a less intensive transit service enhancement. The conclusions of the study are:

- Prospect's current ridership and level of service exceeds other KCATA routes.
- A MAX type investment is the proper level of investment.
- MAX service would increase ridership by 10 to 20 percent.
- An investment in Prospect Avenue is consistent with community objectives and initiatives.
- Current operation would benefit from revisions to stop spacing and running times.
- An operating plan that widens stop spacing without separate MAX and local service would result in significant operational benefits without a significant increase in operating cost.

2.2 Project Status

KCATA initiated the Prospect MAX Planning Assessment Study in 2013 to evaluate the Prospect Avenue Corridor in Kansas City, Missouri to determine corridor improvements which includes implementing MAX service. Building on the Prospect Avenue Enhanced Bus Service Evaluation was intended to provide more detail as a next step towards design and implementation. Phase 1 of the Planning Assessment Study was completed in November 2013; it culminated with a design workshop on November 22, 2013. KCATA staff from several departments and the consultant team participated in the workshop. The project definition for Prospect MAX that resulted from the design workshop is the basis for the detailed work in Phase 2.

In November of 2013 the KCATA and Kansas City, Missouri concluded that Prospect MAX would be included along with streetcar lines in three corridors in a "Program of Interrelated Projects" as part of a strategy to secure federal funding for both the MAX and streetcar projects. The final report, NextRail KC Kansas City, Missouri Streetcar Phase II Expansion Plan, March 2014, fully document this approach to advancing the

project. In addition, the City Council committed to the inclusion of Prospect MAX through Transportation and Infrastructure Committee Resolution 140227.

2.3 Purpose Statement

The Prospect Avenue Corridor is one of KCATA highest volume corridors; local Route 71 Prospect averages about 6,000 weekday passenger boardings; the route serves a high percentage of transit dependent passengers. Many other KCATA routes operate parallel in a north/south direction nearby to Prospect or intersect with the route in this densely developed part of the city. Route 71 passes through neighborhoods that are characterized by high concentrations of minority and low income residents; most of the area has sustained an out migration of residents, employment and economic development during the past four decades. None-the-less the area includes several well organized neighborhoods and the Corridor has seen an increase in both public and private investment in recent years. Appendix C provides additional information on economic development in the corridor.

KCATA and the City have benefited from the investment in MAX on Main Street (2005) and Troost (2011) in terms of increased ridership and enhanced mobility, corridor revitalization and economic development. Ridership in the Main Street corridor has increased by about 60 percent while Troost ridership has increased 10 percent. Additional information on the benefits of MAX is available in *Troost MAX Evaluation*, October 2012.

The Prospect MAX Planning Assessment Study is intended to determine how KCATA and the community could use an investment in transit services to achieve broader economic development and quality of life goals, as well as transportation –related goals.

Goals established for Prospect MAX by the Advisory Committee are:

- Establish cost effective enhanced transit service in the Prospect Corridor
 - Faster transit service for longer trips
 - More reliable transit service
 - Improved passenger amenities at stops and stations; well-developed stations
- Create transformative transit investment to encourage station-area development
- Attract new business and investment to the Prospect Corridor
- Develop a viable funding strategy for the initial cost and ongoing operating cost

2.4 Project Objectives

The objectives of this study were to determine the justification for the project as well as develop detailed technical analyses, assess environmental considerations, identify

funding and financing options, and refine concept. The Prospect MAX Planning Assessment Study has eight objectives:

1. Identify existing corridor transportation issues and possible solutions. Review recent transportation studies and recommendations including the KCATA Comprehensive Service Analysis, U. S. 71 Commuter Corridors Study, Prospect Avenue Enhanced Bus Service Transit Evaluation, the Smart Moves Transit Plan and MARC Long-Range Transportation Plan. Review City studies and plans for the Prospect Corridor including the FOCUS Plan and other local plans that relate to transportation needs in the corridor. Review plans that the City of Kansas City, Missouri has for public improvements along the corridor and development projects being proposed along the corridor.
2. Engage the public to identify and support possible transit improvements including bus rapid transit along the Prospect Corridor. Develop a project description for a preferred alternative that addresses corridor transportation needs and can be used in justifying the project and gaining public support.
3. Evaluate the current transit operations along and connecting to the Prospect corridor.
4. Identify and define alternatives to improve transit service along the Prospect corridor, with a focus on BRT.
5. Work with the public and the City of Kansas City, Missouri to identify possible route alignments and stop locations for BRT and local transit improvements in the corridor including location of terminus points, major transfer points, BRT stations, etc. Downtown routing will be coordinated with ATA's separate CSA review of downtown transit services and streetcar connects. Assess various options for BRT station amenities, route branding, and support KCATA in assessing vehicular options.
6. Evaluate the need for exclusive bus lanes, bus pull outs, traffic signal priority throughout the corridor and potential impacts to roadways and traffic.
7. Develop capital and operating costs estimates for various project scenarios, along with strategies to fund the implementation of the preferred project.
8. Assemble all study related information into Project Definition and Justification Document for submission to the Federal Transit Administration for possible application of New Starts/Small Starts or other funding.

3.0 Overview of Prospect Corridor

3.1 Socioeconomic Characteristics

This section provides an overview of key socioeconomic characteristics that impact the ability of the corridor to support new transit investments. Key characteristics include:

- Population Density
- Population Change
- Employment
- Minority Population
- Vehicle Ownership
- Poverty Level

Population and Employment Overview

Population and employment are a critical factor in determining the success of transit investments. FTA provides guidance on transit-supportive population density and total employment breakpoints based on the Institute of Transportation Engineers (ITE) *Toolbox for Alleviating Traffic Congestion*, which provides minimum density thresholds for transit service. ITE suggests several minimum density levels for correspondingly intense transit investments:

- *A minimum level of fixed-route bus service* (20 daily bus trips in each direction or one bus per hour) is often provided in areas averaging population densities of 3,000 to 4,000 people per square mile and 10,000 to 16,000 employees, occasionally lower.
- *An intermediate level of local bus service* (40 daily bus trips in each direction or one bus every 1/2 hour) is often provided in areas averaging population densities of 5,000 to 6,000 people per square mile and 16,000 to 40,000 employees.
- *A frequent level of local transit service* (frequent bus or light rail) (120 daily trips in each direction or a frequency of ten minutes) is often provided in areas averaging population densities of 8,000 to 10,000 people per square mile and 40,000 to 100,000 employees.

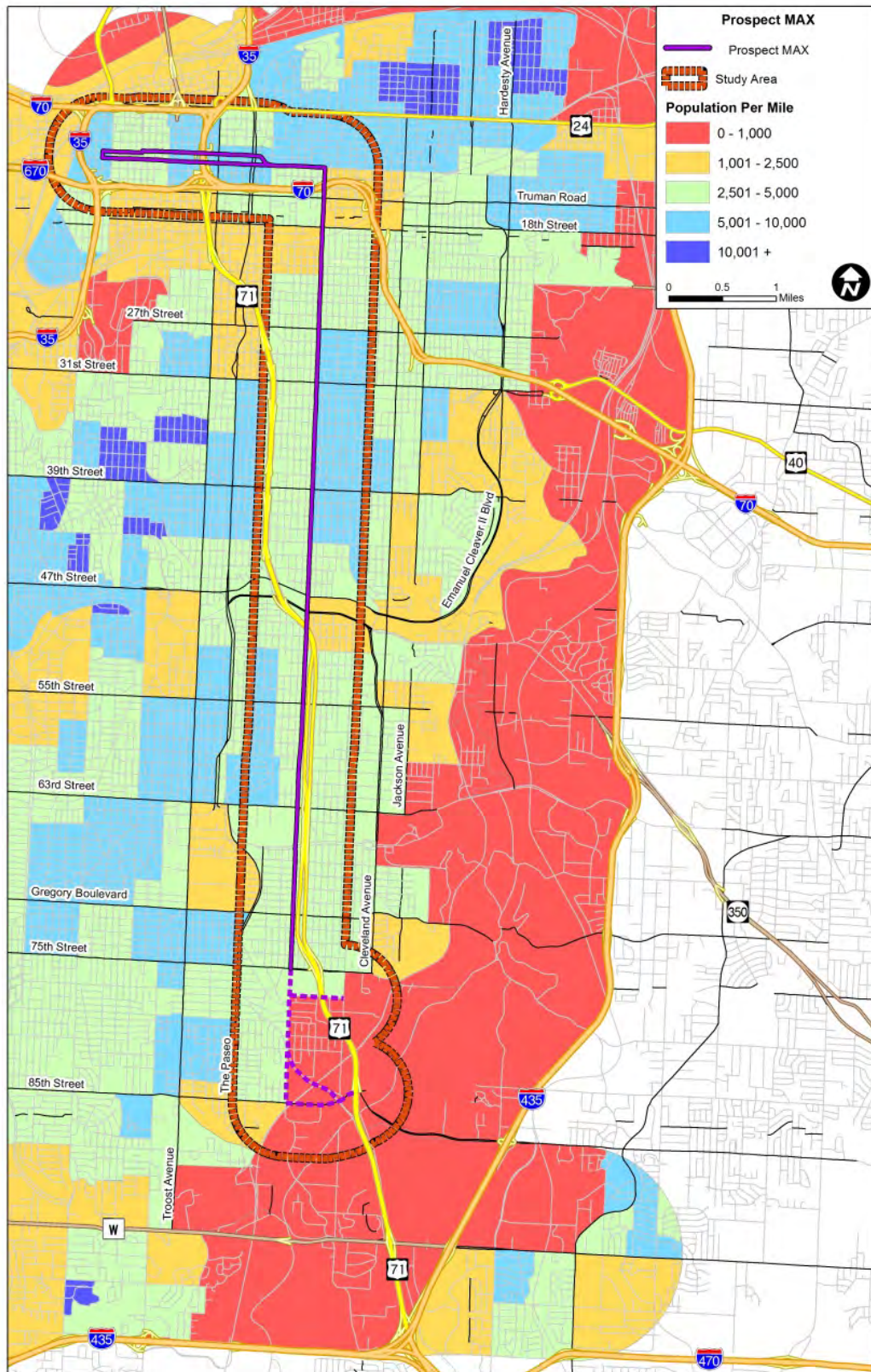
Population Density

Population density, shown in **Figure 1** on the following page, was assessed for the Prospect study area, defined as ½-mile, or a 10-minute walk from the proposed Prospect MAX line.

- A majority of the block groups in the study area have a population density between 2,500 to 5,000 people per square mile, a level sufficient to support fixed route bus service. There are significant opportunities along the corridor for residential infill with the potential to supporting higher densities in the future.

- The area to the east of Prospect between 27th and 47th street has the highest population densities at 5,000 to 10,000 people per square mile supporting higher-frequency bus service.
- Higher population densities existed in the past but have declined due to out-migration from this part of the urban core.
- Population densities significantly decrease south of 75th Street.

Figure 1: Population Density per Square Mile by Block Group



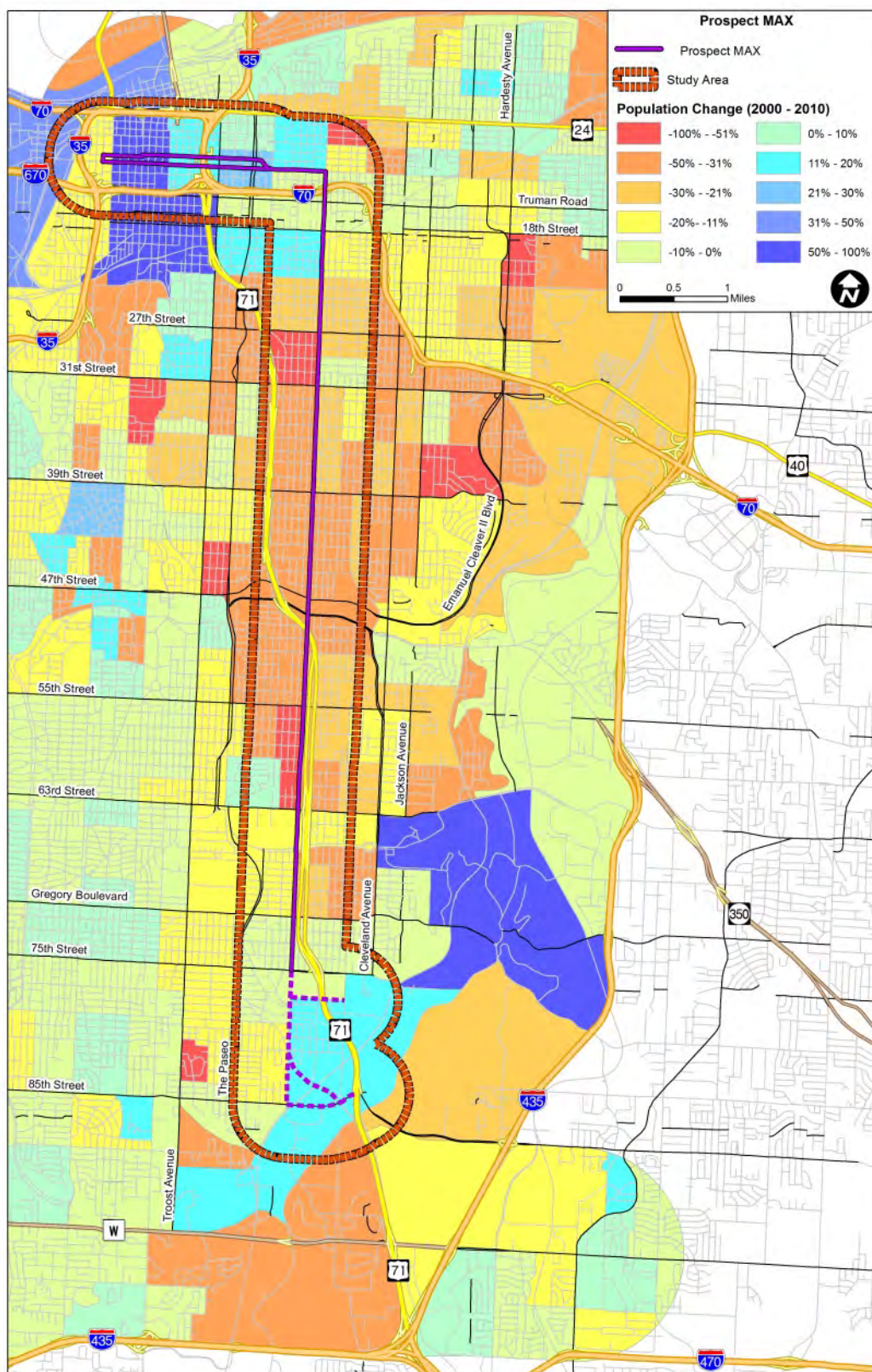
Source: 2010 U.S. Census

Population Change 2000 - 2010

Population change between 2000 and 2010 was assessed for the study area based on data from the Mid-America Regional Council (MARC) (see **Figure 2** on the following page). As noted in the *Heart of the City Area Plan*, the plan of record for the Prospect Corridor between I-70 to Brush Creek, “Over the past six decades, the urban core has suffered the effects of segregation, out-migration and disinvestment. High crime and deteriorating physical conditions, coupled with vacant houses and buildings as taken a particularly heavy toll.” However, also noted in this plan, this area boasts many assets including historic homes, strong community ties and close proximity to the Central Business Corridor (CBD), and in many ways is poised for resurgence. Infrastructure investments including Prospect MAX and initiatives like the Green Impact Zone provide an opportunity to leverage private investment. Vacant and underutilized properties provide the capacity for new development and redevelopment. This provides the opportunity to reverse population decline and promote further reinvestment in the corridor by providing the rooftops necessary to promote additional economic development activities.

- The study area is experiencing population declines greater than other parts of the City.
- The Prospect Corridor experienced an overall 12% population decrease since 2000, about 16,000 residents. Only locations downtown experienced a significant population increase.
- Kansas City, Missouri as a whole realized a 4.1% increase in population between 2000 and 2010.
- A majority of the block groups in Downtown Loop experienced a significant population increase between 2000 and 2010. Repopulation of Downtown is a major emphasis of the *Greater Downtown Area Plan*.
- A major goal of the *Heart of the City Area Plan* is a focus on repopulation of the area with a focus on rebuilding desirable urban neighborhoods.

Figure 2: Population Change 2000 – 2010



Source: Mid-America Regional Council

Employment

Employment was assessed for the study area based on 2010 data from MARC (see **Figure 3** on the following page). Ideally, a high-capacity transit corridor will connect residential areas to significant employment hubs. The ITE density thresholds for employment identified on page 15, especially on the higher end, typically occur in downtowns or highly urbanized areas. Although these employment densities do not occur along a majority of Prospect Avenue, they do occur within the Downtown Loop. Within the Downtown Loop, 12th Street connects through the heart of the Government, Financial, and Convention Districts as well as the east-edge of Quality Hill. There is also the potential for a high-concentration of jobs south of the study area with the investment by Center Corporation at the former Bannister Mall site, a 4.5-million square foot campus with the potential for up to 15,000 employees, and Oxford on the Blue, a potential biotech office park between US 71, I-435 and north of 87th street, with the potential for 4 million square feet of office space. This has the potential to provide strong employment anchors at each end of the corridor.

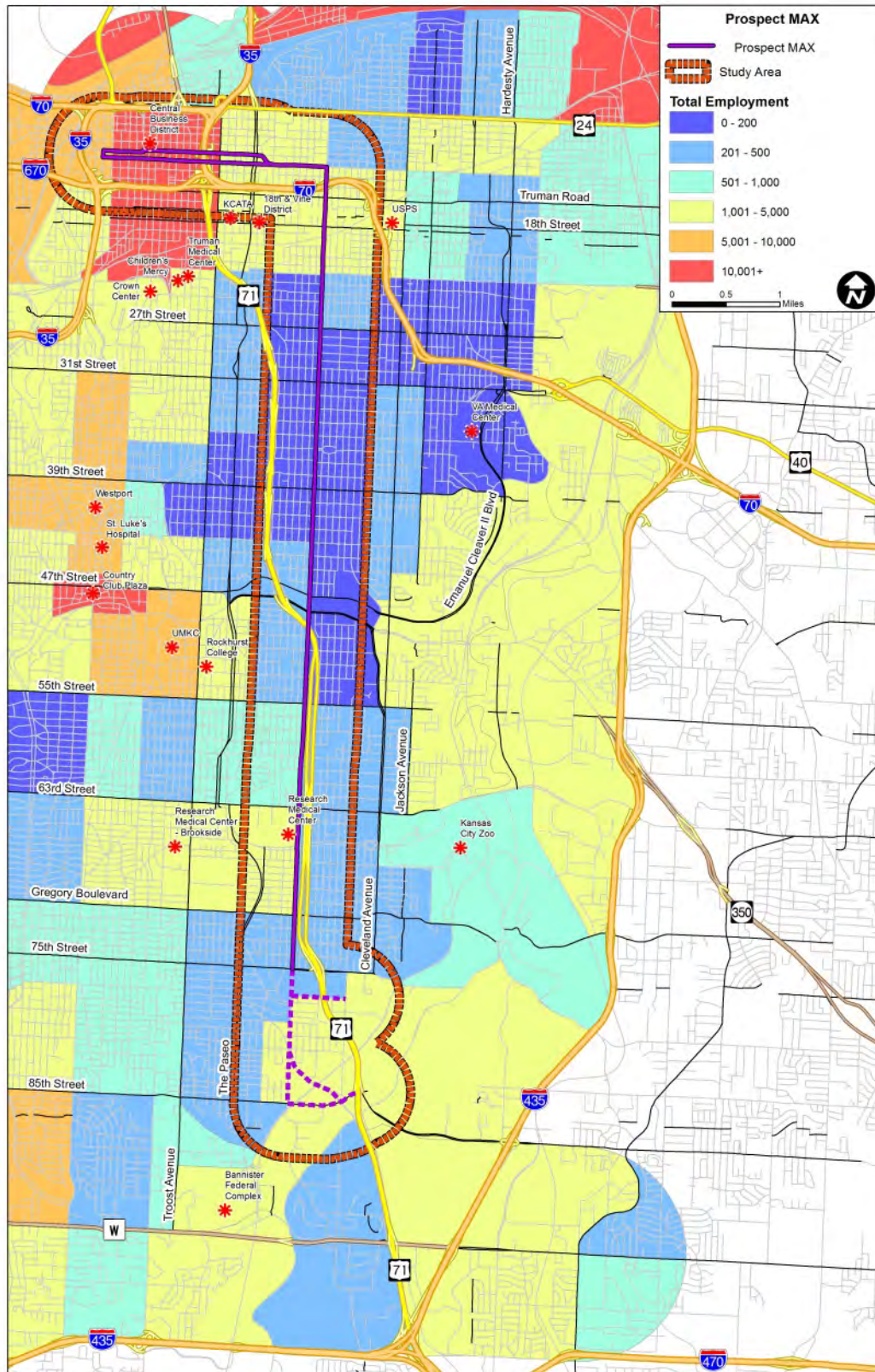
- The Downtown Loop provides the highest concentration of employment in the Kansas City metropolitan area, providing a sufficient threshold of total jobs to support higher-frequency service.
- The central portion of the study area, between 23rd and 55th Streets, has particularly low employment.
- The areas with higher employment include Research Medical Center, Rockhurst College, and the USPS distribution facility.
- The southern part of the corridor shows a gradual increase in employment closer to the I-435/US 71/I-470 interchange.
- The proposed Prospect MAX service will provide enhanced transit connections connecting transit-dependent populations to jobs along the corridor and Downtown.

Minority Population

Minority population was assessed for the study area based on 2010 data from the U.S. Census Bureau (see **Figure 4** on page 16).

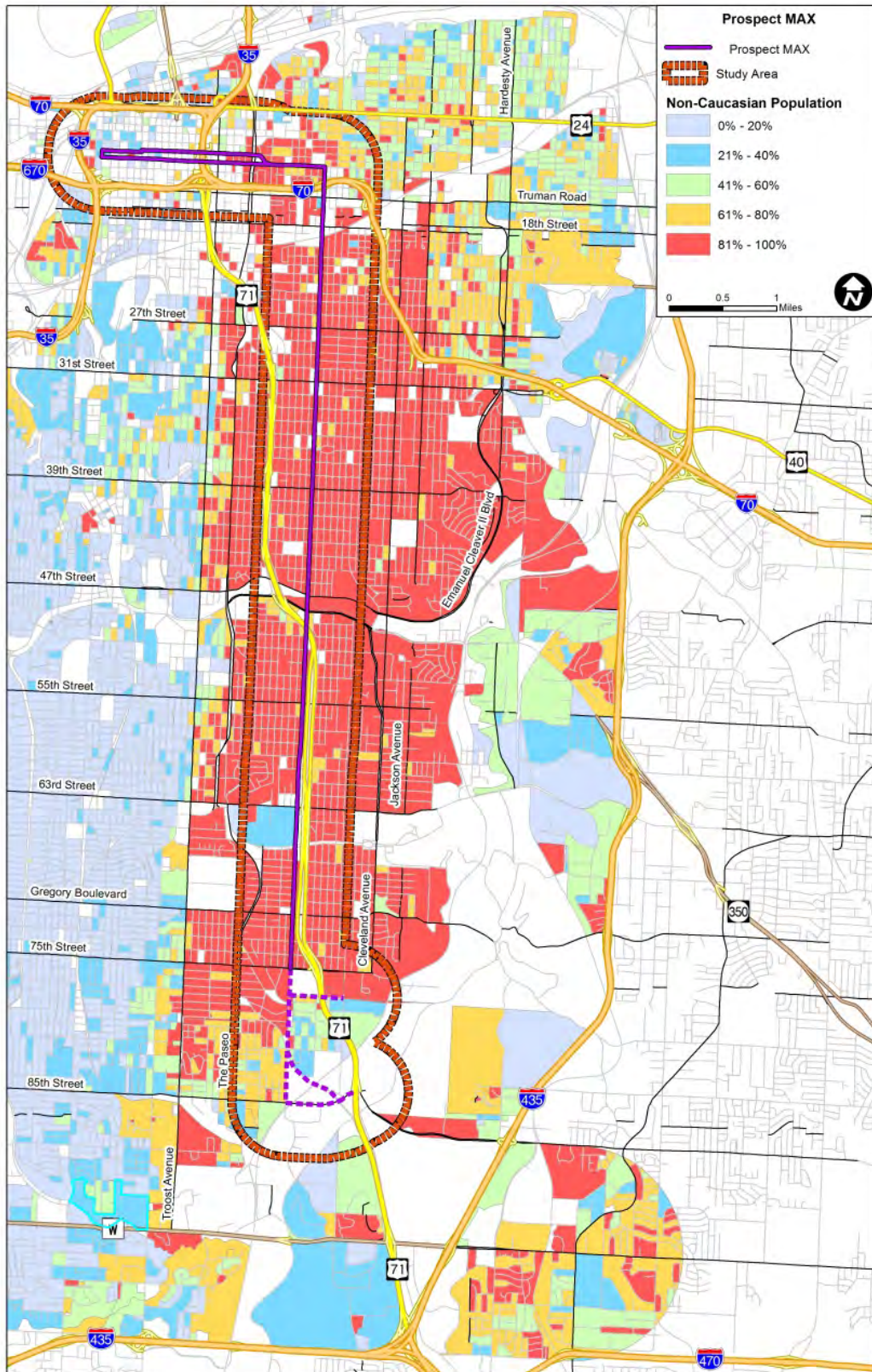
- The study area contains the highest concentration of minority populations in the City and the region.
- A majority of the block groups within the study area have minority population between 81% to 100%.
- Kansas City, Missouri as a whole has a minority population of 40.8%.

Figure 3: 2010 Employment by Census Tract



Source: Mid-America Regional Council

Figure 4: 2010 Minority Population by Block Group



Source: 2010 U.S. Census

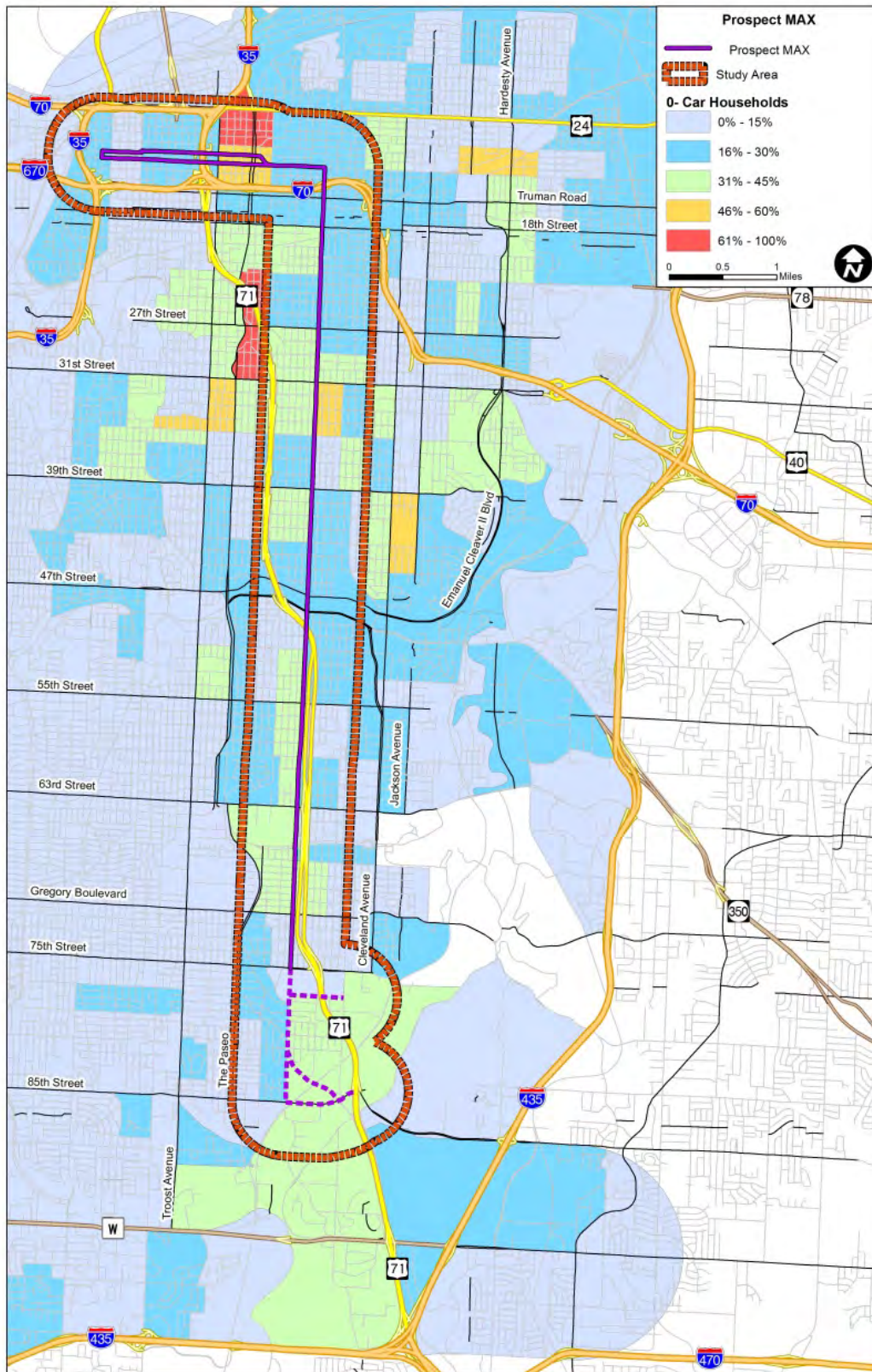
Vehicle Ownership

Vehicle ownership was assessed for the study area based on 2010 data from the U.S. Census Bureau (see **Figure 5** on the following page). The significant number of households that do not own or have access to an automobile along the Prospect Corridor identifies a significant need for transit and other mobility options. For some, the choice of not owning a vehicle is a preference or lifestyle choice. In some communities, vehicle ownership may be very expensive or inconvenient and there may be ample viable transportation alternatives including transit, walking or biking. However, a majority of zero-car households face economic constraints that make financing, licensing, insurance, and maintenance difficult. For this reason, transit-dependent population, as measured by the percentage of zero-car households, is an important factor for evaluating potential future transit investments. Due to the importance of this criterion, FTA gives a weight of two trips for one every trip made by a transit dependent person. Zero-vehicle households are at structural disadvantage in competing for jobs.

According to a 2011 report by the Brookings Institution, approximately 7.5 million households in the nation's largest metropolitan areas do not have access to an automobile. Even within the Kansas City urban core, housing and jobs tend to be disconnected. The Downtown Loop has the highest concentration of jobs in the metropolitan area, however, as shown in **Figure 3** Employment by Census Tract, the number of jobs concentrations drop off significantly east of the Downtown Loop. The correlation between zero-car households and jobs reinforces the need for transit service.

- Within the City of Kansas City, Missouri, 89.9% of all households own or have access to at least one vehicle. Within the study area, automobile ownership on average is lower than the rest of the City.
- There are block groups along the corridor where 31-to-45% of all households do not own a vehicle.
- On Prospect Avenue between 23rd and 31st Street and, there are block groups where 46 to 60% of households do not own a vehicle.

Figure 5: Vehicle Ownership



Source: 2010 U.S. Census

Poverty Level

The percentage of households below the poverty level was assessed for the study area based on 2010 data from the U.S. Census Bureau (see **Figure 6** on the following page). As noted in the previous section, poverty level can be tied to transit dependence based on the high-cost of owning and maintaining an automobile. The Census Bureau uses a set of money income thresholds (see **Table 1** below) that vary by family size and composition to determine poverty level.

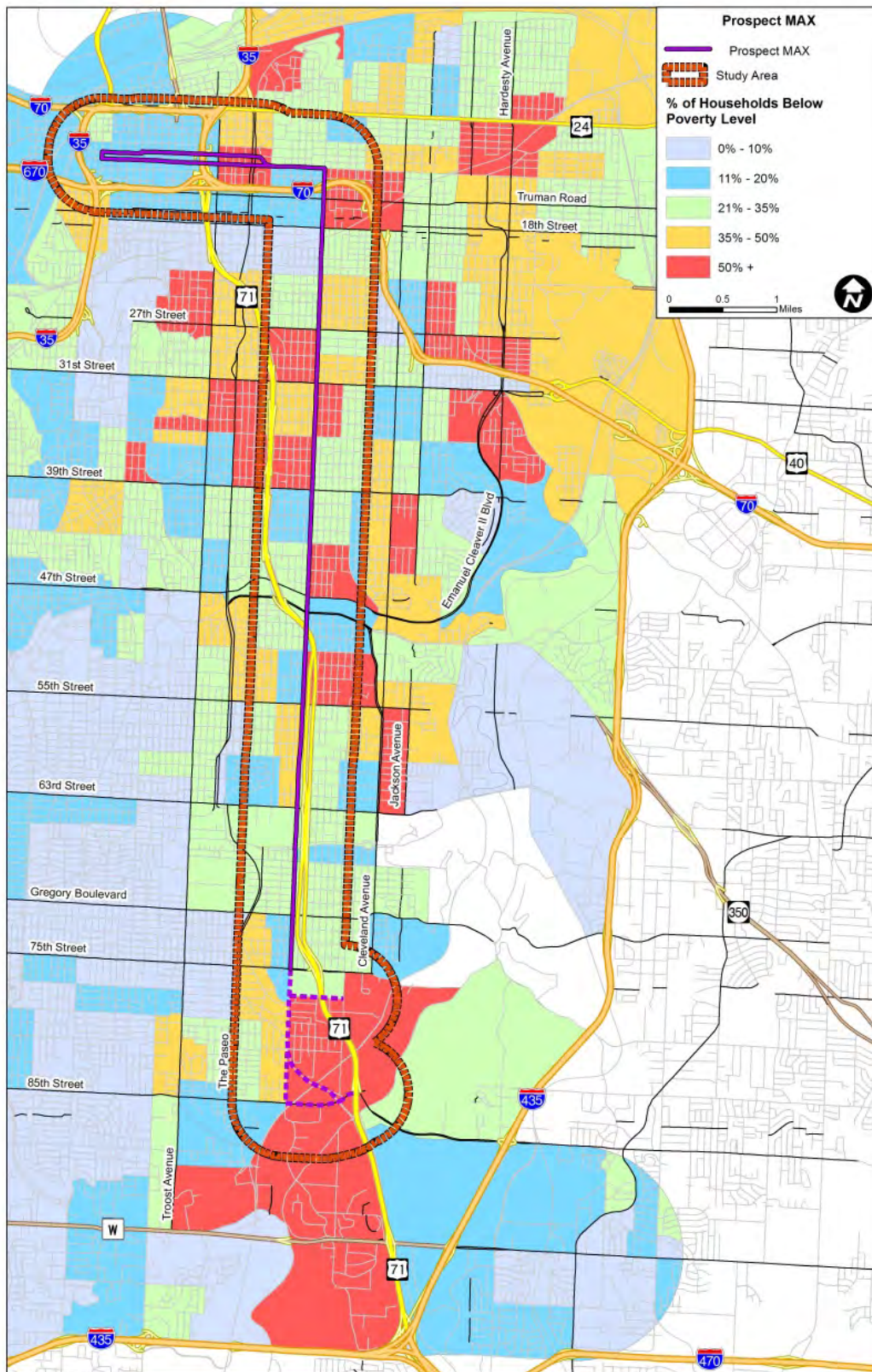
Table 1: 2010 Poverty Thresholds

Persons in family	Poverty guideline
1	\$10,830
2	14,570
3	18,310
4	22,050
5	25,790
6	29,530
7	33,270
8	37,010
For families with more than 8 persons, add \$3,740 for each additional person	

Source: 2010 U.S. Census

- The study area has significantly high levels of poverty compared to the Citywide (13.8%) and national averages (15.9%).
- A majority of the block groups in the study area have households between 21% to 35% below the poverty level.
- Several block groups in the study area have households with incomes that are 50% or more below the poverty level.

Figure 6: Poverty Level



Source: 2010 U.S. Census

3.2 Current Transit Service

Currently Route 71 has a high level of service throughout the service day, seven days per week. Route 71 is one of KCATA's core service routes and has the second highest daily ridership in the system at 6,000 weekday passenger trips. **Table 2** shows the current service plan.

Table 2: Route 71 Prospect Current Operating Plan

Service Attribute	Weekday					Saturday		Sunday
	Early AM	AM Peak	Midday	PM Peak	Night	Day	Night	
Span	4a – 6a	6a – 8a	8a – 3p	3p – 6p	6 – 1a	5a – 7p	7p – 1a	5:30a – 1a
Frequency	15	10	12	10	15 - 30	15	30	30
Buses	6	10	10	11	3	7	4	3 - 4

Route 71 has two southern termini, the primary terminus is at 75th and Prospect and the secondary one is at 77th and Agnes south of Alphapointe near a KCMO police department substation.

The shortcomings of the existing service are low operating speeds, an absence of service oriented for longer trips in the corridor and schedule reliability lower than the system average.

4.0 Prospect MAX Operating Plan

The operating plan for a transit service includes the route, stops and stations, fare structure and policy, vehicle running times and service levels – service frequency by time period and service span. This section describes the development of the operating plan for Prospect MAX along with the evaluation that led to the identification of the preferred operating plan.

4.1 Prospect MAX Route and Station Sites

Prospect MAX is intended to serve the Prospect Corridor, essentially the current Route 71 service area. A number of route alignment changes are recommended for the proposed MAX service; these are described later in this section. The graphic on the following page shows the Prospect MAX alignment along with proposed station locations. The number of stations is reduced substantially compared with local stops on Route 71, from 121 to 66 station/stops. Reducing the number of stops is the primary means of reducing travel times.

Station locations were determined based on the following criteria:

- Generally stations should be spaced between 1/4 to 1/2 mile outside the downtown area.
- Stations should be located near major trip generators.
- Stations should be located at transfer points with other intersecting routes.

In addition, stop passenger boarding information for Route 71 was reviewed to ensure all high volume stops were retained as MAX stops, if at all possible.

A determination was made to retain the local service in the Corridor to supplement MAX service. Local service will have more stops; however a recommendation was made to reduce the number of local stops along Prospect Avenue.

Figure 7: Proposed Prospect MAX Route and Stations

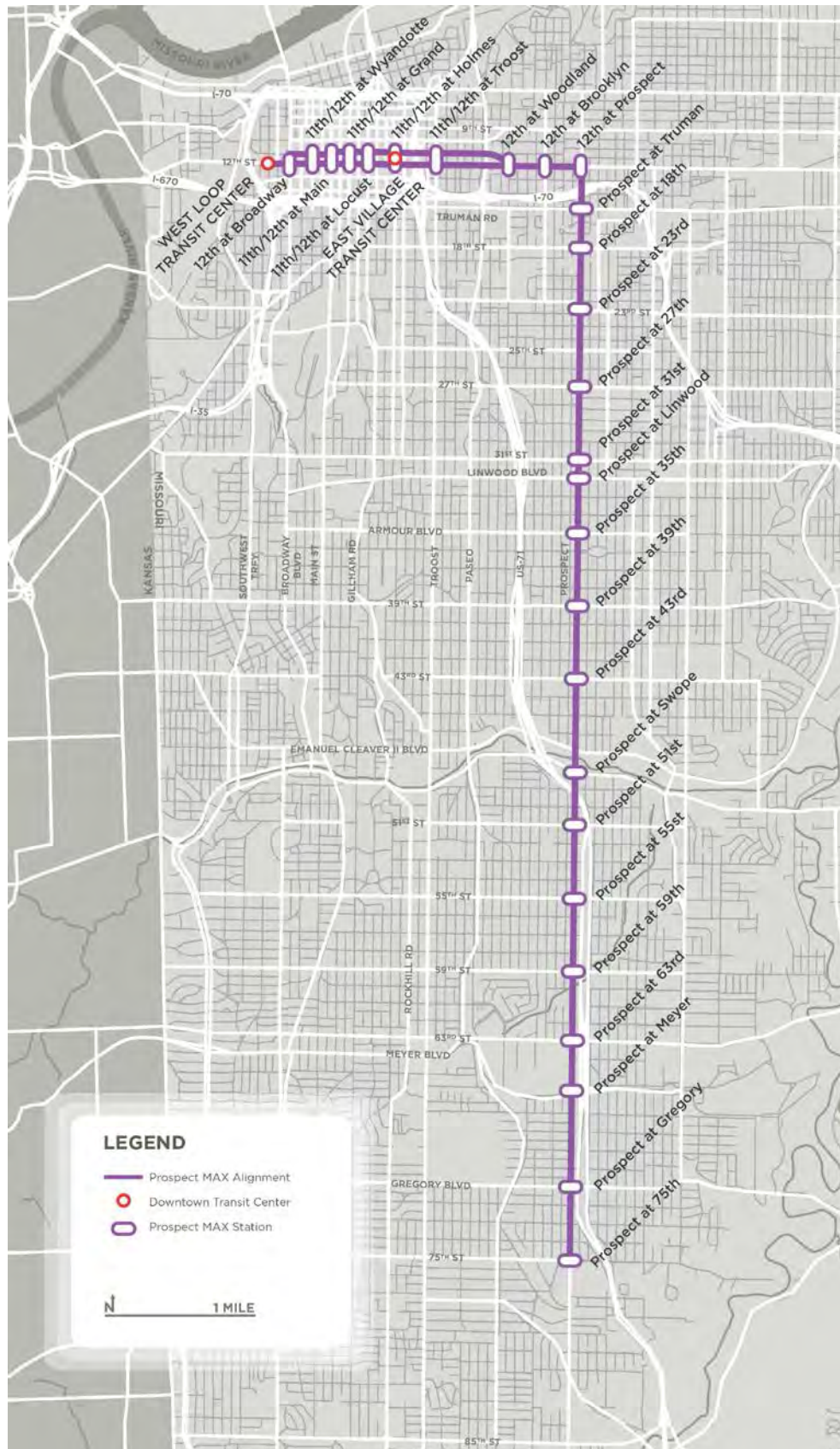


Table 3 lists each proposed station and facility along the Prospect MAX alignment along with the station name, direction of travel, and station type.

Table 3: Prospect MAX Route

	Station Location	Station Name	Direction	Transit Emphasis Corridor Station	Prospect MAX Station
1	12 th and Pennsylvania	West Loop Transit Center	TC		
2	12 th and Broadway	12 th at Broadway	WB	X	
3	12 th and Broadway	12 th at Broadway	EB	X	
4	11 th and Wyandotte	11 th at Wyandotte	WB	X	
5	12 th and Wyandotte	12 th at Wyandotte	EB	X	
6	11 th and Main	11 th at Main	WB	X	
7	12 th and Main	12 th at Main	EB	X	
8	11 th and Grand	11 th at Grand	WB	X	
9	11 th and Grand	Grand at 11 th	NB	X	
10	11 th and Grand	Grand at 11 th	SB	X	
11	12 th and Grand	12 th at Grand	EB	X	
12	12 th and Grand	Grand at 12 th	NB	X	
13	12 th and Grand	Grand at 12 th	SB	X	
14	11 th and Locust	11 th at Locust	WB	X	
15	12 th and Locust	12 th at Locust	EB	X	
16	11 th and Holmes	11 th at Holmes	WB	X	
17	12 th and Holmes	12 th at Holmes	EB	X	
18	11 th /12 th and Holmes	East Village Transit Center	TC		
19	11 th and Troost	11 th at Troost	WB		X
20	12 th and Troost	12 th at Troost	EB		X
21	12 th and Woodland	12 th at Woodland	WB		X
22	12 th and Woodland	12 th at Woodland	EB		X
23	12 th and Brooklyn	12 th at Brooklyn	WB		X
24	12 th and Brooklyn	12 th at Brooklyn	EB		X
25	12 th and Prospect	12 th at Prospect	WB		X
26	12 th and Prospect	12 th at Prospect	EB		X
27	Prospect and Truman	Prospect at Truman	NB		X
28	Prospect and Truman	Prospect at Truman	SB		X
29	Prospect and 18 th	Prospect at 18 th	NB		X
30	Prospect and 18 th	Prospect at 18 th	SB		X
31	Prospect and 23 rd	Prospect at 23 rd	NB		X
32	Prospect and 23 rd	Prospect at 23 rd	SB		X
33	Prospect and 27 th	Prospect at 27 th	NB		X
34	Prospect and 27 th	Prospect at 27 th	SB		X

Table 3 (Continued): Prospect MAX Route

	Station Location	Station Name	Direction	Transit Emphasis Corridor Station	Prospect MAX Station
35	Prospect and 31 st	Prospect at 31 st	NB		X
36	Prospect and 31 st	Prospect at 31 st	SB		X
37	Prospect and Linwood	Prospect at Linwood	NB		X
38	Prospect and Linwood	Prospect at Linwood	SB		X
39	Prospect and 35 th	Prospect at 35 th	NB		X
40	Prospect and 35 th	Prospect at 35 th	SB		X
41	Prospect and 39 th	Prospect at 39 th	NB		X
42	Prospect and 39 th	Prospect at 39 th	SB		X
43	Prospect and 43 rd	Prospect at 43 rd	NB		X
44	Prospect and 43 rd	Prospect at 43 rd	SB		X
45	Prospect and Swope Pkwy	Prospect at Swope Pkwy	NB		X
46	Prospect and Swope Pkwy	Prospect at Swope Pkwy	SB		X
47	Prospect and 51 st	Prospect at 51 st	NB		X
48	Prospect and 51 st	Prospect at 51 st	SB		X
49	Prospect and 55 th	Prospect at 55 th	NB		X
50	Prospect and 55 th	Prospect at 55 th	SB		X
51	Prospect and 59 th	Prospect at 59 th	NB		X
52	Prospect and 59 th	Prospect at 59 th	SB		X
53	Prospect and 63 rd	Prospect at 63 rd	NB		X
54	Prospect and 63 rd	Prospect at 63 rd	SB		X
55	Prospect and Meyer	Prospect at Meyer	NB		X
56	Prospect and Meyer	Prospect at Meyer	SB		X
57	Prospect and Gregory	Prospect at Gregory	NB		X
58	Prospect and Gregory	Prospect at Gregory	SB		X
59	Prospect and 75 th	Prospect at 75 th	S Term		X

4.2 Routing Alternatives Considered

Several route alignment alternatives were evaluated as summarized in the following sections. Existing transit service, land use, population, and employment were analyzed at to determine the preferred routing for Prospect MAX.

North End Routing

Two options were identified on the north end of the Prospect Avenue corridor for the connection to downtown in the east-west direction. The two corridors considered for the route between Prospect Avenue and Troost Avenue were:

- 12th Street, and
- Truman Road.

12th Street and Truman Road were evaluated to determine which would provide the preferred routing for the proposed Prospect MAX between Prospect Avenue and

downtown. The existing Prospect route uses Truman Road between Prospect Avenue and Troost Avenue.

The *Next Rail Streetcar Expansion Study* included Prospect MAX as a planning and capital project and assumed that the MAX BRT service would use 12th Street between Prospect and Troost to move in the east-west direction through downtown, inside the highway loop.

The 12th Street option was studied extensively through the Next Rail Planning Study and the Downtown CSA. Both of these studies have identified the 12th Street corridor as being a major transit emphasis corridor. The current land use and demographic makeup of 12th Street will provide for better routing for Prospect MAX by serving a larger population and a similar number of employees as Truman Road.

The Truman Road option was considered because of the connection to the KCATA's facilities as well as the fact that existing Route 71 travels along Truman in this location.

12th Street is recommended as the routing for MAX as a means to enhance service along 12th Street east of downtown. Local Prospect service is recommended to continue to operate along the existing routing on Truman Road.

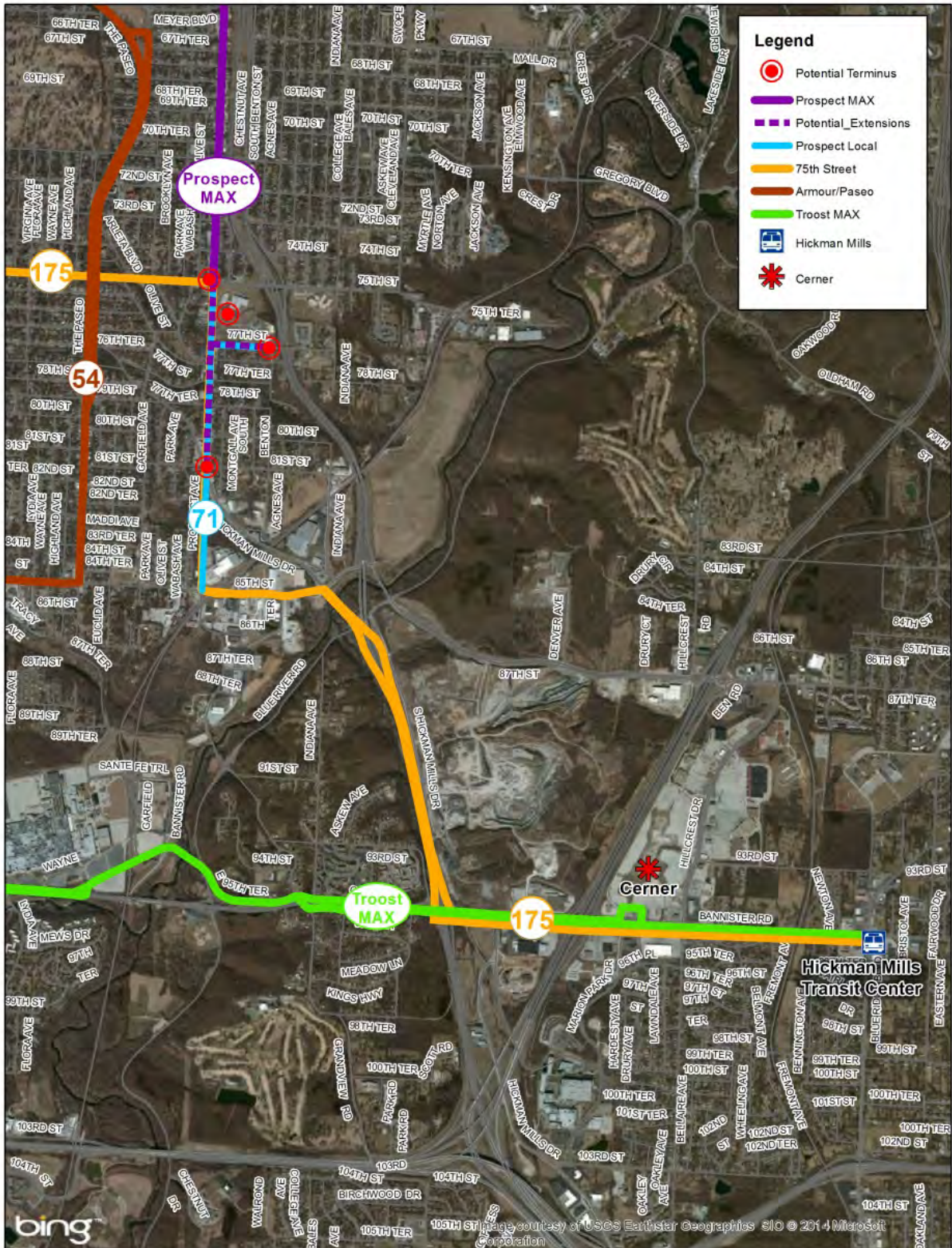
Downtown Routing from Prospect Avenue

Currently Route 71 operates to and from the 10th and Main downtown transit center via 11th Street and 12th Street. In keeping with the Downtown CSA, Prospect will be routed across downtown on the 11th/12th Street couplet terminating at a new west side transit center in the vicinity of 12th and Pennsylvania.

Southern Terminus

One of the questions that generated the most interest among project stakeholders and the public is the location of the southern terminus. Currently the primary south terminus for Route 71 is 75th and Prospect, although select trips proceed further south to 77th Street terminating at 77th and Agnes, about three blocks east of Prospect. Route 175 operates on Prospect south of 75th Street. **Figure 8** on the following page shows the transit routes in the vicinity of 75th and Prospect.

Figure 8: South East Kansas City Transit Routes



Interest in serving areas south of 75th Street stems from:

- Better serving the Marlborough residential neighborhoods south and west of 75th and Prospect
- Providing for employment trips to and from the businesses in the Dodson Industrial Area along 85th Street from US 71 to Olive
- Serving planned commercial developments along 87th Street east of US 71 and the proposed Cerner development at Bannister and Hillcrest.

KCATA's operating funding is extremely limited; the most cost effective way to serve areas to the south and east is to continue the current service pattern and have passengers destined to locations beyond 85th Street transfer to Route 175. Other southern terminus factors include:

- Development is significantly reduced south of 75th Street. The areas south of 75th Street do not have the density and generators that would warrant an extension of MAX.
- Current passenger boardings on Route 175 and Route 71 south of 75th Street is 85 passengers per day.
 - An extension to 85th Street would add approximately \$725,000 in annual operating cost. Even a reduced service option (30 minute service) would add \$400,000 to annual operating cost.
 - Extending local service to 85th Street would be less expensive, requiring an additional \$200,000 in annual operating cost.
- In the future, as developments such as Cerner and Oxford on the Blue materialize and it is determined that a connection to the Prospect corridor is needed and extension to Prospect MAX will be considered. KCATA intends to conduct a transit needs analysis study to determine how best to serve the current and potential demand in south Kansas City.

Thus the interim service plan includes the MAX terminus at 75th Street and the local service terminus at 85th Street.

A service plan that has every trip terminating at the same location is preferred because it is simpler and easier for the public to understand. Based on the factors already discussed, community input and operating costs, it was determined that the preferred service plan would have MAX terminating at 75th Street and the local service continuing south to 85th Street. Several options at or near 75th Street were identified for the MAX south terminus:

1. Maintain the current turn-around on the northwest corner of 75th and Prospect. Enlarge the current facility if possible. It may be possible to redesign the current facility on the north west corner of 75th and Prospect, although existing development borders the facility on the west and north.

2. Create a new facility on the northeast corner of 75th and Prospect. This would allow easier bus turns in and out of the facility.
3. Create a new facility on the Alphapointe property north of Montgall Street on Prospect. Alphapointe may be willing to partner with KCATA and provide space on their property for a small transit center.
4. Use the 77th and Agnes terminus currently used by select trips on Route 71.

These possibilities will be studied further in the next phase of the project before a determination is made. Until then the service plan will assume the continued use of the current facility.

4.3 Transit Running Times

One of the most important objectives associated with establishing MAX service is reduced travel time. This reduction is accomplished through a combination of wider stop spacing, transit priority measures and route simplification. Another means to reduce running time is to institute changes to the fare collection method, such as off board fare collection. This will be discussed in further detail in the following section.

Reduced running time not only is an important factor in customer satisfaction service effectiveness, but it also affects operating cost. Generally, as running times decrease, operating costs are reduced. The objective is to achieve a 20 percent reduction in running time.

To evaluate the effect of traffic congestion and transit priority measures on running time, the operation of ten key intersections along Prospect Avenue were evaluated using traffic operations simulation software, VISSIM. A running time model was developed to evaluate the effect on running time of various actions such as stop spacing and transit priority measures. In addition, field observations were conducted to verify modeled results.

Table 4 shows the results of the running time analysis compared to existing running times.

Table 4: Prospect MAX Running Times – Actual and Estimated

Corridor (75th & Prospect to Troost)	Evaluation Method	Running Time		Percent Savings	
		NB AM	SB PM	NB AM	SB PM
Alt 1 - Existing Local - To Truman & Troost	Actual Scheduled	36.0	39.0	N/A	N/A
Alt 2 - Existing Local - To 12th & Troost	Excel model	37.1	40.2	N/A	N/A
Alt 3 - BRT Mixed Traffic Without TSP	Excel model & VISSIM	29.3	32.7	21%	19%
Alt 4 - BRT Mixed Traffic With Basic TSP	Excel model & VISSIM	29.3	32.1	21%	20%
Alt 5 - BRT Dedicated Lane Without TSP	Excel model & VISSIM	29.3	32.1	21%	20%
Alt 6 - BRT Mixed Traffic With Full TSP	Excel model & VISSIM	29.2	31.9	21%	21%
Alt 7 - BRT mixed Traffic with Off-Board Fare Collection	Excel Model & Research	26.2	29.1	29%	28%

As shown in **Table 4** MAX is estimated to achieve a 20 percent reduction in running time without transit priority measures. The reason for this is there is very little traffic congestion along Prospect Avenue; buses are already operating free of traffic constraints, for the most part. Thus, instituting priority measures has minimal effect.

The benefits of TSP on Prospect will be studied further in a subsequent phase of the project. Data from Main Street MAX and Troost MAX was not available, limiting the evaluation. This data is being compiled.

The running times for Alternative 3, BRT in mixed traffic without TSP was used for the analysis of the operating plan and estimation of operating cost.

4.4 Service Plan Alternatives

Several alternatives were considered and evaluated for the combined Prospect MAX – Prospect Local operating plan. It was determined that for all alternatives that the local service would be modeled after the Troost local service. The Troost local service generally runs every 30 minutes and the Troost MAX service generally has 10 minute headways in peak periods and 15 minute service off-peak periods. **Table 5** summarizes the alternatives in terms of service plan attributes, service frequency and service span.

The four service plan alternatives are:

- Alternative 1. Alternative 1 represents 30 minute local weekday service 10 minute MAX weekday service.
- Alternative 1a. Alternative 1a represents the same service frequency and span as Alternative 1 but with off board fare collection for the MAX service.
- Alternative 2. Alternative 2 represents 30 minute local weekday service and 12 minute MAX weekday service.
- Alternative 3. Alternative 3 represents 30 minute local weekday service and 15 minute MAX weekday service.

Table 5: Prospect Corridor Service Level Summary

Service	Weekday			Saturday		Sunday	
	Span	Headways*	Trips	Span	Headways	Span	Headways
Current Service	4:30 to 1 AM	15/10/12/10/30	87	5 - 1 AM	20/15/30	5:30 - 1 AM	30
Alternative 1							
Local Service	5:00 to 7:30 PM	30	30	5:30 to 7:00 PM	30	5:30 to 7:00 PM	60
MAX	4:00 to 1:00 AM	10/10/30	<u>90</u>	5:00 to 1:30 AM	30	5:00 to 1:30 AM	30
Alternative 1 Total			120				
Versus Current			33				
Alternative 1a							
Local Service	5:00 to 7:30 PM	30	30	5:30 to 7:00 PM	30	5:30 to 7:00 PM	60
MAX	4:00 to 1:00 AM	10/10/30	<u>90</u>	5:00 to 1:30 AM	30	5:00 to 1:30 AM	30
Alternative 1a Total			120				
Versus Current			33				
Alternative 2							
Local Service	5:00 to 7:30 PM	30	30	5:30 to 7:00 PM	30	5:30 to 7:00 PM	60
MAX	4:00 to 1:00 AM	20/12/12/30	<u>78</u>	5:00 to 1:30 AM	30	5:00 to 1:30 AM	30
Alternative 2 Total			108				
Versus Current			21				
Alternative 3							
Local Service	5:00 to 7:30 PM	30	30	5:30 to 7:00 PM	30	5:30 to 7:00 PM	60
MAX	4:00 to 1:00 AM	20/12/15/12/30	<u>72</u>	5:00 to 1:30 AM	30	5:00 to 1:30 AM	30
Alternative 3 Total			102				
Versus Current			15				

4.5 Off Board Fare Collection

Off board fare collection techniques allow some or all passengers boarding a vehicle to not pay their fare (or show a pass) under the direct supervision of a driver or fare collection agent. This may take a number of forms. There are many types and variations of off board fare collection in use around the world. In the United States off board fare collection is common on rail systems, but relatively rare on bus systems. In recent years off board fare collection has been used on BRT systems with reported success. There are numerous examples of different combinations of approaches being implemented.

Off board fare collection can speed vehicle operations by eliminating the role of the vehicle driver as fare enforcement officer through alternative methods of fare payment and enforcement. Off board fare collection is also favored because it is another way to make BRT service “more rail-like.”

Because of the potential to reduce running times, and thereby operating costs, KCATA evaluated off board fare collection for Prospect MAX. The conclusion is that off board fare collection has the potential to reduce running times by up to six minutes per round trip. This would make the overall running time savings nearly 30 percent compared to current scheduled running times on Route 71.

The benefits of off board fare collection are evident; however the associated costs and operational issues require more evaluation. Capital costs for ticket vending machines were preliminarily estimated at \$1 million and ongoing operating and servicing costs

were estimated at \$400,000 to \$900,000 annually depending upon the approach to fare payment enforcement.

Thus, no recommendation was made and the evaluation is expected to continue in a fare structure and fare policy study to be conducted in 2014.

4.6 Operating Cost

The operating costs were estimated for each of the alternative service plans in **Table 6**. Operating costs were estimated using KCATA 2014 unit cost factors. This method produces fully allocated costs. The term fully allocated cost refers to the practice of assigning indirect costs, such as administrative and overhead costs, to a route on a pro rata basis, in addition to direct costs such as driver labor, fuel and vehicle maintenance.

Table 6 below shows the fully allocated operating cost the fully allocated operating cost for the current Route 71 operation is approximately \$4.6 million per year. Alternative 1 which is the preferred alternative would result in an approximately \$1.44 million per year increase over current service.

Table 6: Operating Costs

	Weekday Miles	Weekday Hours	Buses	Annual Cost	Difference
Current Service	1,761	148	11	\$4,612,000	
Troost MAX	1,981	155	10	\$4,858,227	
Troost Local	579	52	4	\$1,599,992	
Total	2,560	207	14	\$6,458,219	
Alternative #1- MAX - 10 minute headway	1,717	135	9	\$4,229,000	\$1,436,000
Alternative #1 - Local	679	54	4	\$1,819,000	
Alternative #1 - Total	2,396	189	13	\$6,048,000	
Alternative #1a w/Off Board Fare Collection- MAX	1,717	132	9	\$4,185,000	\$1,392,000
Alternative #1a - Local	679	54	4	\$1,819,000	
Alternative #1a w/Off Board Fare Collection - Total	2,396	186	13	\$6,004,000	
Alternative #2 - MAX - 12 minute headway	1,488	120	8	\$3,788,000	\$995,000
Alternative #2 - Local	679	54	4	\$1,819,000	
Alternative #2 - Total	2,167	174	12	\$5,607,000	
Alternative #3 - MAX - 15 minute headway	1,374	108	8	\$3,520,000	\$727,000
Alternative #3 - Local	679	54	4	\$1,819,000	
Alternative #3 - Total	2,053	162	12	\$5,339,000	

The time-saving benefits of off board fare collection have the potential to reduce operating costs by approximately \$45,000 annually. The cost estimates for alternatives 2 and 3 demonstrate how reductions in the level of service can reduce operating costs.

4.7 Effects on Other KCATA Routes

There is the potential for the KCATA to generate savings in operating costs through the reconfiguration of routes east of downtown along 12th Street. Currently Route 12 operates east from downtown along 12th Street to Hardesty, then south to a small transit center at 31st and Van Brunt. With Prospect MAX operating on 12th Street at a high level of service there appears to be no need for the additional service on Route 12. If a portion of Route 12 could be discontinued operating costs would be reduced. These potential route modifications will be studied further during the next phase, ACE/NEPA.

4.8 Preferred Operating Plan

Considering the potential benefits and costs of the proposed service modifications along with input from the public and stakeholders the preferred plan for Prospect MAX is as follows:

- The preferred route for Prospect MAX is from downtown to 75th via 12th Street and Prospect Avenue.
- The Prospect local route is from downtown to 85th Street via Truman Road and Prospect Avenue.

- In the downtown area both routes would use the 11th/12th Street TEC west to the transit center in the vicinity of Washington.
- The preferred service plan will be patterned after Troost MAX with 10 minute daytime headways and service spans consistent with current schedules.
- The fare collection method is yet to be determined and may include some locations with off-board fare collection or ticket vending machines.
- Priority measures would include signal priority outside of downtown and transit lanes in portions of the downtown area.

5.0 Capital Plan Summary

This section provides information related to the station improvements recommended as part of the implementation of the Prospect MAX line. These recommendations serve as the basis for final design and engineering efforts as well as continued public and stakeholder outreach and property owner coordination.

Several factors were used to determine the location, type, and size of transit stations for the Prospect Avenue corridor. Factor such as:

- Existing and anticipated ridership
- Transfer opportunities to other routes
- Available right-of-way, capacity to accommodate station footprint
- Compatibility with adjacent land uses

The station components at any given location are not always proposed to have the same level of improvements. For example, a station with higher ridership might have two shelters instead of one. Each location has a pair of stations to serve inbound and outbound directions; either northbound (NB) and southbound (SB) or eastbound (EB) and westbound (WB) stations.

The station design for the Prospect MAX varies based on the location of each station, with generally two station prototypes:

1. Stations located outside of the downtown loop, generally along 11th and 12th Streets and Prospect Avenue.
2. Stations located within the downtown loop along the 11th and 12th Street Transit Emphasis Corridors

Each of the station prototypes may be modified to fit within the constraints of a given location and fit within its context. For example, the platform paving treatment may be modified to better integrate with the streetscape design of a district. Additional passenger amenities may be provided as well to accommodate areas with high transfer activity and/or boardings.

5.1 Prospect Corridor Station Design and Specifications

For locations outside the downtown loop, the station design for Prospect MAX will have similar characteristics as the station design for the current MAX line on Troost Avenue. Minor improvements have been identified based on the performance of the Troost MAX stations. The Prospect stations will have the following components:

Figure 9: Proposed Prospect MAX Station Site Plan

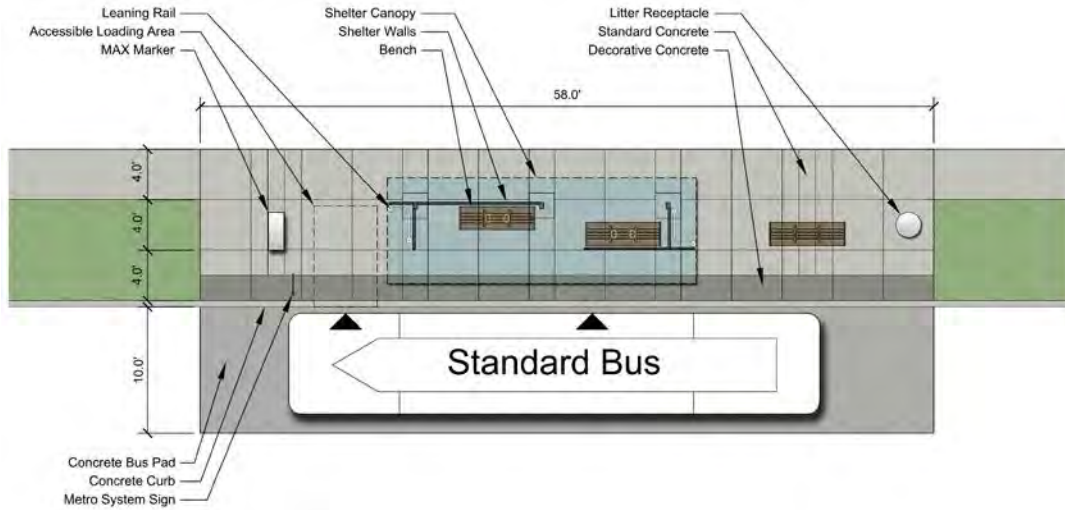


Figure 10: Proposed Prospect MAX Station



Figure 11: Proposed Station at Prospect and 39th



Platform

The station platform will be 6-inch depth concrete with regular joint spacing and could include a distinguishing pattern such as an exposed aggregate finish. The standard platform length is approximately 58-feet in length, long enough to accommodate both 40-foot buses and the potential for future articulated buses. The platform edge will be delineated by a specialty colored concrete band to differentiate the station and elevate awareness of the transit use similar to rail platforms.

Marker

To continue the branding conventions begun on the Troost MAX line, a decision early in the Prospect MAX planning process was made to use the same marker design including the characteristic blue accent along with some minor improvements to facilitate maintenance. The marker will feature a three-line real time information sign, station naming, characteristic MAX logo, and route and transfer information. Modifications to the marker include improved access to the route and transfer information by incorporating the use of a piano hinge on the panel door while maintaining a secure and weather-tight seal.

Shelter

Similar to the marker, the Prospect MAX shelter will be based on the design of the Troost MAX shelter design. Keeping the overall look and feel and dimensions of the shelter, improvements will be made based on lessons learned from maintenance and security feedback. The KCATA has provided the following recommendations for improvements to the shelter:

- Specify a 4-step powder coat finish for durability *(to be addressed in specifications)*
- Specify 3M laminate coating applied to the acrylic glazing panels prior to assembly/installation *(to be addressed in specifications)*
- Specify tamper-proof screws for the acrylic glazing fastener buttons *(to be addressed in specifications)*
- Investigate options to deter vandalism of the shelter while maintaining visibility and safety
- Streamline the process of installation/replacement of the glazing panels
- Any increase in shelter cost due to modifications must be considered with savings on maintenance

To address maintenance and installation challenges of the acrylic glazing panels, the number of “button” fasteners will be reduced to a minimum. Instead, a metal frame around the panels will provide the necessary attachments and simplify panel replacement. The connection between the glazing panels will remain the same, with fastener buttons on one side and a mullion on the other.

The Prospect MAX shelter is intended to be transparent to allow views to local shops and promote safety while providing protection from wind, rain, sun and environmental elements. The shelter also includes sufficient lighting to provide a safe and secure waiting area at night.

Seating/Leaning Rails

Each station location will be outfitted with two standard off-the-shelf benches and two leaning rails. At stations with higher boardings additional benches can be added outside of the shelter waiting areas. The benches will be metal with wood slats for durability and comfort similar to the Troost MAX bench.

Litter Receptacle Recycling

Each station will include a litter receptacle for the use of patrons. These off-the-shelf units will be compatible with the MAX brand and consistent with those installed along the other MAX routes. At enhanced stations recycling containers may be provided.

Landscape

Where possible based on individual site conditions and rights-of-way availability, landscape will be provided at the ends of the platform to aid circulation, define the boarding area, and contribute to the corridor streetscape environment. Landscaping will be low maintenance, drought and salt tolerant, and allow for clear sight lines of the transit station and its surroundings.

Site Lighting

It is anticipated that the shelter and marker lighting, coupled with surrounding street lighting, will provide adequate illumination for safety and visibility of the transit stations. Additional pedestrian lighting, other than what may currently exist in the corridor, is not planned but will be considered on a location-specific basis.

Other Elements and Features

Based on comments received from the advisory committee and public input process, additional features should be evaluated for incorporation into the project. Such elements to be considered include:

- Enhanced corridor pedestrian and local site lighting
- Additional corridor landscape plantings beyond what is planned at the stations
- Additional corridor sidewalk and accessibility improvements
- Unique branding of stations to tie the transit investment to the community and identity and character of the neighborhoods
- Incorporate art into the stations, where possible
- Branding should be within the MAX family brand already developed and implemented on Main Street and Troost Avenue.

Specific elements of Prospect MAX branding, including the route color will be determined later. Main Street MAX is the “Orange Line” and Troost MAX is the “Blue Line.” Preliminarily purple has been designated as the color for Prospect MAX. It is expected that other branding elements will adhere to the MAX brand which has developed a high level of recognition during the past ten years.

5.2 Downtown Transit Emphasis Corridor Stations

Downtown Transit Emphasis Corridor is currently defined as where multiple bus routes converge to facilitate transfers, improve system clarity, and consolidate transit amenities. The station layout and shelter design allows for improved pedestrian circulation continuity and greater capacity at high boarding locations.

For locations within the downtown loop on 11th and 12th Streets, the station design for Prospect MAX has been adapted to better integrate within the urban streetscape. These stations fall within designated transit emphasis corridors where multiple bus routes converge to facilitate transfers, improve system clarity, and consolidate transit amenities. The station layout and shelter design allows for improved pedestrian circulation continuity and greater capacity at high boarding locations. The station aesthetics are streamlined to enhance the transit presence in the downtown environment. The downtown transit emphasis corridor stations will have the following components:

Figure 12: Proposed Transit Emphasis Corridor Station Site Plan

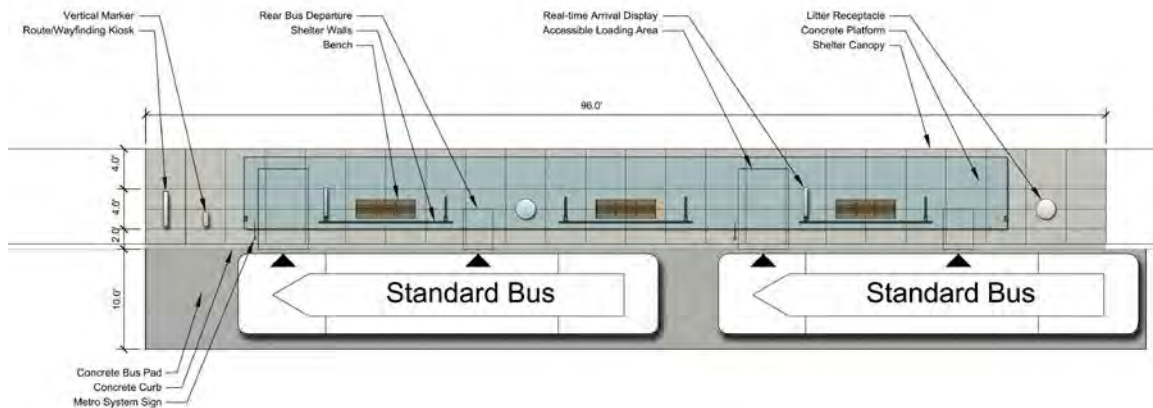
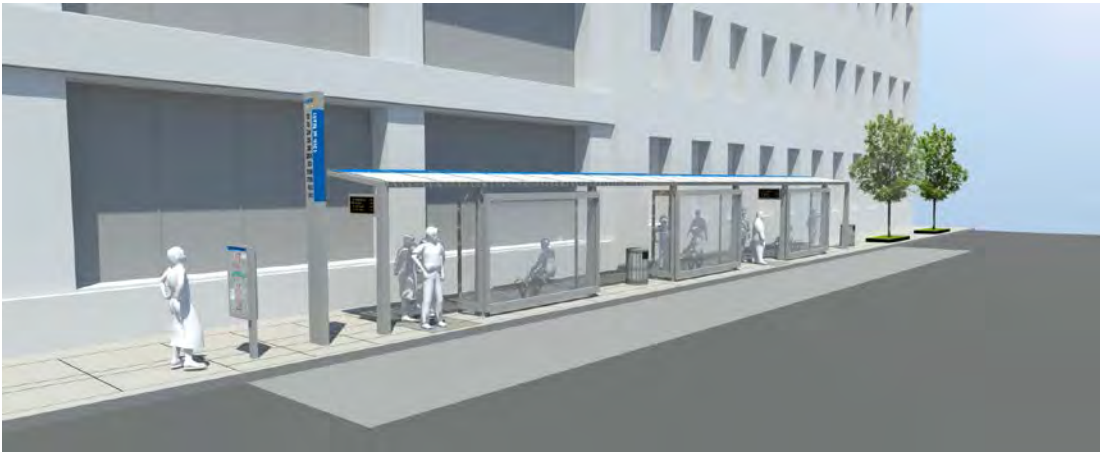


Figure 13: Proposed Transit Emphasis Corridor Station Renderings



Platform

The station platform will be 6-inch depth concrete and could include a distinguishing pattern such as an exposed aggregate finish. The standard platform length is approximately 96-feet in length, long enough to accommodate boarding of two 40-foot buses and the potential for future articulated buses. The platform joint spacing will be complementary of the surrounding streetscape and define zones of use.

Marker

The design of the marker for the transit emphasis corridor stations varies from the typical MAX marker but remains a consistent vertical element. The marker components are distributed throughout the station to allow for a more integrated design solution. The marker has been reduced to a more pedestrian scale and will include the station name, the MAX brand, and local bus transfer opportunities. Route information and local wayfinding will be contained in a separate signage element. Real time arrival signs will

be incorporated into the shelter structure, maximizing their visibility throughout the length of the station.

Shelter

The transit emphasis corridor shelter is a new design specifically for the urban environment. The shelter will be located just behind the roadway curb and will face inward toward the sidewalk. A simple angled roof form (similar to the Main Street MAX shelter type) will provide protection from the elements. Beneath the roof a series of acrylic glazing panels (similar to the Troost MAX shelter type) provide wind protection and separation of waiting areas. The panels are located to line up between loading zones to maintain access to bus front and rear doors.

The layout of the shelter creates a larger zone that becomes more inviting and transitional between those waiting for transit and through pedestrian circulation. The standard length of the shelter is 76 feet to accommodate large boarding numbers and transfer activity but can be reduced to 24 feet for lower-use stations.

The layout of the shelter incorporates provisions required to maintain ADA access. Dedicated areas under the shelter canopy provide a 30" width X 48" minimum clear waiting area for wheelchair accommodations. Openings in the shelter that permit boarding of buses also maintain a 60" width by 96" length clear boarding zone.

This new shelter design, similar to the MAX family, is intended to be transparent to allow views to local shops and promote safety while providing protection from wind, rain, sun and environmental elements. The shelter also includes sufficient lighting to provide a safe and secure waiting area at night.

Seating/Leaning Rails

Each station location will be outfitted with three standard off-the-shelf benches and two leaning rails. The benches will be metal with wood slats for durability and comfort similar to the Troost MAX bench. Leaning rails could be incorporated as well to provide additional waiting accommodations.

Litter Receptacle and Recycling

Each station will include two litter receptacles for the use of patrons. These off-the-shelf units will be compatible with the MAX brand and consistent with those installed along the other MAX routes. Recycling containers may also be provided.

Landscape

Landscaping will not be provided at the stations; however, the stations shall coordinate with adjacent streetscape to minimize impacts on street trees and planters.

Site Lighting

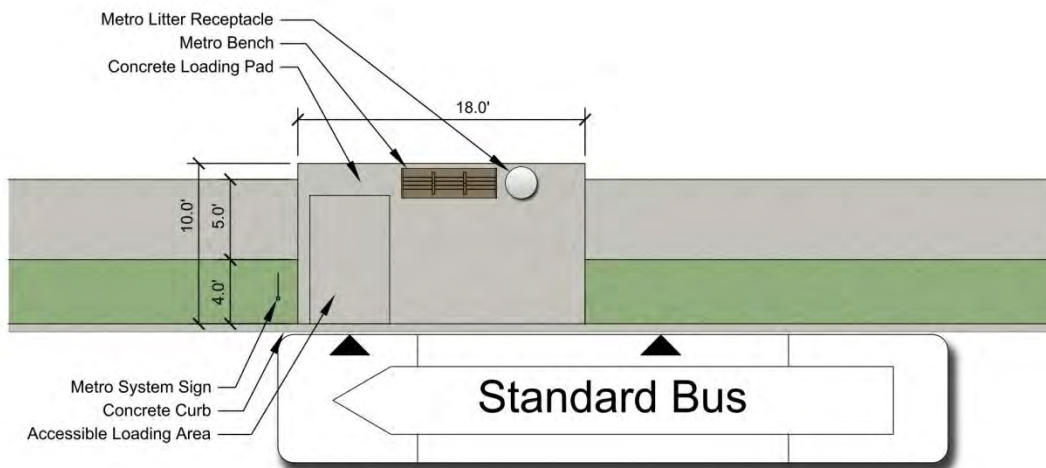
It is anticipated that the shelter and marker lighting, coupled with surrounding street lighting, will provide adequate illumination for safety and visibility of the transit stations. Additional pedestrian lighting, other than what may currently exist in the corridor, is not planned but will be considered on a location-specific basis.

5.3 Local Bus Stop Improvements

As part of the strategy to transform the Prospect Avenue corridor, the local bus service (Route 71) will continue to serve the neighborhoods once Prospect MAX service has commenced. The local service will serve the MAX stations but will also serve intermediate locations, resulting in stops generally every two blocks.

The project team performed an analysis of existing stop locations along the corridor. In many areas stops are spaced at one block. The KCATA desires to streamline the number of stops to efficiently serve the community so a few of the existing stops may be removed. The remaining stops will be improved with a standard “Metro” bench and trash receptacle and a concrete loading pad sized to accommodate ADA-compliant loading. This strategy applies to the Prospect Avenue, 11th and 12th Streets east of the downtown loop, and the segment of Truman Road where the local Route 71 diverts from the Prospect MAX alignment. For reference, the current Route 71 has approximately 176 stops. The proposed Prospect MAX has 57 stations coupled with 53 local stop improvements.

Figure 14: Improved Local Stop Site Plan



The following graphic depicts locations where local stops will be improved and where existing stops will be removed. These locations are subject to refinement based on continued community input and coordination with KCATA operations.

Figure 15: Proposed Local Bus Stop Improvements

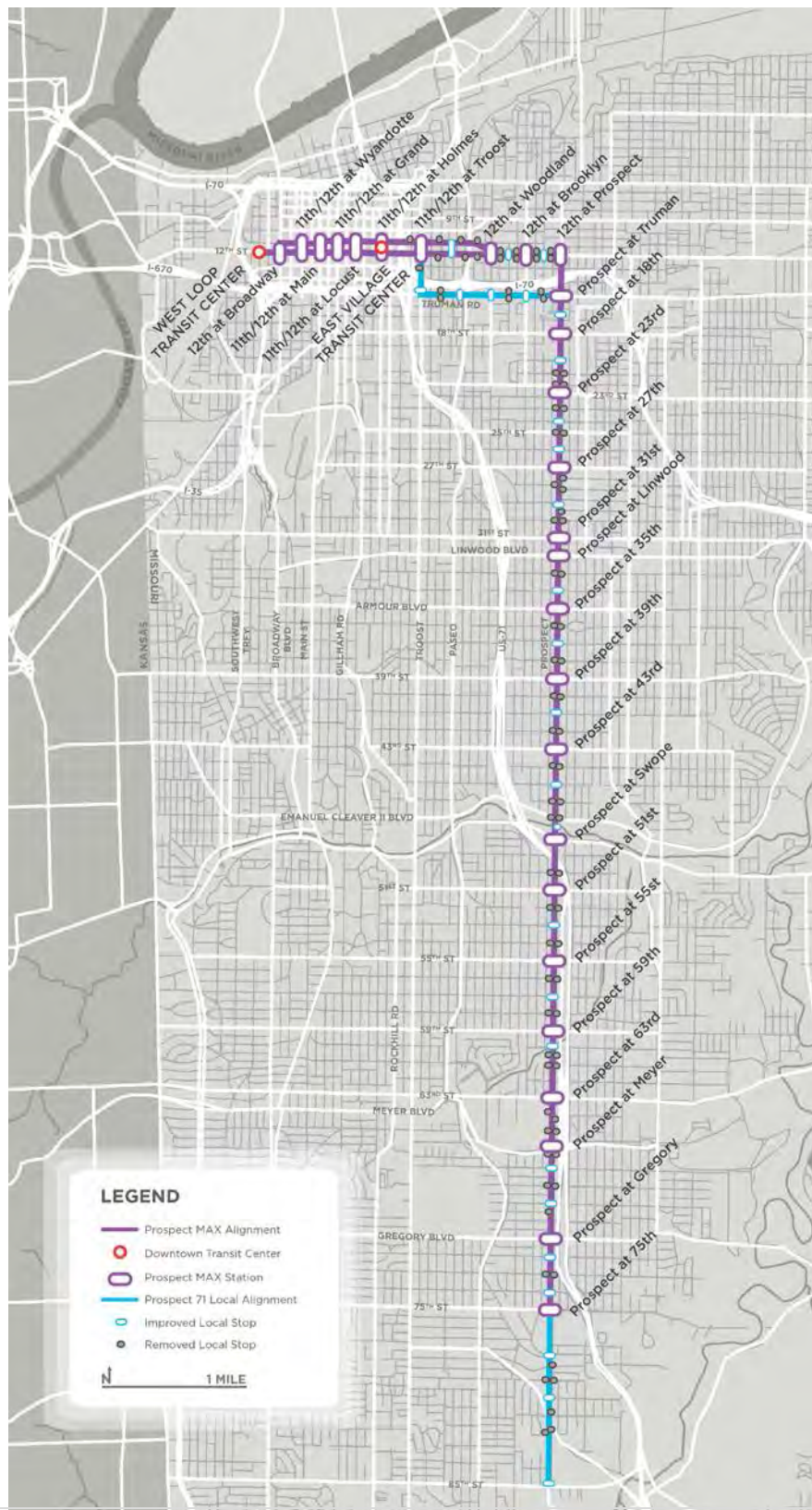


Table 7 shows the recommended local stop improvements.

Table 7: Prospect Local Bus Stop Modifications

	Improved Local Stops	Direction
1	11th/12th at Virginia	Both
2	12 th at Euclid	Both
3	12 th at Olive	Both
4	Troost at Truman	Both
5	Truman at Lydia	Both
6	Truman at Woodland	Both
7	Truman at Brooklyn	Both
8	Prospect at 16 th	Both
9	Prospect at 20 th	Both
10	Prospect at 24 th Terr	Both
11	Prospect at 26 th	Both
12	Prospect at 29 th	Both
13	Prospect at 34 th	Both
14	Prospect at 37 th	Both
15	Prospect at 41 st	Both
16	Prospect at 45 th	Both
17	Prospect at Paraclete Manor	NB Only
18	Prospect at 53 rd	Both
19	Prospect at 57 th	Both
20	Prospect at 60 th	Both
21	Prospect at 67 th	Both
22	Prospect at 69 th	Both
23	Prospect at 72 nd	Both
24	Prospect at 74 th	Both
25	Prospect at 77 th	Both
26	Prospect at 80 th	Both
27	Prospect at 85 th	Both

5.4 Station Capital Costs

The following typical costs were developed for each station prototype. The downtown transit emphasis corridor stations and Prospect MAX stations include shelters and furnishings that have an elevated level of finish than a typical Metro stop. These costs are for budgeting purposes only.

Table 8: Capital Costs

Prospect MAX Station Improvements

Draft Opinion of Probable Construction Cost

FTA Cat.	Shelter/Marker & Platform	QTY	UNITS	COST	TOTAL
20.01	Shelter-Type A - 24' footed	1	EA	\$80,000.00	\$80,000.00
20.01	Shelter installation (Mfg.)	1	EA	\$1,500.00	\$1,500.00
20.01	Shelter installation (Site Contractor)	1	EA	\$1,500.00	\$1,500.00
20.01	Marker - MAX	1	EA	\$60,000.00	\$60,000.00
20.01	Marker installation (Mfg.)	1	EA	\$1,500.00	\$1,500.00
20.01	Marker installation (Site contractor)	1	EA	\$1,500.00	\$1,500.00
20.01	Conc. walk 6" thick platform	696	SF	\$18.00	\$12,528.00
20.01	Cantilevered shelter concrete footing	1	EA	\$8,500.00	\$8,500.00
20.01	Marker concrete footing	1	EA	\$7,500.00	\$7,500.00
Category 20.01 Total					\$174,528.00
FTA Cat.	Site Package	QTY	UNITS	COST	
40.01	Concrete demolition	696	SF	\$6.00	\$4,176.00
40.01	Curb demolition	58	LF	\$6.00	\$348.00
Category 40.01 Total					\$4,524.00
40.02	Electrical power	1	LS	\$15,000.00	\$15,000.00
Category 40.02 Total					\$15,000.00
40.06	Digitally printed maps	1	EA	\$500.00	\$500.00
40.06	Bench	3	EA	\$1,900.00	\$5,700.00
40.06	Litter receptacle	1	EA	\$1,500.00	\$1,500.00
Category 40.06 Total					\$7,700.00
40.07	Concrete bus pad	580	SF	\$18.00	\$10,440.00
40.07	Concrete curb	58	LF	\$20.00	\$1,160.00
Category 40.07 Total					\$11,600.00
FTA Cat.	Real Time Signage	QUANTITY	UNITS	COST	
50.05	Real Time Sign	1	EA	\$12,000.00	\$12,000.00
Category 50.05 Total					\$12,000.00
Station Subtotal					\$225,352.00
Contingency (20%)					\$45,070.40
Station Total					\$270,422.40

Table 9 (Continued): Capital Costs

Downtown Transit Emphasis Corridor Station Improvements

Draft Opinion of Probable Construction Cost

FTA Cat.	Shelter/Marker & Platform	QTY	UNITS	COST	TOTAL
20.01	Shelter - TEC Superstop	1	EA	\$200,000.00	\$200,000.00
20.01	Shelter installation (Mfg.)	1	EA	\$1,500.00	\$1,500.00
20.01	Shelter installation (Site Contractor)	1	EA	\$1,500.00	\$1,500.00
20.01	Marker-TEC	1	EA	\$20,000.00	\$20,000.00
20.01	Marker installation (Mfg.)	1	EA	\$1,500.00	\$1,500.00
20.01	Marker installation (Site contractor)	1	EA	\$1,500.00	\$1,500.00
20.01	Conc. walk 6" thick platform	912	SF	\$18.00	\$16,416.00
20.01	Cantilevered shelter concrete footing	1	EA	\$8,500.00	\$8,500.00
Category 20.01 Total					\$250,916.00
FTA Cat.	Site Package	QTY	UNITS	COST	TOTAL
40.01	Concrete demolition	912	SF	\$6.00	\$5,472.00
40.01	Asphalt demolition	1000	SF	\$6.00	\$6,000.00
40.01	Curb demolition	100	LF	\$6.00	\$600.00
40.01	Street light relocation	1	EA	\$4,000.00	\$4,000.00
Category 40.01 Total					\$16,072.00
40.02	Electrical power	1	LS	\$15,000.00	\$15,000.00
Category 40.02 Total					\$15,000.00
40.06	Digitally printed maps	1	EA	\$500.00	\$500.00
40.06	Bench	3	EA	\$1,900.00	\$5,700.00
40.06	Litter receptacle	2	EA	\$1,500.00	\$3,000.00
40.06	Wayfinding kiosk	1	EA	\$10,000.00	\$10,000.00
Category 40.06 Total					\$19,200.00
40.07	Concrete bus pad	1000	SF	\$18.00	\$18,000.00
40.07	Concrete curb	100	LF	\$20.00	\$2,000.00
Category 40.07 Total					\$20,000.00
FTA Cat.	Real Time Signage	QUANTITY	UNITS	COST	TOTAL
50.05	Real time sign - TEC Superstop	2	EA	\$20,000.00	\$40,000.00
Category 50.05 Total					\$40,000.00
Station Subtotal					\$361,188.00
Contingency (20%)					\$72,237.60
Station Total					\$433,425.60

Table 10 (Continued): Capital Costs

Local Bus Stop Improvements**Draft Opinion of Probable Construction Cost**

FTA Cat.	Shelter/Marker & Platform	QTY	UNITS	COST	TOTAL
20.01	Conc. walk 6" thick platform	180	SF	\$12.00	\$2,160.00
Category 20.01 Total					\$2,160.00
FTA Cat.	Site Package	QTY	UNITS	COST	
40.01	Concrete demolition	180	SF	\$6.00	\$1,080.00
40.01	Curb demolition	18	LF	\$6.00	\$108.00
Category 40.01 Total					\$1,188.00
40.06	Sign Post	1	EA	\$500.00	\$500.00
40.06	Bench	1	EA	\$1,000.00	\$1,000.00
40.06	Litter receptacle	1	EA	\$900.00	\$900.00
Category 40.06 Total					\$2,400.00
40.07	Concrete curb	18	LF	\$20.00	\$360.00
Category 40.07 Total					\$360.00
Stop Subtotal					\$6,108.00
Contingency (20%)					\$1,221.60
Stop Total					\$7,329.60

5.5 Transit Centers

As part of the effort to consolidate routes downtown, two new transit centers have been identified to serve Prospect MAX and local bus routes. The West Loop Transit Center, serving as the “north end” terminus for Prospect MAX located on the west end inside the downtown loop. The East Village Transit Center serving as a downtown station for Prospect MAX located on the east end of the downtown loop. As the layout of these facilities evolve, it is important to maintain ongoing coordination with adjacent property owners, stakeholders and City departments.

West Loop Transit Center

The KCATA is considering two options for the West Loop Transit Center, generally located south of 12th Street and west of Broadway Boulevard. The first is an off-street facility that consolidates loading, layover, and transfer operations to a common facility. The off-street layout will likely require land acquisition and clearance. The second option is an on-street facility that will utilize the existing roadway right-of-way to accommodate bus loading and transfer operations in addition to passenger amenities.

Passenger amenities will include shelter facilities that utilize the layout and character of the transit emphasis corridor shelters. For single-loading platforms the transit emphasis corridor shelters will be used, adjusting the length to align with boarding areas. For double-loaded platforms, the shelter can be mirrored to create a “Y” roof form. It is also anticipated that a driver relief restroom will be included at the transit center. The architectural character shall match that of the shelters.

East Village Transit Center

The KCATA is considering an on-street facility for the East Village Transit Center, generally located between 11th and 12th Streets at the east end of the downtown loop. The facility would locate loading, layover, and transfer operations to a north/south street, creating a dedicated transit plaza that would become a destination amidst several parcels ready for redevelopment. This strategy lends itself to maximizing transit-oriented development opportunities without the need for large land acquisition costs.

As with the West Loop Transit Center, passenger amenities will include shelter facilities that utilize the layout and character of the transit emphasis corridor shelters. Due to the anticipated high volume of transfer activities at this facility, the large “Y” roof form shelter will be provided along with a driver relief restroom with matching architectural character. Enhanced crosswalks will be provided to connect this facility to on-street stations along 11th and 12th Streets.

5.6 Corridor Capital Infrastructure Improvements

From the outset of this planning study, the KCATA and the Advisory Committee have aspired to identify opportunities to create a transformational project for the Prospect Avenue corridor. Just as the Troost Avenue MAX project incorporated corridor improvements beyond the transit stations, similar opportunities exist for Prospect Avenue. The project team and KCATA conducted a field tour of the corridor and identified three strategies for improving the corridor beyond the transit stations:

1. Intersection improvements along the corridor where needed to include upgraded traffic signals, upgrade or addition of pedestrian signals, improved curb ramps to enhance ADA accessibility, and improved crosswalk treatments to promote a safe and walkable corridor.
2. Streetscape improvements along the corridor where needed to include sidewalk replacement, curb repair/replacement, and street tree planting where overhead utility conflicts can be avoided.
3. Local service bus stop improvements along the corridor to include passenger furnishings as well as an ADA-compliant concrete loading pad.
4. Infrastructure Improvements along the corridor include a concrete pad within the roadway where the transit vehicle will stop as well as some utility manholes may be adjusted to allow for a smooth ride in the curb lane.

Intersection Improvements

Several intersections along the 12th Street and Prospect Avenue corridors have been identified for upgrades. These improvements are primarily focused on enhancing pedestrian access and safety and include pedestrian signals and crosswalk treatments that are either not present or insufficient. Additional signal upgrade requirements to accommodate transit signal priority improvements are also part of the Prospect MAX project. The following graphic depicts locations where improvements are needed.

Streetscape Improvements

As is common in a corridor with aging infrastructure, Prospect Avenue would benefit from a variety of streetscape improvements. The recent efforts of Kansas City's Green Impact Zone have greatly improved the corridor from 39th Street to 47th Street. These improvements included sidewalk and curb replacement and roadway resurfacing. The results are dramatic – the corridor has been beautified and become more accessible and walkable. Similar improvements have occurred around key transit stops in the corridor as part of a TIGER-funded program. Building upon these efforts, the project team toured the corridors and identified areas for replacement. Conditions that triggered replacement included:

- Disconnected sidewalk network
- Sidewalks in disrepair and may not be ADA-compliant due to tree root upheaval and pavement deterioration
- Heavily deteriorated curbs

The graphics on the following pages depict locations where improvements are needed.

Figure 16: Proposed Intersection Improvements

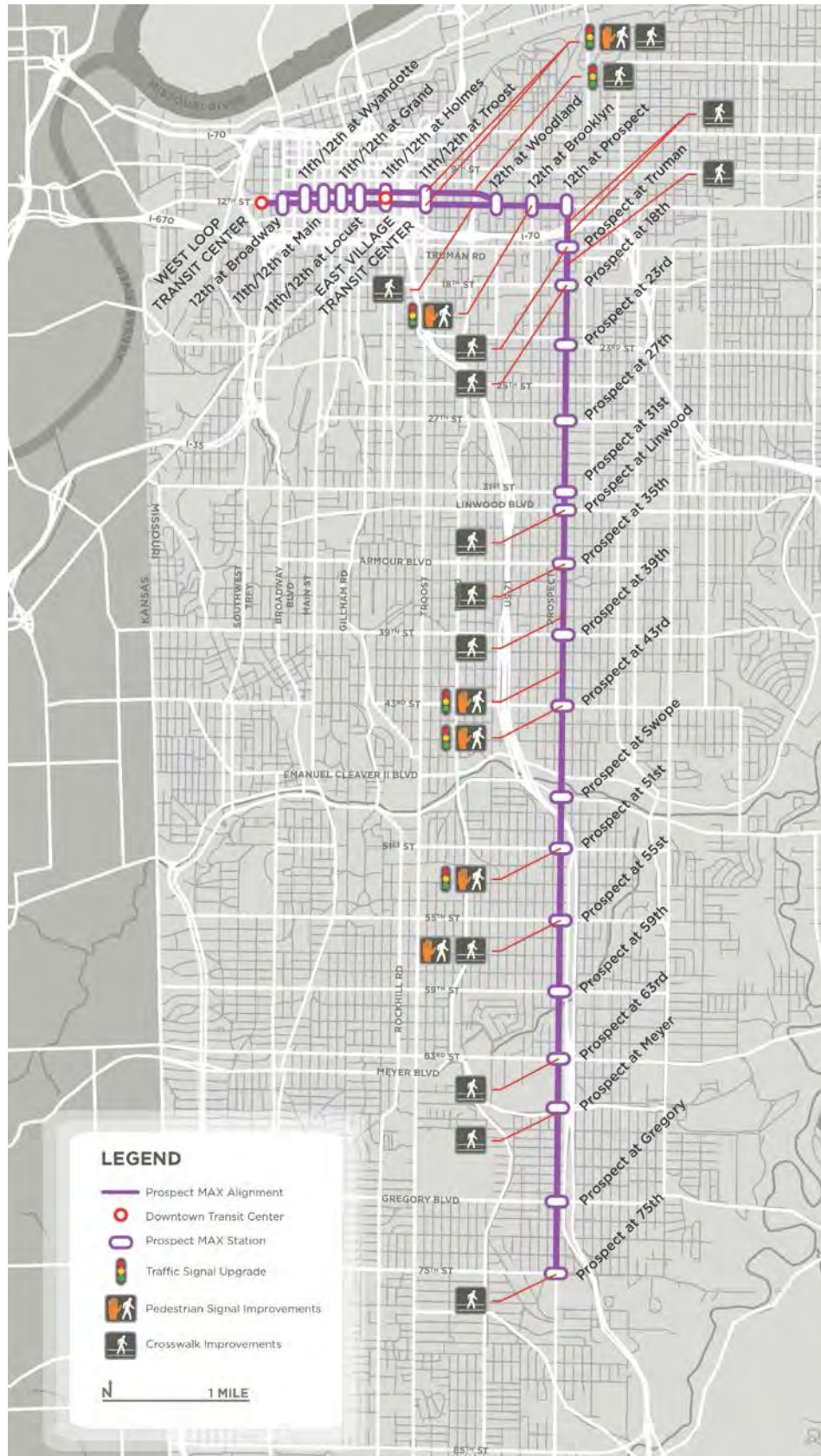


Figure 17: Proposed Sidewalk Improvements



6.0 Assessment of Project Impacts and Benefits

This section details the project benefits as well as the impacts to the surrounding corridor. This includes ridership projections, traffic impacts, economic development impacts, and environmental impacts.

6.1 Ridership

Prospect MAX was modeled as part of the NextRail Streetcar Expansion Planning study, using FTA's new STOPS model. STOPS is a stand-alone ridership model specifically created by FTA for evaluating new fixed guideway transit lines, including BRT. STOPS is similar to a conventional 4-step model that evaluates zone-to-zone travel markets based on socio-economic characteristics and the existing transit network. STOPS produces base year average weekday ridership forecasts for mobility. STOPS has been calibrated and validated using actual ridership experience on fixed-guideway transit including bus rapid transit (BRT), light rail (LRT), commuter rail and streetcar systems across the country.

The STOPS model is intended to provide project sponsors and the FTA a reliable tool for developing ridership projections through use of standardized data sets and pre-validated ridership based on existing fixed-guideway transit networks.

Kansas City, Missouri is one of the first potential project applicants to use STOPS during the alternatives analysis process. FTA provided technical assistance to the project team throughout the process, particularly during calibration and validation steps. The STOPS model uses the following inputs to create ridership projections:

- 2000 Census Transportation Planning Package (CTPP) Journey-to-Work flows;
- 2000, 2010, 2020, and 2040 Mid-America Regional Council (MARC) population and employment data by zone, and zone-to-zone highway time and distance; and
- General Transit Feed Specification (GTFS) data for existing transit routes and stops from the KCATA. GTFS data is used to support mobile and on-line transit trip-planning applications. The project team edited the GTFS data to include the potential streetcar extensions and Prospect MAX. Preliminary stop/station locations were identified for modeling purposes.
- Operating Plan options, a key is defining the alignment and potential stop locations.

The projected ridership on Prospect MAX varied depending on the streetcar operating plan option that was modeled for NextRail.

Prospect MAX ridership shows good potential with estimated total weekday ridership between 6,800 and 7,600 in the Prospect Avenue Corridor depending on the operating

plan that is selected for the streetcar system. This includes projected ridership on both MAX and the supplemental local service. This represents an increase of 13 percent to 27 percent in the corridor including the local bus route.

For planning purposes a projection of 7,200 weekday passengers will be used based on the most likely configuration of MAX and NextRail, and the preferred operating plan.

6.2 Traffic Impacts

This section outlines the evaluation of the roadway and traffic impacts for Prospect corridor to the south and east of downtown as well as the downtown segment.

Prospect Corridor Alternatives

Seven separate alternatives were identified as potential improvements to the Prospect corridor east and south of the downtown area.

Table 11: Traffic Impact Evaluation Scenarios

Alternative	Traffic Evaluation Method	Description
Alternative 1 – Existing Local	VISSIM model of select intersections	This is the currently existing Prospect Route 71.
Alternative 2 – Existing Local (to 12 th & Troost)	Not modeled for traffic operations	This is the current Prospect local being routed down Prospect to 12 th then taking the 11 th /12 th Street couplet into downtown.
Alternative 3 – BRT Mixed Traffic with no TSP (to 12 th & Troost)	VISSIM model of select intersections	Removed the stop locations without changing any other characteristics of the existing local route.
Alternative 4 – BRT Mixed Traffic with Basic TSP (to 12 th & Troost)	VISSIM model of select intersections	Modeled BRT with TSP operation similar to Troost and Main Street.
Alternative 5 – BRT Dedicated Lane without TSP (to 12 th & Troost)	VISSIM model of select intersections	Modeled BRT in a dedicated curb side lane without TSP.
Alternative 6 – BRT Mixed Traffic with Full TSP (to 12 th & Troost)	VISSIM model of select intersections	Modeled TSP with additional enhancements including phase omission and rotation of side streets.
Alternative 7 – BRT Mixed Traffic with Off-Board Fare Collection (to 12 th & Troost)	Not modeled for traffic operations	BRT without TSP and with off-board fare collection.

Prospect Corridor Bus Delay

Tables 12 and 13 show how each alternative performed during the peak hours. The first table is the AM peak period and the second table is the PM peak period.

Table 12: AM Intersection Bus Delay Only (in seconds)

Prospect Intersection	Alt 1 Existing 2014	Alt 3 BRT – No TSP	Alt 4 BRT – Basic TSP	Alt 6 BRT - Full TSP	Alt 5 BRT - Dedicated Lane
27th St	60.8	24.8	24.0	19.7	25.1
31st St	27.6	23.7	19.3	18.8	21.4
Linwood Blvd	37.7	25.6	22.2	19.0	25.9
39th St	32.5	21.4	17.8	17.3	20.5
Gregory Blvd	70.5	37.6	34.5	27.2	32.6

Table 13: PM Intersection Bus Delay Only (in seconds)

Prospect Intersection	Alt 1 Existing 2014	Alt 3 BRT – No TSP	Alt 4 BRT – Basic TSP	Alt 6 BRT - Full TSP	Alt 5 BRT - Dedicated Lane
27th St	70.5	35.3	33.0	24.9	27.3
31st St	26.0	23.2	21.3	18.6	20.7
Linwood Blvd	33.1	31.6	28.3	28.9	25.2
39th St	26.3	21.7	22.9	21.7	25.7
Gregory Blvd	109.8	63.8	51.1	32.9	47.6

In both the AM and PM peak hours, TSP signalization allows the BRT service to operate with less delay than any other alternative.

Prospect Corridor Intersection Delay

Tables 14 and 15 show how each alternative performed during the peak hours. The first table is the AM peak period and the second table is the PM peak period.

Table 14: AM Intersection Delay and LOS

Prospect Intersection	Alt 1 Existing 2014		Alt 3 BRT – No TSP		Alt 4 BRT – Basic TSP		Alt 6 BRT - Full TSP		Alt 5 BRT - Dedicated Lane	
	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS
27th St	20.6	C	12.2	B	11.9	B	12.0	B	10.7	B
31st St	13.3	B	9.8	A	9.2	A	9.1	A	9.0	A
Linwood Blvd	11.9	B	11.1	B	10.6	B	10.6	B	9.4	A
39th St	13.4	B	10.9	B	10.7	B	10.8	B	9.3	A
Gregory Blvd	17.2	B	15.9	B	15.8	B	15.6	B	15.0	B

Table 15: PM Intersection Delay and LOS

Prospect Intersection	Alt 1 Existing 2014		Alt 3 BRT – No TSP		Alt 4 BRT – Basic TSP		Alt 6 BRT - Full TSP		Alt 5 BRT - Dedicated Lane	
	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS
27th St	41.6	D	18.4	B	18.7	B	18.0	B	14.0	B
31st St	14.5	B	11.4	B	11.4	B	11.2	B	11.0	B
Linwood Blvd	16.0	B	15.3	B	15.5	B	15.1	B	14.0	B
39th St	13.2	B	12.8	B	12.2	B	12.4	B	12.3	B
Gregory Blvd	65.3	E	50.2	D	54.0	D	54.6	D	45.7	D

The only intersection that operates unacceptably (worse than level of service D) is the intersection of Gregory Blvd and Prospect in the PM peak hour. This is due to the close spacing of US-71, bus stop placement and the allowance of parking near the intersection. The BRT alternatives move the stop location to the far side (south side) of the intersection for the southbound direction which results in better intersection operations.

Transit Lanes

Dedicated transit lanes are effective in reducing delay incurred by transit vehicles thereby making transit a more attractive travel option. The effectiveness of this approach is related to the level of traffic congestion. When traffic congestion is high and overall vehicle speeds are low transit benefits from a dedicated lane. However, when traffic congestion is light and traffic speeds are at or near design (and legal) speeds the benefits are marginal. Also, industry guidelines suggest that dedicated transit lanes are warranted when the volume of transit vehicles is high, at least 25 vehicles per hour¹. Bus volumes on Prospect will be less than half this threshold during the peak hour.

Outside of the downtown segment, very little congestion exists in the 12th Street and Prospect corridors. As a result, and as shown in run time analysis, there is not a large travel time savings for this option. However, if this option is chosen there are not any major impacts to side street congestion as the intersection level of service analysis illustrates. If anything, giving priority to the Prospect corridor instead of some of the cross streets improves the level of service at select intersections. However, along Prospect there is parking along nearly the entire corridor. Creation of a dedicated lane would remove nearly all of this parking and provide very little travel time savings. There is however some intangible benefits such as the creation of visual cues that transit is given a priority in the Prospect corridor.

Transit Signal Priority

Transit signal priority (TSP) can be effective in reducing travel time. For example, travel time along Main Street from 18th St. to 27th St. and from 27th St. to 18th St. with preemption was shown to be reduced by about 50 seconds and 2 minutes, respectively. The signal controllers along the Main Street Max route have more opportunity to grant TSP requests and provide more potential travel time benefits to the buses relative to the Troost Max route (55% vs. 17% granted preemptions) due to the amount of congestion on Main Street.

The Main St. intersections at 26th St. and at 27th St. seem to particularly benefit from TSP. Such closely spaced signalized intersections allow transit vehicles to pass through multiple intersections and amplify the travel time reduction. Signalized intersections

¹ TCRP Report 118. Pg 4-17.

with only periodic high cross street demand (e.g., access to high trip generators) can often spare green time with minimal impacts to overall intersection control delay.

A number of TSP requests are received twice with the first request received at a low intensity. Improvements could be made by reviewing the intensity threshold setting at each intersection. Adjusting the intensity threshold to receive and process each TSP request at the optimum approach distance could result in more timely TSP responses.

This assessment of the logs while TSP was implemented was based on a cursory review. A more comprehensive evaluation of TSP effectiveness could be performed by comparing with the base case in a later design phase. The corresponding travel time data without TSP along these routes provide the base information. Bus drivers report that TSP along the Troost and Main Street corridors does not seem to operate acceptably. The Opticom logs show that indeed the buses are emitting calls for advanced green and green extension. However, the City has been unable to give access to gather data from the controllers so further analysis needs to be completed.

It should be noted however that only a maximum of 8 seconds of early green or green extension is allowed along the Troost and Main Street corridors. Many intersections have even less. This makes it hard for bus drivers to discern successfully whether the TSP is in fact working or not.

As Prospect MAX moves forward into advanced conceptual engineering, it has been agreed that further TSP evaluation will be carried forward into later phases. In addition, the City may be open to revising the current limits on either the 8 second window, or allowing for phase omission or rotation on the cross streets which could provide further travel time savings for vehicles (although small as the run time analysis shows).

Downtown Traffic Analysis

Six scenarios were identified for the east/west transit emphasis corridor. These six scenarios are outlined in **Table 16**.

Table 16: Scenarios for Traffic Analysis

Scenario	Description	Analysis Method
Base	11 th and 12 th Street one-way couplet without bus lanes (existing conditions)	VISSIM
A1	Two-way 12 th Street with bus lanes in both directions (only one eastbound general purpose lane)	N/A
A2	Two-way 12 th Street with westbound contraflow bus lane	VISSIM
A2b	Two-way 12 th Street with westbound contraflow bus lane (with 11 th Street bike lane, and Phillips Hotel bump out)	VISSIM
A3	Two-way 12 th Street for all traffic with center turn lane	VISSIM
B	11 th and 12 th Street one-way couplet with bus lanes	VISSIM

Figure 18 below show the total buses on each roadway segment in the peak hour assuming the reconfigured bus routing shown in Figure 19.

Figure 18
Total Buses Per Segment During Peak Period

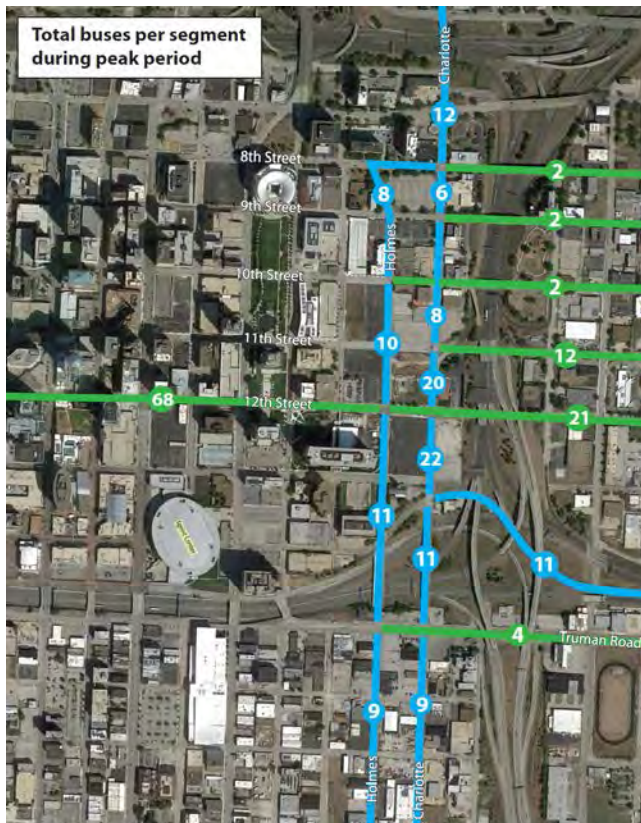
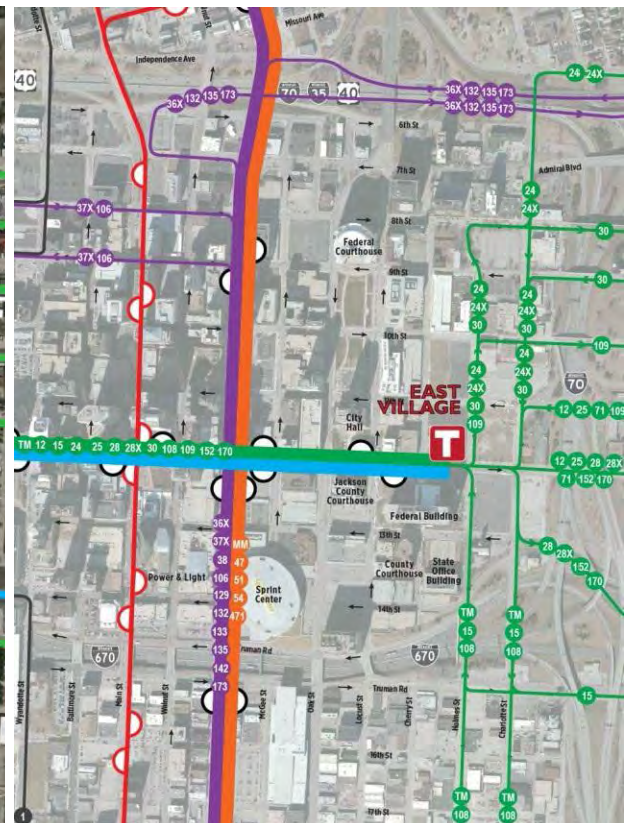


Figure 19
Reconfigured Bus Routes



These figures illustrate that even with two-way bus traffic on 12th Street there is still only a bus at any one intersection about once per cycle. This should not significantly degrade the intersection operations based on bus volumes alone.

Downtown Configuration at Critical Points

In the evaluation of 12th Street there were four critical points that were identified:

- Between Broadway and Central: DST Parking Garage
- Between Central and Wyandotte: Marriott
- Between Wyandotte and Baltimore: Phillips Hotel Valet Stand
- Between Baltimore and Main: City Center Square Parking Garage
- Between Locust and Cherry: KCPD Squad Car Parking

Table 17 below details how well each of the scenarios handles the critical points in the 12th Street corridor. The evaluation criteria include, although at a high level, safety, traffic operations, conflict points, and public reception.

Table 17: Critical Points Evaluation

Scenario	Description	DST Parking Garage	Marriott	Phillips Hotel	City Center Square	KCPD Parking
Base	11 th and 12 th Street one-way couplet without bus lanes (existing conditions)	Good	Good	Good	Good	Good
A1	Two-way 12 th Street with bus lanes in both directions (only one eastbound general purpose lane)	Poor	Poor	Poor	Poor	Poor
A2	Two-way 12 th Street with westbound contraflow bus lane	Fair	Fair	Poor	Good	Poor
A2b	Two-way 12 th Street with westbound contraflow bus lane (with 11 th Street bike lane, and Phillips Hotel bump out)	Fair	Good	Good	Good	Poor
A3	Two-way 12 th Street for all traffic with center turn lane	Good	Good	Good	Good	Poor
B	11 th and 12 th Street one-way couplet with bus lanes	Good	Good	Good	Good	Good

As shown in **Table 17**, Scenario B is likely to perform the best at each of these critical points.

Traffic Impacts of Scenarios

Table 18 below shows the number of intersections that operate at an unacceptable level of service. This gives an overall idea of how well the scenarios operate.

Table 18: Traffic Analysis Results

Scenario	Description	AM	PM
Base	11 th and 12 th Street one-way couplet without bus lanes (existing conditions)	0	0
A1	Two-way 12 th Street with bus lanes in both directions (only one eastbound general purpose lane)	Likely Poor	Likely Poor
A2	Two-way 12 th Street with westbound contraflow bus lane	0	0
A2b	Two-way 12 th Street with westbound contraflow bus lane (with 11 th Street bike lane, and Phillips Hotel bump out)	0	0
A3	Two-way 12 th Street for all traffic with center turn lane	7	9
B	11 th and 12 th Street one-way couplet with bus lanes	0	0

As shown in **Table 18** all scenarios operate acceptably except A1 and A3.

East Terminus of Two-Way 12th Street

Although the short term recommendation is to operate the Transit Emphasis (TEC) corridor on a one-way 11th/12th Street couplet, long term the Parking and Transportation Commission as well as KCATA has a stated goal of making 12th Street two-way. In the Downtown Comprehensive Service Analysis study it was determined that the eastern terminus of two-way 12th Street would be Holmes. This means that between Holmes and Woodland 12th Street would remain one-way eastbound and vehicles would need to utilize 11th Street to travel westbound. One of the major benefits of extending the two-way portion of 12th Street to the east to Woodland would be to create consistency on 12th Street throughout the city as well as allow buses to conduct their turning movements at less congested intersections outside of the central business district. However, depending on the costs of this project, the benefits do not likely outweigh the costs. Another problem would be that routes other than Route 12 would only stay on 12th Street until the edge of the loop due to each bus route needing to travel to its respective street (109 on 9th Street, etc.).

Traffic Conclusions

Several conclusions can be drawn from the traffic operational analysis.

- In both the AM and PM peak hours, TSP signalization allows the BRT service to operate with fewer delays than any other alternative.

- Off-board fare collection provides the greatest travel time savings benefit.
- Moving the station at Gregory Blvd to the far side (south side) of the intersection for the southbound direction results in an acceptable LOS at Gregory and Prospect.
- For the downtown segment, Alternative B is the most likely scenario that best addresses the concerns of stakeholders, KCATA, and KCMO and improves transit visibility and operations downtown.
- For the downtown segment the two-way portion of 12th Street should terminate within the loop at Holmes/Charlotte couplet.

6.3 Other Benefits – Development

To fully leverage the benefit of MAX service and other ancillary infrastructure investments, development opportunities should be maximized, especially within ½-mile stations. Development and enhanced transit service have a symbiotic relationship. Transit supportive development provides a mix of appropriate land uses and densities as well as site design principles that support convenient and efficient use of transit. MAX service provides enhanced stations with frequent service and convenient and efficient connections throughout the corridor and to Downtown. This enhanced service translates into more riders who are potential residents, customers and visitors to Prospect businesses and destinations.

Vision Statement

Ensure that the Prospect MAX and ancillary infrastructure improvements and land use decisions are coordinated in a mutually beneficial way to ensure safe, convenient and efficient transit operations while maximizing future development opportunities around stations.

Goals

- Increase transit ridership by attracting transit-supportive development to the Prospect Corridor
- Maximize development opportunities for strategic sites adjacent and near Prospect MAX stations
- Coordinate transit and related infrastructure investments with the City's development review process

Development with Transit

Development located at or near a Prospect MAX station can take be designed in a variety of ways, depending on the project location, funding/leverage sources, available land, infrastructure conditions, revenue goals, and municipal entity/transit agency/private developer contribution. This development can generally be described by the following:

- Transit Oriented Development (TOD)
- Transit Adjacent Development
- Shared Development
- Joint Development

Transit Oriented Development (TOD)

Transit-Oriented Development (TOD) is compact mixed-use development; typically within ½-mile of station that is configured differently than it otherwise would have been were transit not present. Typically, TODs are designed to encourage transit ridership and foster convenient lifestyles where housing, jobs, restaurants and entertainment are in close proximity.

Transit Adjacent Development

Transit adjacent development projects are located in close proximity to a transit facility, but have not been designed in a manner that is influenced by the transit location, nor fully leverages the locational and market advantages/benefits related to the transit service.

Joint Development

KCATA and/or KCMO with Private Developer

These joint development projects involve a formal partnership between KCATA and a private developer, and are designed to decrease the costs of operating or constructing stations or ancillary transit improvements through creative public-private financing agreements. These agreements can be reflected in a wide variety of financing mechanisms, such as land subordination, private-sector payments or private-sector capital cost sharing, in mutual recognition of the enhanced development/market potential created by the transit facility. As an example, a joint development project was completed by the KCATA in 2001; the Metro Center transit facility was developed with a child care facility. The KCATA owns the property and leases the space to the child care provider. The lease arrangement allow for the agency to capture enough rent to cover the utility costs for the entire building.

KCATA and Federal Transportation Administration (FTA)

Formal FTA joint development projects involve those in which real property is purchased with FTA funds. Generally, the real property is developed while maintaining its original public transportation purpose. As an example, the development of residential, commercial or community service space located on, above, or adjacent to property that was purchased with FTA funds. Joint development through the FTA may include, but not be limited to the following:

- Commercial and residential development;
- Pedestrian and bicycle access to a public transportation facility;

- Construction, renovation, and improvement of inner-city bus and rail stations/terminals; and
- Renovation and improvement of historic transportation facilities.

Local Development Incentives

There are a number of existing state and local development incentives available within the area including but not limited to the following:

- Planned Industrial Expansion Area (PIEA)
- Chapter 353
- Urban Renewal Area (URA)
- Tax Increment Financing (TIF)
- Missouri WORKS – EEZ (Enhanced Enterprise Zone)

These incentives are summarized below and shown on **Figure 20**. Please see **Appendix C: Quick Reference Guide to Development/Redevelopment Tools for Kansas City, Missouri**.

Planned Industrial Expansion Area (PIEA)

PIEA is one of the numerous tools available to the Kansas City Economic Development Council for encouraging new job creation through tax abatement, the power of eminent domain, and bond financing for land acquisition, construction and equipment in designated redevelopment areas.

Chapter 353

Chapter 353 authorizes the creation of urban redevelopment corporations for the purpose of redeveloping blighted areas. The urban redevelopment corporation must prepare and submit to the City a development plan for redeveloping an area within the City that is determined to be blighted. If the area is determined to be blighted and the development plan is approved by the City, the urban redevelopment corporation, upon acquisition of title to the property, may receive ad valorem tax abatement for 100% of the value of the improvements to the property for a period of ten years and for 50% for the following 15 years. Ad valorem taxes are still assessed and paid with regard to the value of the land only during this 25-year period. The City may enter into a contract with the urban redevelopment corporation to require that payments in lieu of taxes are made and/or to ensure that the development plan is carried out, including the use of the funds available to the corporation as a result of the abatement of taxes

Urban Renewal Area (URA)

Urban Renewal Areas (URAs) involve certain areas of the city which have been identified and declared by the Land Clearance for Redevelopment Authority (LCRA) and the City Council of Kansas City, Missouri to be blighted, deteriorated and deteriorating constituting a serious and growing menace injurious to the public health, safety, morals and welfare of the residents of the state. Once designated, these areas will include plans

to determine the areas to be conserved and rehabilitated through voluntary action and the regulatory process and that to the greatest extent it determines to be feasible in carrying out the provisions of the LCRA Law.

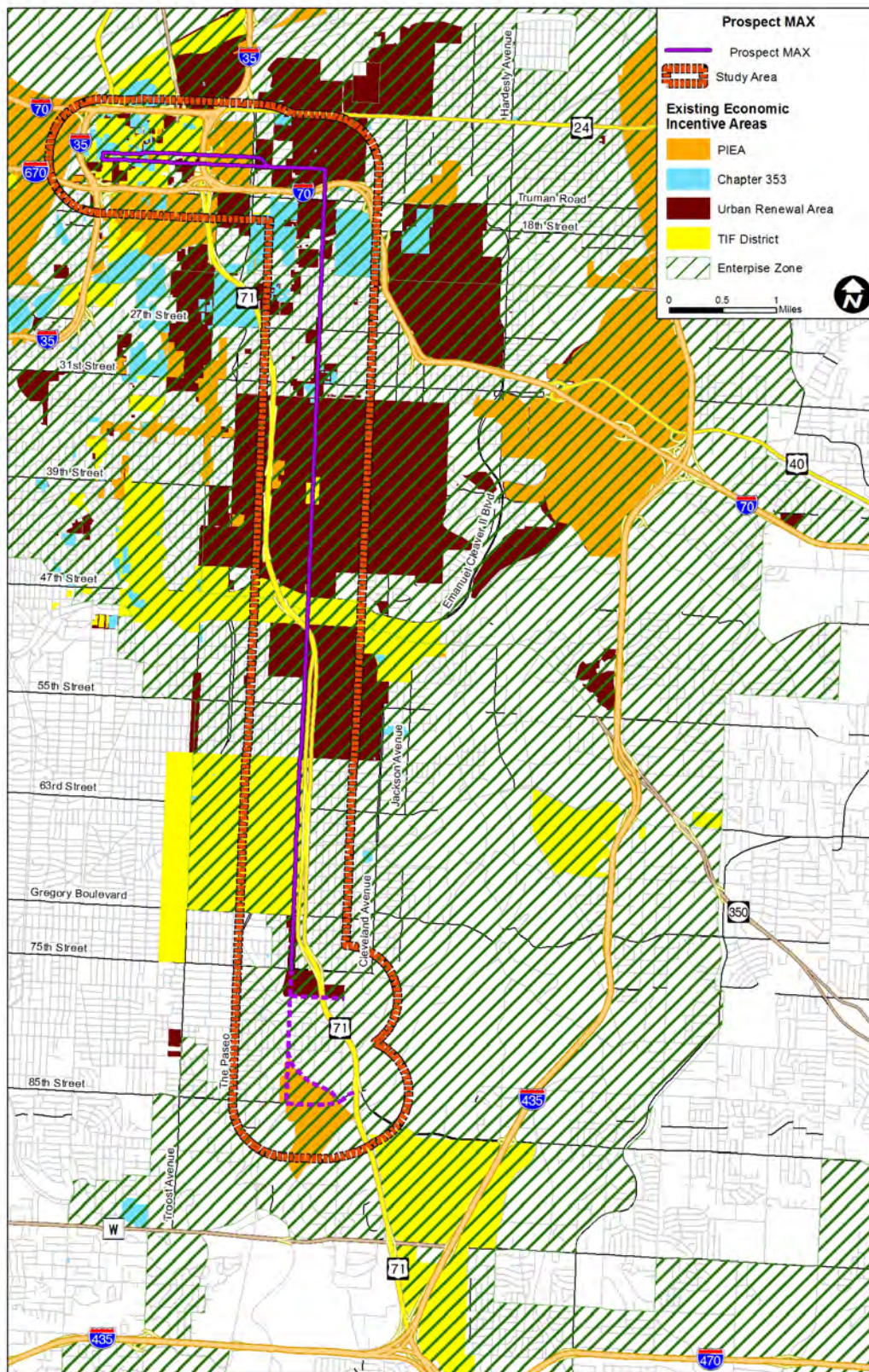
Tax Increment Financing (TIF)

The basic concept behind TIF is that the redevelopment of the area approved as a redevelopment district will increase the equalized assessed valuation of the property, thereby generating new revenues to a city that can be used to pay for specified costs of a redevelopment project. These costs may include construction of public facilities within a redevelopment area. Property taxes and other revenues generated by the existing development in a legislatively defined redevelopment district are frozen when the redevelopment is approved by the City Council and the increased property tax and a portion of other revenues generated by the new development are captured and placed in a special fund to pay for the costs of redeveloping the area.

Missouri WORKS – EEZ (Enhanced Enterprise Zone)

Enhanced Enterprise Zones (EEZ) are specified geographic areas designated by local governments and certified by the Department of Economic Development (DED). Zone designation is based on certain demographic criteria, the potential to create sustainable jobs in a targeted industry and a demonstrated impact on local industry cluster development. The Zone designation demographic criteria currently utilizes population and income data from the U.S. Census Bureau. Unemployment information is updated annually using data from the U.S. Bureau of Labor Statistics. An eligible business must be located in a Missouri EEZ. Individual business eligibility will be determined by the zone, based on creation of sustainable jobs in a targeted industry or demonstrated impact on local industry cluster development.

Figure 20: Local and State Development Incentives



Source: City of Kansas City, Missouri

Land Acquisition

There is an opportunity to acquire parcels for transit use and wait for the time when greater densities are possible and of interest to potential developers. Triggers for this opportunity may include:

- Increased residential densities
- Build-out of surrounding parcels
- Other land use considerations

Site Due Diligence

Before acquisition of additional parcels, the KCATA should prepare a due diligence analysis to obtain an independent assessment of site conditions and potential liabilities. This due diligence would include, at minimum, a:

- Phase One Environmental Site Assessment: Conduct an initial survey intended to identify actual and potential problems (e.g., underground storage tanks, hazardous materials contamination) based primarily on a review of historical documentation, regulatory databases and a walk-through inspection of the site
- Survey of existing utilities and physical improvements
- Review of any deed restrictions and design standards
- Review of title and potential legal issues. This would include understanding the legal aspects of the site and any joint development interests. The KCATA should obtain an ALTA/ACSM Survey and abstracts, title insurance commitment and endorsements, easements, land use entitlements and permitting, tax and assessment levels.
- This list is not exhaustive, but intended to demonstrate the extent of items that need to be considered before acquiring property.

Station Area Planning Principles

Station Area Planning Principles are provided to introduce “best practices” for land use and site design that can potentially be applied to guide new development and redevelopment, maximizing future transit support and synergy through thoughtful planning and design. These principles are not intended to replace guidelines and recommendations within existing area plans. Rather, they are intended to supplement existing plans and tools with a focus on how development can better support future MAX service along Prospect Avenue. As framework to categorize development opportunities, Prospect MAX station areas are designated as major, minor and basic. A description of each of these categories follows along with an example of each along the Prospect corridor.

Major Development Node

Characteristics:

- Intersection with major transit routes; and/or
- Intersection with major street (primary arterial or boulevard/parkway); and
- Significant development opportunity
 - High Developer interest;
 - Land assembly opportunity (multiple contiguous underutilized parcels adjacent to station); and
 - Ability to support high-density mixed use development.
- *Example: Prospect Avenue at Linwood Boulevard*

Potential Development Strategies:

- TOD
- Joint Development
- Shared Development

Design Principles:

- Land Use: Compact mixed-use development that is integrated with the MAX station is encouraged. Mixed-use development for major nodes is typically vertical (within a single building) but may be horizontal (within a collection of buildings). Development in these nodes may serve regional and neighborhood needs and may include residential, employment, services, shopping and entertainment. Auto-oriented uses with drive-through operations are discouraged.
- Development Intensity: Higher densities to maximize the amount of potential riders with walking distance to the station.
 - 2+ stories
 - 70% lot coverage
- Site Design: The site including buildings and enhancements should be designed to encourage transit use, support efficient transit operations, provide safe and convenient pedestrian and bicycle activity and greatly enhance the area's sense of place.
 - Station and amenities potentially integrated with development
 - Higher-intensity development with active ground floor uses
 - Buildings should be designed with a variety of scales, creating a scale and level of detail at the street level appropriate to the pedestrian
 - Integrated pedestrian and transit streetscape accompanied by supportive retail and commercial development
 - On-street parking for retail convenience, traffic-calming, and pedestrian safety

Minor Development Node

Characteristics:

- Intersection with major street (primary or secondary arterial) or mid-block near major street; and
- Modest development opportunity
 - Moderate Developer interest;
 - Underutilized parcel(s) adjacent to the station; and
 - Ability to support a moderate-density development into the station.
- *Example: Prospect Avenue at 23rd Street*

Potential Development Strategies:

- Joint Development
- Shared Development

Design Principles:

- Land Use: Compact mixed-use development is encouraged to help facilitate convenient pedestrian and bicycle connections between the development and the MAX station. Mixed-use development for minor nodes may include multiple uses within a single large building or in a collection of smaller buildings. Preferred complementary land uses serve the corridor and surrounding neighborhoods and may include residential, professional office, neighborhood services and convenience-retail within a short walk of the station.
- Development Intensity: Moderate densities to help support ridership.
 - 1-2 stories
 - 60% lot coverage
- Site Design: The configuration of the building(s) should encourage transit use, support efficient transit operations and provide safe and convenient pedestrian and bicycle connections.
 - Station and amenities connected to development with enhanced pedestrian connections and amenities (landscape, lighting, etc.)
 - Where possible, include first floor pedestrian active uses such as retail and services.
 - Locate parking at the rear of the property behind buildings

Basic Development Node

Characteristics:

- Intersection with minor street or at mid-block; and
- Stand-alone single-use development with some redevelopment potential
 - Stand-alone development with potential for improved connections to station.

- o Small-scale redevelopment opportunity with potential to integrate with station.
- Example: Typical MAX Station along Prospect Avenue

Potential Development Strategies:

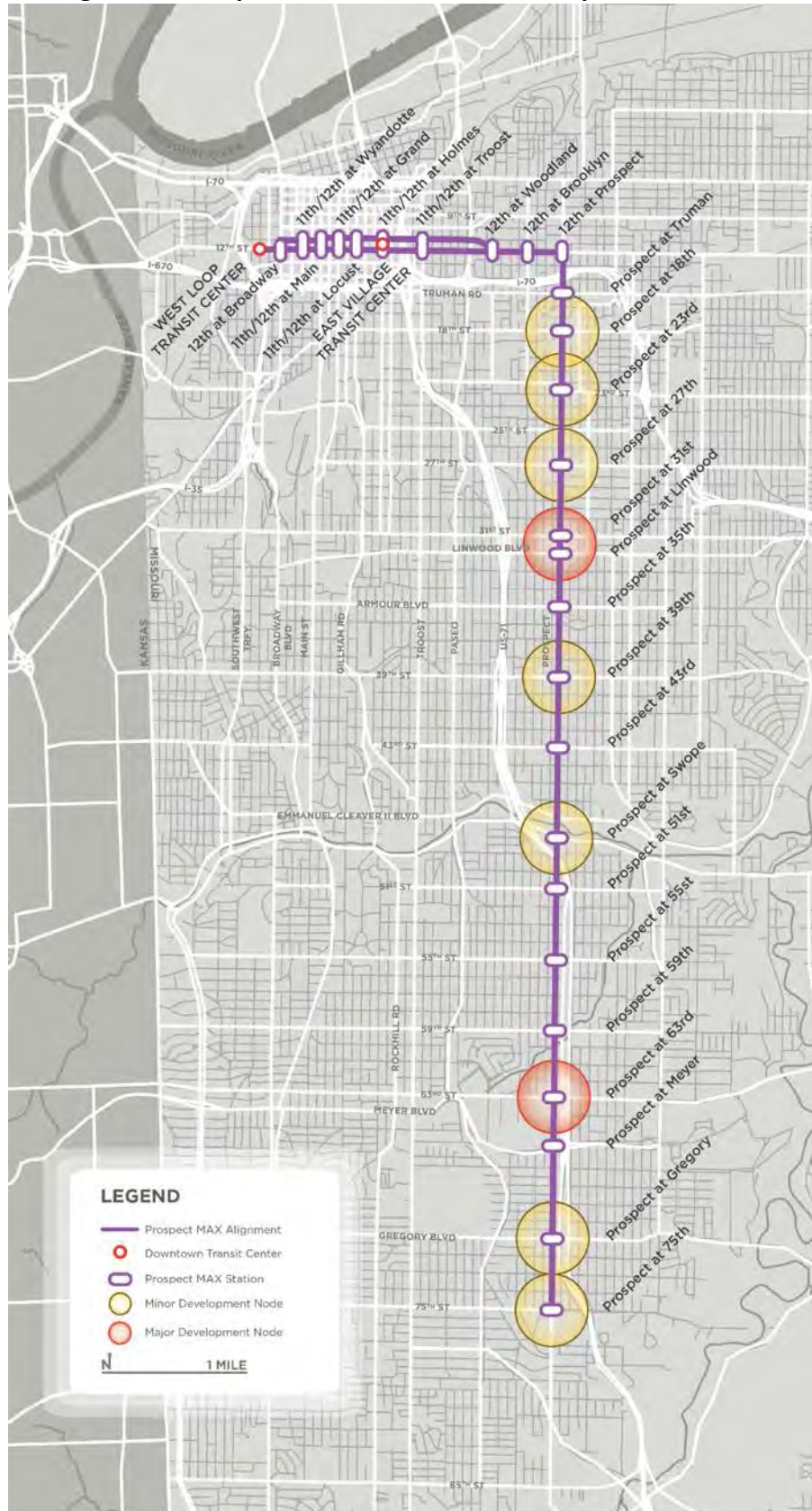
- Shared Development
- Adjacent Development

Design Principles:

- Land Use: Typically single buildings on one parcel. Development in these nodes may serve the surrounding neighborhood with uses including, but not limited to, neighborhood retail, professional office and residential within a short walk of the station.
- Development Intensity: Typical traditional densities along Prospect corridor.
 - o 1 story
 - o 50% lot coverage
- Site Design: The physical location of the building can encourage safe and convenient pedestrian and bicycle connections to the station.
 - o Provide clear, identifiable pedestrian connections between development and transit stations
 - o Provide safe and accessible accommodations for route transfers
 - o Landscape or architectural buffers (i.e. decorative railings, site walls, etc.) between transit stations and adjacent parking areas

The following graphic highlights the major and minor development nodes along Prospect that can benefit from a larger corridor transit and infrastructure investment, linking residents to jobs and services and improve the vitality of the community.

Figure 21: Prospect Avenue Corridor Development Nodes



Major Development Node – Prospect at Linwood

The area along Prospect Avenue from 31st Street to Linwood Boulevard has become a significant community activity center. The node is characterized by regional and neighborhood commercial properties as well as a heavily utilized neighborhood library branch. Once a bustling retail center, the area's prosperity has diminished, leaving vacancies adjacent to the remaining small-scale strip retail and pad site restaurants.

Momentum is gaining for an ambitious redevelopment plan centered on the Linwood Shopping Center. This site, which once contained a grocery store in addition to other retail, sits adjacent to the proposed terminus of a potential streetcar line on Linwood. This transit investment, coupled with Prospect MAX, will provide excellent access from the surrounding community and serve as a prominent transit-oriented development hub. The rendering below illustrates the potential for redevelopment and integration of future streetcar and Prospect MAX lines.

Figure 22: Prospect at Linwood Major Development Node



Future coordination of redevelopment at this node with proposed corridor transit and infrastructure improvements will maximize opportunities to provide a vibrant, accessible, and walkable pedestrian-oriented community asset. Special emphasis should be placed on ensuring safe sidewalk and crosswalk connections between transit stations. Development should be arranged to maximize building frontages and entries along Prospect and Linwood, maximizing opportunities for integration of transit amenities with transit-supportive development.

Minor Development Node – Prospect at 23rd

The City of Kansas City, Missouri plans to realign 22nd and 23rd Street in the vicinity of Prospect Avenue to improve connectivity of the road network. With planned Prospect MAX stations at 23rd Street, opportunities will be created for joint development projects in the redevelopment area. The joint development project between the KCATA and a daycare operator at 39th Street & Troost Avenue is one example of this type of partnership.

The MAX Station Area Development Plan shown below depicts proposed new development in the area adjacent to a new Prospect MAX station on the block between Olive Street and Prospect Avenue and between 22nd and 23rd Street. The planned transportation infrastructure improvements will intersect with the planned Prospect MAX. In the most recent study for these improvements, completed in 2012, a recommendation was made to construct a three-lane segment from Brooklyn Avenue to I-70 which will require significant right-of-way acquisition between Olive and Prospect. The largest single landowner in this area is Mt. Pleasant Missionary Baptist Church with approximately 65% of the block bounded by Olive Street, 22nd Street, Wabash Avenue and 23rd Street, together with one lot on the block between Wabash and Prospect.

Figure 23: Prospect at 23rd Minor Development Node



During the public meetings held for the project, a variety of land uses were identified for redevelopment parcels. The Church leadership expressed an interest in utilizing their land holdings in the corridor to develop housing for senior citizens. The need for commercial development in the corridor was also identified during the public process,

and parcels adjacent to Prospect were identified for this use. This area has been planned as a PIEA development area and incentives will be sought for development.

Although the area on the east side of Prospect at 23rd Street has not been studied in the detail to determine a program, future transit oriented development opportunities have been identified to further strengthen this development node.

6.4 Environmental Summary

This section discusses the preliminary environmental screening of the Prospect MAX corridor as it relates to the BRT service proposed for the corridor. It is a summary of environmental information that will be analyzed further within the National Environmental Policy Act (NEPA) clearance process. It is important to note that The Metro currently operates a bus route along the project corridor. Several federal, state, and local environmental databases were reviewed to gather existing information to identify the presence or absence of environmental constraints within the project corridor, and to assess their potential for posing a problem in relation to obtaining environmental clearance.

Environmental Justice – The 2010 U.S. Census block data on the Environmental Protection Agency’s (EPA’s) “EJView” website was reviewed in regard to environmental justice (EJ) populations, which include minority populations (Non-Caucasian) and low-income populations (below poverty level). The project corridor and the surrounding neighborhoods within 1/4-mile of the corridor contain several areas of minority populations, as well as scattered areas containing low-income populations. However, the project would not require the displacement of homes or businesses, but would benefit those EJ populations by providing additional transit service.

Noise and Vibration – The project corridor contains noise-sensitive land uses including homes, apartments, a hospital, hotels, schools, a library, places of worship, and parks. In the NEPA phase of the project, a general noise assessment will be conducted to determine if the project noise levels will have “no impact,” “moderate impact,” or “severe impact.” Because bus routes currently operate along the proposed BRT route (along with existing vehicular traffic), it is anticipated that project noise, in combination with existing noise levels, would result in no impacts or only moderate impacts to noise-sensitive land uses. Vibration impacts would likely not be an issue, as buses utilize rubber tires and suspension systems that minimize ground-borne vibration.

Hazardous Materials – A review of the Missouri Department of Natural Resources (MDNR) Division of Environmental Quality – Hazardous Waste Program database and underground storage tank (UST) database, the Environmental Protection Agency (EPA) NEPAAssist website, and a windshield survey of the corridor indicated that hazardous material sites are present on several properties along the project corridor. MDNR and EPA records indicate environmental concerns such as hazardous waste generators (large, small, and conditionally exempt), underground storage tanks (USTs), toxic

materials (petroleum, lead, or asbestos), and dry cleaner/laundrying chemicals. However, only the following hazardous material sites are located at proposed station areas where construction would occur:

- Cathedral of Immaculate Conception – Northwest quadrant of the 12th and Broadway intersection. EPA-listed under Resource Conservation and Recovery Act (RCRA), but shown as “inactive” and “unspecified universe”.
- Executive Hills Inc. – Southwest corner of 12th Street and Main Street. EPA-listed as a “greenhouse gas reporter” and also listed for electric power distribution/transmission, most likely because of the KCP&L main office located in this building.
- Johnson County Courthouse – Southwest quadrant of the 12th and Locust intersection. EPA-listed as a large quantity generator (LQG).
- Former Greyhound Bus Terminal – The entire block between 11th and 12th, and between Holmes and Charlotte. EPA-listed as a small quantity generator (SQG) and as a “Brownfield” site. The cleanup of the site has been completed, which included removal of asbestos containing materials, two underground storage tanks, and mercury-containing devices.
- Walker Towel & Uniform Service – Southeast corner of Prospect and Truman Road. EPA-listed as an industrial laundrying service.
- Metropolitan Community College, Pioneer Campus of Penn Valley – Northeast corner of Prospect and 18th Street. EPA-listed as a conditionally exempt small quantity generator (CESQG).
- Former Drumm Cleaners & Laundry – Northwest corner of 35th and Prospect. EPA-listed as RCRA, but “unspecified universe” and shown as “inactive”. The building has been demolished and this is currently a vacant site (no indication of cleanup).
- Northwest Redevelopment Project (Brownfield) – Northwest corner of 39th and Prospect. This is a “brownfield” site in which previous site investigations indicated the presence of petroleum and lead in the soil and groundwater. Cleanup of the site has been completed.
- Phillips 66 Service Station – Northeast corner of Prospect and 55th Street. New gas pumps and USTs installed in front of existing commercial building.
- CVS Pharmacy – Southwest corner of Prospect and 63rd Street. EPA-listed as a conditionally exempt small quantity generator (CESQG). Low risk of contamination.
- Research Medical Center – Northwest corner of Prospect and Meyer Boulevard. EPA-listed as a large quantity generator (LQG) (for medical waste) and also contains underground storage tanks (USTs).

Based on visual field observations, none of the hazardous material sites contain hazardous material containers or potentially contaminated areas directly adjacent to the right-of-way. These would most likely be within the building on the property or in

remote areas within the property, away from the street right-of-way. In regard to gas stations, the underground storage tanks are not located in the area where the proposed stations would be located. Construction of the proposed station areas would take place within existing right-of-way (with the exception of minor temporary impacts at the right-of-way edge) and would not impact areas where hazardous materials may be present. As a result, there would be a low risk of contamination during construction activities at these properties.

Wetlands / Waters of the U.S. – There are no wetlands or navigable waterways within this urbanized and highly developed corridor. Although the project route crosses an unnamed tributary of the Kansas River, two unnamed tributaries of Brush Creek, Brush Creek, and Mill Creek/Town Fork Creek; these waters of the U.S. have been piped underground, with the exception of Brush Creek. There would be no proposed station areas adjacent to Brush Creek, and therefore no impacts to wetlands or waters of the U.S.

Floodplains / Flooding – Although the Prospect MAX route crosses over the floodplains at Brush Creek and Town Fork Creek (Mill Creek on USGS maps), there are no proposed stations within the floodplains at these areas.

Cultural Resources – The City website contains mapping that shows properties and districts listed in the National Register of Historic Places (NRHP). The mapped locations of the NRHP-listed sites were reviewed, indicating that the following NRHP-listed sites are located at, adjacent to, or across the street from, proposed station areas:

- Quality Hill Neighborhood Historic District – Along 12th St., from Jefferson St. to Washington St.; and adjacent to a proposed station at 12th and Broadway.
- Kansas City Southern Railway Building – Across the street from a proposed station at 11th and Wyandotte.
- George B. Peck Dry Goods Company Building – At a proposed station at 11th and Main.
- Professional Building – Across the street from a proposed station at 11th and Grand.
- Santa Fe Place Historic District – At proposed stations at 27th and Prospect and 31st and Prospect.

It is anticipated that the project would not require the acquisition of right-of-way at these NRHP-listed historic properties and would not affect the buildings. As such, there would likely be a determination of “no adverse effect”. In the NEPA phase of the project, in order to comply with Section 106 of the Historic Preservation Act, coordination between the FTA and the State Historic Preservation Office (SHPO) will take place to determine the level of historic survey required to locate other properties along the project corridor that may be potentially eligible for listing in the NRHP.

However, it is anticipated that the project would have no adverse effect to any potentially eligible properties along the corridor.

Section 4(f) Resources – Parklands and Historic Properties – A review of the parks and recreation data on the Kansas City, Missouri and Jackson County websites, and a windshield survey of the corridor indicated that publicly-owned parks are present along the project corridor. Publicly-owned parks and recreation areas that are open to the entire public have special status under the provisions of Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966, and are considered Section 4(f) resources. The proposed MAX route passes by Barney Allis Plaza, Oppenstein Brothers Memorial Park, Ilus Davis Park, Goin’ To Kansas City Plaza, Prospect Plaza Park, Blues Park, and Brush Creek Greenway. However, only the following parks are located at proposed station areas where construction would occur:

- Barney Allis Plaza – This 3.3-acre urban plaza is owned by the City, but managed by the Kansas City Convention Center, rather than the Parks and Recreation Department. It is located at the southwest corner of the 12th Street/Wyandotte Street intersection.
- Ilus Davis Park – This 5.2-acre city-owned urban park is located at the northwest corner of the 11th Street/Locust Street intersection.
- Prospect Plaza Park – This 7.2-acre city-owned park is located at the northwest corner of the Prospect and 12th Street intersection.

The Parks and Recreation Department also includes 12th Street on its list of “Boulevards and Parkways”, although is not considered a Section 4(f) eligible property.

In the NEPA phase of the project, coordination will take place between the FTA and the City Parks and Recreation Department to determine the applicability of Section 4(f) to each park resource, to preserve the integrity of the park system, and to enhance the character of the boulevard and parkway corridors (where applicable) in keeping with the spirit and intent of the adopted Boulevard and Parkway Standards.

If part of a Section 4(f) property is being converted from a recreational use to a transportation use (through acquisition or other permanent impacts), an evaluation of avoidance alternatives is usually required, unless the impacts are considered minimal. The FTA can make a determination that the effects on the 4(f) property are de minimis (minimal), meaning that the project would not adversely affect the activities, features, or attributes of the park, after taking into account any measures to minimize harm (such as avoidance, minimization, mitigation or enhancement measures).

At this time, it is anticipated that construction of station amenities at Ilus Davis Park and Prospect Plaza Park, with the exception of minor temporary construction easements, would take place within the street right-of-way and there would be no property acquisition or transportation “use” of those two parks. However, the City’s parcel

mapping on its website indicates that the parcel boundary for Barney Allis Plaza is relatively close to the curb. If the parcel mapping is accurate, the proposed station at this location would be located within the Barney Allis Plaza property. Because the property impact would be relatively minimal and would likely not adversely affect the activities, features, and attributes of the property; the FTA can make a determination that the project would result in a de minimis impact on the Section 4(f) property, and an analysis of avoidance alternatives would not be required. Concurrence from the officials having jurisdiction over the plaza (Kansas City Convention Center) would be required.

Resources that are listed in the NRHP (discussed previously), or eligible for listing in the NRHP, are also considered Section 4(f) properties, and are subject to Section 4(f) requirements. As stated in the Cultural Resources section, it is anticipated that FTA's coordination with the SHPO will result in a determination of "no adverse effect" on the historic properties along the project corridor.

Environmental Conclusions

It is anticipated that the proposed BRT project would not result in significant impacts to any of the environmental resources. A general noise assessment may be required and it is likely that some level of additional cultural resources study will be necessary in order to obtain NEPA clearance. However, it is anticipated that effects to historic resources would not be adverse and that noise impacts would not be significant. The FTA, in coordination with the SHPO, will determine the level and type of historic analysis required for environmental clearance.

7.0 Public Participation Summary

Although KCATA had assessed the feasibility of MAX service prior to the start of the Planning Assessment Study in June 2013 the initial assessment did not include public involvement. Thus, the Planning Assessment Study involved a comprehensive public outreach component to inform residents and bus riders in and along the Prospect Avenue corridor and the adjacent neighborhoods regarding plans for the proposed MAX service and to obtain input from the community.

Considerable effort was also directed towards stakeholders in the Prospect Corridor. An Advisory Committee was formed comprised of community leaders, business people and other individuals



with an interest in the mobility of residents and economic development of the communities along the Prospect Corridor. Kansas City Councilmen Jermaine Reed, 3rd District, and Michael Brooks, 5th District, led the Advisory Committee. A complete roster of Advisory Committee members is included in Appendix B. The Advisory Committee met five times during the Planning Assessment and endorsed the final conclusions and recommendations.

Phillips-West created a Street/Engagement Team to assist in getting the word out about Prospect MAX. Not all residents of the communities in the Prospect Corridor can be reached through traditional means such as email and media. Team members walked the streets, visited residences door-to-door and road buses to meet with the public one-on-one. Street/Engagement Team members, wearing T-shirts with the MAX logo, passed-out flyers and encouraged community members participate in Prospect MAX events. Approximately 12,000 flyers were distributed at bus stops, in surrounding neighborhoods and at businesses in the area. An additional 6,000 flyers were placed on buses. Feedback from the Street/Engagement Team concluded that the majority of bus riders and others along the route highly favored the Prospect MAX.

To engage community members the slogan “Let’s Talk Prospect MAX” was incorporated as key messaging for the hand-out flyers that were designed and distributed along the Prospect Avenue corridor, on the Prospect Avenue buses and displayed on the KCATA website. The slogan was incorporated into the communications sent out to Kansas City community



leaders and key Prospect Avenue business, civic, neighborhood and church leaders to solicit their participation to serve as members of a Prospect MAX Planning Assessment Advisory Committee.

Two open public meetings were held during the planning process to keep the general public informed. These were open-house meetings that allowed the community every opportunity to learn about MAX and build an awareness of the benefits, schedule, construction and operation issues that will affect the community.

The first meeting held in October 2013 at a Prospect Avenue community center was attended by over 60 community residents and other interested parties, including three members of the Kansas City Council. The project team gathered input from attendees through one-on-one discussions and more formally through comment cards filled out by attendees. Key takeaways from the public meeting included:

- Prospect MAX should be implemented to improve transit service in the corridor.
- Prospect MAX should be patterned after the highly successful Troost MAX in terms of the station design and service plan.
- Suggested MAX station locations.
- Local bus service should be retained to serve all stops along the route.
- The service should extend to 85th Street.

A second public meeting was held in March 2014 at a key Prospect corridor neighborhood church to report back to the community on the development of Prospect MAX and decisions made on project implementation.

Over the course of the project three Advisory Committee meetings were held, (August and September, 2013 and February, 2014. The September meeting was held on a bus and featured a two – hour tour of Prospect Avenue. Additional engagement was undertaken with one-on-one meetings held with Prospect corridor business and community leaders, as well as with City, County and State representatives whose districts include Prospect Avenue neighborhoods.

Feedback received from the Advisory Committee and stakeholder meetings was favorable to initiating plans for a MAX Bus Rapid Transit line to run along Prospect Avenue starting from Downtown Kansas City and concluding in the South Kansas City area (75th/85th Street on the South). Discussion regarding the integration of Prospect MAX with the proposed NextRail streetcar line was also introduced. The stakeholders were receptive to the amenities a MAX bus line would bring to the Prospect Avenue area such as new bus shelters and sidewalk/street curb improvements, in addition to faster transit travel times. It was also shared that the addition of a Prospect MAX BRT line would be a key component of economic development planning for the Prospect Avenue and Midtown area of Kansas City.

During the February 2014 Advisory Committee meeting committee members formally endorsed key components of the Prospect MAX plan developed during the Planning Assessment Study. The plan components endorsed by the Advisory Committee included:

- The service plan including the local service component.
- The north end alignment along 12th Street between Prospect Avenue and downtown.
- The 75th Street MAX terminus and 85th Street local route terminus.
- The MAX station locations and shelter design concept.
- The funding plan in cooperation with NextRail and the proposed TDD for local funding.

8.0 Implementation Plan

8.1 Funding and Financing Plan

Transit projects such as Prospect MAX have two distinct financing requirements, 1) capital funding for construction of stations and facilities and procurement of buses, and 2) operating funding to cover the ongoing operating costs not covered by passenger fares or other operating revenue.

Capital costs for Prospect MAX are estimated at \$43 million as detailed in Section 5.4. **Table 19** shows a breakdown of these costs.

Table 19: Prospect MAX Capital Costs (2014 dollars)

ITEM	COST
MAX Stations	\$18,610,560
57 locations - includes Downtown	
Prospect Avenue Local Stop Improvements	\$388,469
53 stops Improved	
Transit Centers	\$3,995,323
East Village and West Loop	
Corridor Intersection Improvements	\$1,670,400
Assume ADA, crosswalk, signal improvements	
Corridor Streetscape Improvements	\$5,935,348
4 miles of sidewalk replacement, street tree plantings	
CNG Buses	\$6,500,000
12 buses	
Soft Costs	
Final Design	\$3,000,000
Construction Administration	\$1,000,000
ROW, permitting, administration	\$1,899,900
Total Capital Cost	\$43,000,000

Capital funding for transit projects such as Prospect MAX often is provided by the Federal Transit Administration (FTA) through one of their discretionary grant programs. The FTA New Starts/Small Starts program makes capital funding for up to 80 percent of the total eligible capital cost of a qualifying project available through a competitive evaluation process. KCATA's Main Street MAX and Troost MAX received nearly 80 percent capital funding through FTA discretionary grant programs; Troost MAX was one of the first Very Small Starts projects under the TEA-21 federal transportation bill. Main Street MAX received FTA capital funding as well from a different FTA program.

As previously explained, Prospect MAX has been included with the NextRail streetcar lines as a strategy to pursue FTA capital funding through the "Program of Interrelated Projects" program. It is believed this approach gives the City and KCATA a better chance to secure federal funding for these interrelated transit projects. This approach also will provide the required local funding to match the FTA investment.

The City anticipates generating 50 percent of the total project cost for NextRail and Prospect MAX through a Transportation Development District (TDD). Missouri law states

that a TDD may be created to act as the entity responsible for developing, improving, maintaining, or operating one or more “projects” relative to the transportation needs of the area in which the District is located. The financial model being used to assess the feasibility of local funding assumes tax rates similar to the TDD currently being used to fund the Downtown Streetcar Starter Route. The City has already started the process to create the TDD. A public vote on the TDD is expected later in 2014.

There is currently no other funding source identified for the capital costs associated with Prospect MAX.

KCATA’s operating funding is from several sources, including two sales taxes levied in Kansas City, Missouri. These revenue sources have not been keeping pace with the rate of operating cost escalation and the existing revenue sources do not provide the flexibility to fund new or improved transit service. KCATA and Kansas City are working together to address this situation and determine an approach to make transit service sustainable with existing revenue sources.

Until then KCATA must secure additional revenue for new services.

Table 20 shows the required operating funding for the current service and the proposed service improvements including MAX.

Table 20: Prospect Existing and Proposed Operating Funding Requirement (2014 dollars)

Current Operations	
Current Service Cost	\$4,612,000
Current Passenger Revenue	<u>\$1,293,000</u>
Required Operating Funding	\$3,319,000
Proposed Operations	
MAX Operating Cost	\$4,229,000
Local Service Operating Cost	<u>\$1,819,000</u>
Total Operating Cost	\$6,048,000
Projected Passenger Revenue	<u>\$1,422,000</u>
Required Operating Funding	\$4,626,000

KCATA has applied for a Congestion Mitigation Air Quality (CMAQ) grant through MARC to fund the additional operating cost associated with the proposed improvements. CMAQ will fund operating costs for a new service for three years or more. After year 3 the additional operating funding will be incorporated into KCATA operating budget and funding.

8.2 FTA New Starts Criteria and Evaluation

Because FTA's New Starts/Small Starts program is the likely source for capital funding a high-level evaluation of the Prospect MAX project was prepared using data developed during the Planning Assessment. Under MAP-21, FTA no longer has the Very Small Starts program for BRT and other projects with a total capital cost of \$50 million or less. FTA's rating process uses two categories of criteria, project justification criteria and local financial commitment criteria. These two categories are equally weighted. **Figure 24** shows the FTA NS/SS rating criteria and weighting for projects such as Prospect MAX.

Figure 24: New and Small Start Project Evaluation and Rating under MAP-21

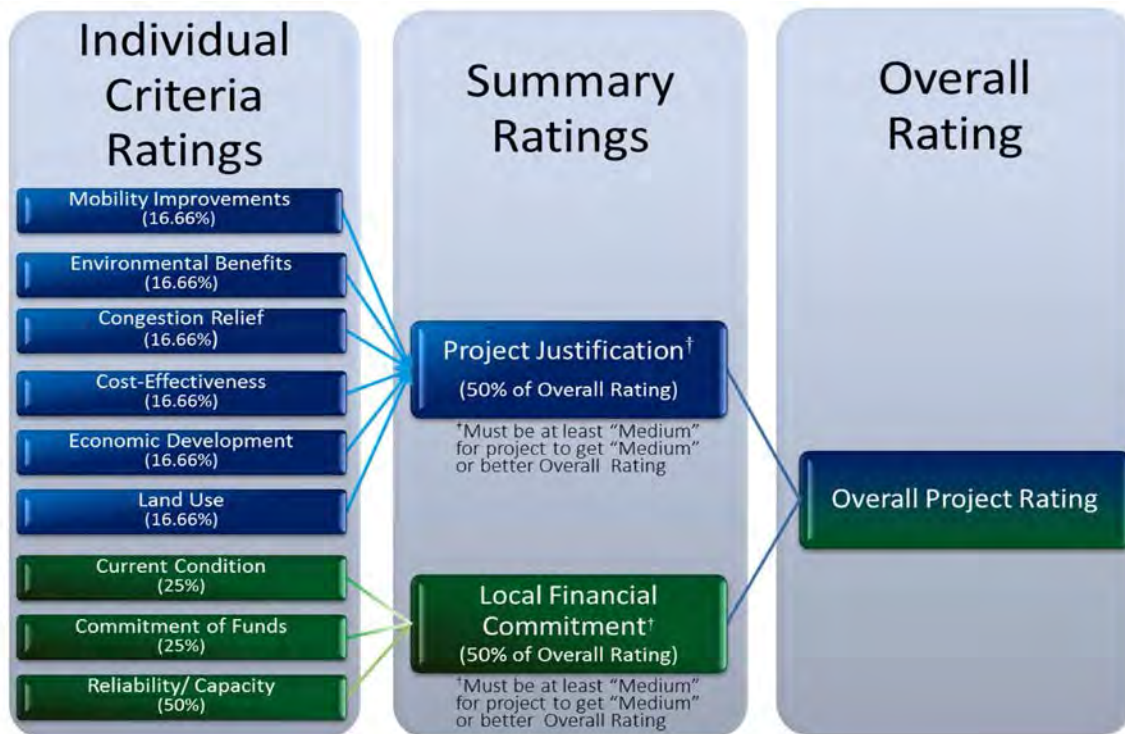


Table 21 shows how Prospect MAX might fare by itself under the Small Starts Criteria based on the preliminary assessment of the project's attributes.

Table 21: Possible FTA Small Starts Funding Evaluation

New Start Criteria	Estimated Rating
Mobility Improvements	MEDIUM - LOW
Economic Development Effects	MEDIUM
Environmental Benefits	MEDIUM
Cost Effectiveness	MEDIUM
Land Use	MEDIUM - LOW
Congestion Relief	MEDIUM
Overall Project Justification	MEDIUM
Local Financial Commitment	HIGH
Overall Project Rating	MEDIUM - HIGH

Source: HNTB

The evaluation focused on the more technical project justification criteria. The evaluation concluded that the project should be able to achieve a Medium rating in this category.

It is assumed that the project should be able to secure a High rating for financial commitment. KCATA will not move forward with the project unless and until a committed source of local funding is secured. As previously explained the TDD mechanism will provide this local funding. In addition, KCATA is financially sound and has demonstrated in the past that the agency has the capacity to implement and operate projects such as Prospect MAX.

The funding mechanism that Prospect MAX plans to use is FTA's Program of Interrelated Projects because this project will be tied to the NextRail project. However, FTA has not officially established guidelines for the Program of Interrelated Projects.

8.3 Project Development Schedule

The Prospect MAX development timeline is very much dependent on the availability of funding, both for construction and procurement, but also for design activities. The Prospect MAX Planning Assessment Study is the last step in the project's planning process. The design phase is expected to start in mid-2014 with preliminary engineering. Final design would occur in 2015 along with the start of procurement. Construction and procurement would occur in 2016 and 2017. Operations would begin in 2018.

9.0 Conclusions

During the course of the Prospect MAX Planning Assessment Study, a firm conclusion is that Prospect MAX is a transit improvement that is popular in the community, financially sound and able to produce benefits ranging from mobility enhancements to economic development. The current Prospect local bus, 71 Prospect, route is one of KCATA core routes, one of the most important links in the transit network in Kansas City. Twelve other transit routes intersect with the Prospect route before it reaches downtown creating the ability for transit users in the Prospect Corridor to access virtually every part of the metropolitan area. Enhancing service in the Prospect Corridor will further strengthen the transit network.

Prospect MAX has been linked with NextRail, the City's initiative to create an urban rail transit system in the core of the transit network. Prospect MAX is considered a critical part of the NextRail system, making connections that extend the benefits of the NextRail investment.

Prospect MAX is also integral to the creation of transit improvements in the downtown area, including the east/west Transit Emphasis Corridor, and the dual transit center concept.

MAX Produces Proven Benefits. Prospect MAX is modeled after KCATA's successful MAX lines on Main Street and Troost Avenue, two other major transit corridors in Kansas City. For nearly ten years these initial MAX investments have proven that MAX is popular with the public and stakeholders, attracts new transit users and is an asset in the community. Since 2005 ridership on Main Street MAX has increased by over 60 percent. Although much newer, Troost MAX has initially realized a ten percent increase in ridership. Ridership forecasts for Prospect MAX show an increase of about 20 percent in the corridor.

Planning Basis for Prospect MAX. Prospect MAX is consistent with the region's transit plan and was included as part of the locally preferred alternative in the US 71 Transit Study conducted in 2013 by the region's MPO, the Mid-America Regional Planning Council and KCATA. In addition, all the relevant Kansas City, Missouri plans recognize



Prospect as an important transit corridor and support to concept of Prospect MAX. Prospect MAX is part of the region's long range transit plan.

Community Support for Prospect MAX. During the course of the project two public meetings were held. At both meetings the public was overwhelmingly supportive of Prospect MAX. During the February 2014 Advisory Committee meeting committee members formally endorsed key components of the Prospect MAX plan developed during the Planning Assessment Study. The plan components, reviewed at the public meetings and endorsed by the Advisory Committee include:

- The service plan including the local service component.
- The north end alignment along 12th Street between Prospect Avenue and downtown.
- The 75th Street MAX terminus and 85th Street local route terminus.
- The MAX station locations and shelter design concept.
- The funding plan in cooperation with NextRail and the proposed TDD for local funding.

Socioeconomic and Demographics of the Prospect Corridor. Population densities in the corridor are relatively high, generally well above 3,000 persons per square mile, which is sufficient to support fixed route bus service. The corridor is heavily transit dependent - the Prospect Corridor study contains the highest concentration of lower income and minority populations in Kansas City. Portions of the corridor have sustained population declines of 30 percent over the past several decades due to a lack of investment, deterioration of residential housing stock and other negatives too often associated with older urban corridors.

Economic Development Benefits of Prospect MAX. Despite the economic conditions of the corridor both public and private investment is being realized along Prospect Avenue. The City is developing a new police substation and crime laboratory at 27th Street. A



long awaited grocery store opened on 39th Street in 2014. The 31st/Linwood area is the site of a major new commercial redevelopment. The long delayed retail commercial development at 63rd Street is back on track. The Prospect MAX improvement is expected

to have significant positive effects on these and other economic development initiatives.

In other metropolitan areas investments in BRT systems have returned economic development benefits. Community leaders and developers in Kansas City believe Prospect MAX can be part of the effort to stimulate development along Prospect Avenue.

Station area improvements at key intersections will complement the community's objective to create commercial nodes at these intersections. The continuous improvements along the entire length of the corridor will help create an environment that will be more appealing to development.

Prospect MAX Operating Plan. During the study It was determined that the preferred service plan would have MAX terminating at 75th Street and the local service continuing south to 85th Street. KCATA's operating funding is extremely limited; the most cost effective way to serve areas to the south and east is to continue the current service pattern and have passengers destined to locations beyond 85th Street transfer to Route 175. By reducing the number of stations and providing for transit signal priority, running time savings of 20% can be achieved.

Service levels will be high: MAX buses will operate every ten minutes during the day on weekdays; nighttime headways will be 30 minutes. Weekend service will operate with daytime headways of 15 minutes on Saturday and combined local/MAX service every 30 minutes on Sundays. The total service span will be from 4 AM to 1 AM on weekdays and 5 AM to 1 AM on weekends.

Environmental Impacts. It is anticipated that the proposed BRT project will not result in significant impacts to any of the environmental resources. A general noise assessment will be required and it is likely that some level of additional cultural resources study will be necessary in order to obtain NEPA clearance. However, it is anticipated that effects to historic resources would not be adverse and that noise impacts will not be significant. The FTA, in coordination with the SHPO, will determine the level and type of historic analysis required for environmental clearance.

Traffic Impacts. After analyzing the Prospect Corridor it was found that there would be few negative traffic impacts and many running time improvements for the bus as well as improved operations at Gregory and Prospect.

Appendices

Appendix A – Prospect Route Outside Downtown Running Time

Corridor	Evaluation Method	Running Time				Percent Savings			
		SB AM	NB AM	SB PM	NB PM	SB AM	NB AM	SB PM	NB PM
Existing Local (Schedule) - To Truman & Troost	Time delay study in field	34.0	36.0	39.0	38.0	N/A	N/A	N/A	N/A
W/O Truman/Troost to W/O Prospect/Truman		4.0	5.0	5.0	5.0	N/A	N/A	N/A	N/A
W/O Prospect/Truman to S/O 27th/Prospect		5.0	5.0	5.0	5.0	N/A	N/A	N/A	N/A
S/O 27th/Prospect to S/O Linwood/Prospect		3.0	3.0	4.0	3.0	N/A	N/A	N/A	N/A
S/O Linwood/Prospect to N/O 46th/Prospect		6.5	6.5	7.0	7.0	N/A	N/A	N/A	N/A
N/O 46th/Prospect to N/O 51st/Prospect		6.5	6.5	7.0	7.0	N/A	N/A	N/A	N/A
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	5.0	5.0	N/A	N/A	N/A	N/A
From N/O 63rd/Prospect to S/O Meyer/Prospect		2.0	2.0	2.0	2.0	N/A	N/A	N/A	N/A
From S/O Meyer/Prospect to S/O 75th/Prospect		3.0	4.0	4.0	4.0	N/A	N/A	N/A	N/A
Alternative 1 - Existing Local (Model) - To Truman & Troost	Model calibration	34.0	36.0	39.0	38.1	0.0%	0.0%	0.0%	-0.3%
W/O Truman/Troost to W/O Prospect/Truman		4.0	5.0	5.0	5.0	0.0%	0.0%	0.0%	0.0%
W/O Prospect/Truman to S/O 27th/Prospect		5.0	5.0	5.0	5.0	0.0%	0.0%	0.0%	0.0%
S/O 27th/Prospect to S/O Linwood/Prospect		3.0	3.0	4.0	3.0	0.0%	0.0%	0.0%	0.0%
S/O Linwood/Prospect to N/O 46th/Prospect		6.5	6.5	7.0	7.0	0.0%	0.0%	0.0%	0.0%
N/O 46th/Prospect to N/O 51st/Prospect		6.5	6.5	7.0	7.0	0.0%	0.0%	0.0%	0.0%
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	5.0	5.0	0.0%	0.0%	0.0%	0.0%
From N/O 63rd/Prospect to S/O Meyer/Prospect		2.0	2.0	2.0	2.0	0.0%	0.0%	0.0%	0.0%
From S/O Meyer/Prospect to S/O 75th/Prospect		3.0	4.0	4.0	4.0	0.0%	0.0%	0.0%	0.0%
Alternative 2 - Existing Local (Model) - To 12th & Troost	Model extrapolation	35.1	37.1	40.2	39.1	-3.2%	-3.1%	-3.1%	-2.6%
W/O 12th/Troost to W/O Prospect/12th		4.0	5.0	5.0	5.0	0.0%	0.0%	0.0%	0.0%
W/O Prospect/12th to S/O 27th/Prospect		6.2	6.1	6.2	6.1	-24.0%	-22.0%	-24.0%	-22.0%
S/O 27th/Prospect to S/O Linwood/Prospect		3.0	3.0	4.0	3.0	0.0%	0.0%	0.0%	0.0%
S/O Linwood/Prospect to N/O 46th/Prospect		6.5	6.5	7.0	7.0	0.0%	0.0%	0.0%	0.0%
N/O 46th/Prospect to N/O 51st/Prospect		6.5	6.5	7.0	7.0	0.0%	0.0%	0.0%	0.0%
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	5.0	5.0	0.0%	0.0%	0.0%	0.0%
From N/O 63rd/Prospect to S/O Meyer/Prospect		2.0	2.0	2.0	2.0	0.0%	0.0%	0.0%	0.0%
From S/O Meyer/Prospect to S/O 75th/Prospect		3.0	4.0	4.0	4.0	0.0%	0.0%	0.0%	0.0%
Alternative 3 - BRT Mixed Traffic With No TSP - To 12th & Troost	Removal of stop locations	29.3	29.3	32.7	31.3	16.5%	21.0%	18.7%	19.9%
W/O 12th/Troost to W/O Prospect/12th		3.7	4.2	4.3	4.3	7.5%	16.0%	14.0%	14.0%
W/O Prospect/12th to S/O 27th/Prospect		5.7	5.7	6.0	5.8	8.1%	6.6%	3.2%	4.9%
S/O 27th/Prospect to S/O Linwood/Prospect		2.9	2.5	3.3	2.6	3.3%	16.7%	17.5%	13.3%
S/O Linwood/Prospect to N/O 46th/Prospect		6.4	6.2	6.7	6.8	1.5%	4.6%	4.3%	2.9%
N/O 46th/Prospect to N/O 51st/Prospect		1.9	2.1	2.0	2.1	70.8%	67.7%	71.4%	70.0%
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	4.7	4.7	0.0%	0.0%	6.0%	6.0%
From N/O 63rd/Prospect to S/O Meyer/Prospect		2.0	2.0	2.0	2.0	0.0%	0.0%	0.0%	0.0%
From S/O Meyer/Prospect to S/O 75th/Prospect		2.8	2.6	3.7	3.0	6.7%	35.0%	7.5%	25.0%
Alternative 4 - BRT Mixed Traffic With Basic TSP - to 12th & Troost	VISSIM model	29.0	29.3	32.1	31.3	17.4%	21.0%	20.1%	19.9%
W/O 12th/Troost to W/O Prospect/12th		3.7	4.2	4.2	4.3	7.5%	16.0%	16.0%	14.0%
W/O Prospect/12th to S/O 27th/Prospect		5.6	5.7	5.9	5.8	9.7%	6.6%	4.8%	4.9%
S/O 27th/Prospect to S/O Linwood/Prospect		2.8	2.5	3.2	2.6	6.7%	16.7%	20.0%	13.3%
S/O Linwood/Prospect to N/O 46th/Prospect		6.3	6.2	6.6	6.8	3.1%	4.6%	5.7%	2.9%
N/O 46th/Prospect to N/O 51st/Prospect		1.8	2.1	1.9	2.1	72.3%	67.7%	72.9%	70.0%
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	4.6	4.7	0.0%	0.0%	8.0%	6.0%
From N/O 63rd/Prospect to S/O Meyer/Prospect		2.0	2.0	2.0	2.0	0.0%	0.0%	0.0%	0.0%
From S/O Meyer/Prospect to S/O 75th/Prospect		2.8	2.6	3.6	3.0	6.7%	35.0%	10.0%	25.0%
Alternative 5 - BRT Dedicated Lane without TSP - to 12th & Troost	VISSIM model	29.3	29.3	32.1	30.9	16.5%	21.0%	20.1%	21.0%
W/O 12th/Troost to W/O Prospect/12th		3.7	4.2	4.2	4.2	7.5%	16.0%	16.0%	16.0%
W/O Prospect/12th to S/O 27th/Prospect		5.7	5.7	5.9	5.8	8.1%	6.6%	4.8%	4.9%
S/O 27th/Prospect to S/O Linwood/Prospect		2.9	2.5	3.2	2.6	3.3%	16.7%	20.0%	13.3%
S/O Linwood/Prospect to N/O 46th/Prospect		6.4	6.2	6.6	6.7	1.5%	4.6%	5.7%	4.3%
N/O 46th/Prospect to N/O 51st/Prospect		1.9	2.1	2.0	2.0	70.8%	67.7%	71.4%	71.4%
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	4.6	4.7	0.0%	0.0%	8.0%	6.0%
From N/O 63rd/Prospect to S/O Meyer/Prospect		2.0	2.0	2.0	2.0	0.0%	0.0%	0.0%	0.0%
From S/O Meyer/Prospect to S/O 75th/Prospect		2.8	2.6	3.6	3.0	6.7%	35.0%	10.0%	25.0%
Alternative 6 - BRT Mixed Traffic With Full TSP - to 12th & Troost	VISSIM model	28.9	29.2	31.9	30.9	17.7%	21.3%	20.6%	21.0%
W/O 12th/Troost to W/O Prospect/12th		3.7	4.2	4.20	4.20	7.5%	16.0%	16.0%	16.0%
W/O Prospect/12th to S/O 27th/Prospect		5.6	5.7	5.80	5.80	9.7%	6.6%	6.5%	4.9%
S/O 27th/Prospect to S/O Linwood/Prospect		2.8	2.5	3.20	2.60	6.7%	16.7%	20.0%	13.3%
S/O Linwood/Prospect to N/O 46th/Prospect		6.3	6.2	6.60	6.70	3.1%	4.6%	5.7%	4.3%
N/O 46th/Prospect to N/O 51st/Prospect		1.8	2.0	1.90	2.00	72.3%	69.2%	72.9%	71.4%
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	4.60	4.70	0.0%	0.0%	8.0%	6.0%
From N/O 63rd/Prospect to S/O Meyer/Prospect		2.0	2.0	2.00	2.00	0.0%	0.0%	0.0%	0.0%
From S/O Meyer/Prospect to S/O 75th/Prospect		2.8	2.6	3.60	3.00	6.7%	35.0%	10.0%	25.0%
Alternative 7 - BRT Mixed Traffic With Off-Board Fare Collection - to 12th & Troost	Research review and additional evaluation	26.4	26.2	29.1	28.1	24.8%	29.4%	27.6%	28.1%
W/O 12th/Troost to W/O Prospect/12th		3.6	3.8	3.90	4.00	10.0%	24.0%	22.0%	20.0%
W/O Prospect/12th to S/O 27th/Prospect		5.5	5.5	5.80	5.30	11.3%	9.8%	6.5%	13.1%
S/O 27th/Prospect to S/O Linwood/Prospect		1.9	1.8	2.30	1.90	36.7%	40.0%	42.5%	36.7%
S/O Linwood/Prospect to N/O 46th/Prospect		5.0	4.7	5.30	5.30	23.1%	27.7%	24.3%	24.3%
N/O 46th/Prospect to N/O 51st/Prospect		1.9	2.1	2.00	2.10	70.8%	67.7%	71.4%	70.0%
N/O 51st/Prospect to N/O 63rd/Prospect		4.0	4.0	4.50	4.50	0.0%	0.0%	10.0%	10.0%
From N/O 63rd/Prospect to S/O Meyer/Prospect		1.8	1.8	2.00	1.90	10.0%	10.0%	0.0%	5.0%
From S/O Meyer/Prospect to S/O 75th/Prospect		2.7	2.5	3.40	3.00	10.0%	37.5%	15.0%	25.0%

Appendix A – Prospect Route Downtown Running Time

	Southbound AM	Northbound AM	Southbound PM	Northbound PM
West of 12 th & Washington to East of 11 th /12 th & Holmes	9.5	12.0	9.5	12.1
East of 11 th /12 th & Holmes to West of 12 th & Troost	0.3	0.3	0.3	0.3
Total Downtown Segment (All Scenarios, Assumed no TSP)	9.8	12.3	9.8	12.4

Appendix B – Advisory Committee List

Councilman Jermaine Reed
Kansas City Council 3rd District

Councilman/Pastor Michael Brooks
Kansas City Council 5th District
President, Concerned Clergy Coalition of Kansas City, c/o Zion Grove Baptist Church

Will McCarther
Research Medical Center

Joanne Bussinger
Executive Director, Blue Hills Community Services

Becky Forrest
President, Town Fork Creek Neighborhood Association

Albert Byrd
Community Liaison, Missouri Department of Transportation (MoDOT)

Ali Roohanirad
Traffic/Maintenance Engineer, Jackson County Public Works

Graham Renz
Community Engagement Coordinator, Jackson County, Missouri

Linda Netzel
Director, Kansas City Police Department – Regional Crime Lab

Timothy Gaughen
Kansas City Police Department

Marti Lee
Executive Director, Southtown Council

Heather Runkel
Project Manager, Parks and Recreation Department, City of Kansas City, Missouri

Jeffrey Williams
Assistant Department Head, City Planning, City of Kansas City, Missouri

Rev. John Modest Miles
President, Baptist Ministers Union c/o Morning Star Missionary Baptist Church

April Roy
Branch Manager, Kansas City Public Library–Lucile Bluford Branch

Michael Hurd
Marketing Director, Downtown Council of Kansas City

Carol Grimaldi
Executive Director, Brush Creek Community Partners

Evaline Taylor
NOBLE Neighborhood Association

Joseph Jackson
President, Santa Fe Area Council

Constance Parker-Norton
President, Oak Park Neighborhood Association

Karen Slaughter
President, Key Coalition Neighborhood Association

Betty Ost-Everley
Marlborough Community Coalition

Airick West
Boardmember, KCMO School Board

Randy Dunn,
Missouri State Representative

Cliff Pouppirt,
Director of Planning and Development, Blue Hills Community Services

Crispin Rea
Boardmember, KCMO School Board

Forestine Beasley
Greg Patterson & Associates

Dwayne Williams 2718
CEO & President, Twelfth Street Heritage Development Corp.

Appendix C

A Quick Reference Guide to Frequently-Used Development/Redevelopment Tools in Kansas City, Missouri



Economic Development Corporation of Kansas City, Missouri
1100 Walnut Street, Suite 1700, Kansas City, MO 64106 Tel: (816) 221-0636

This is intended as an over-simplified summary of the various programs only. Please consult the appropriate agency for more detailed information.

September 2013

Program	Agency	Main Incentive	General Information	Estimated Costs to create
PTFA (Planned Industrial Expansion Area)	PTFA (Planned Industrial Expansion Authority)	Real Property Tax Abatement (10 years of 100% of the increased taxes, then 15 years of 50% of the increased taxes)	- The property or area must be "blighted" or "stagnant" to qualify. - A Blight Study and General Development Plan must be approved by both the PTFA and City Council. - Many projects will be required to rezone to CREO (Urban Revitalization District). - Your project must be in conformance with that Plan. - Your project must be approved by the PTFA. - Single-family housing is not eligible for assistance. - There is a 1-5 month timeframe to create a PTFA. - There is a 15-30 day timeframe to get a project approved.	- PTFA fees - est. \$3,000 - \$6,000. - Blight Study & General Development Plan - \$7,000 - \$15,000 typical. - Your own attorney and consultant fees. - PTFA tax abatement fees after project completion.
Chap. 353	City of Kansas City Dept. of City Planning & Development	Real Property Tax Abatement (10 years of 100% of the increased taxes, then 15 years of 50% of the increased taxes)	- You must document that your property is "blighted" or "stagnant" to qualify. - You must form an "Urban Redevelopment Corporation" to own the project. - A Blight Study and Development Plan must be approved by the City Council. - Most projects will be required to rezone to URSD (Urban Revitalization District). - Your project must be in conformance with that Plan. - Your project will be subject to the City's MBE/WBE requirements. - Your project must be completed by contractors paying "prevailing wages." - You must file annual reports. - There is a 4-5 month timeframe to create a Chap. 353. - The property or area must be "blighted" or "stagnant" to qualify. - A Blight Study and Urban Renewal Plan must be approved by both the LCRA and City Council. - Many projects will be required to rezone to URSD (Urban Revitalization District). - Your project must be in conformance with that Plan. - Your project will be subject to the City's MBE/WBE requirements. - Your project must be approved by the LCRA. - There is a 4-5 month timeframe to create a URA.	- City fees - \$500 residential projects and \$500 - \$5,000 for commercial projects. - Preparation of the Blight Study and Urban Redevelopment Plan. - Your own attorney and consultant fees.
URA (Urban Renewal Area)	LCRA (Land Clearance for Redevelopment Authority) Contact the EDCKC.	Real Property Tax Abatement (10 years of 100% of the increased taxes)	- The property or area must be "blighted" or "stagnant" to qualify. - A Blight Study and Urban Renewal Plan must be approved by both the LCRA and City Council. - Many projects will be required to rezone to URSD (Urban Revitalization District). - Your project must be in conformance with that Plan. - Your project will be subject to the City's MBE/WBE requirements. - Your project must be approved by the LCRA. - There is a 4-5 month timeframe to create a URA.	- LCRA - \$4,000 Urban Renewal Plan fee (additional costs possible). - Your own attorney and consultant fees. \$3,000 commercial project application fee.
TIF (Tax Incremental Financing)	TIF Commission (Tax Incremental Financing Commission) Contact the EDCKC.	Recapture PILOTs and EATS (Up to 23 years of 100% of the increased property taxes and 50% of economic activity taxes may be available to pay for some or all eligible project costs) An "upfront" financial analysis is required to determine need.	- The property/area must qualify as a "blighted" or "conservation" area. - A TIF Plan must be approved by both the TIF Commission and City Council. - Many projects will be required to rezone to UR (Urban Revitalization). - Your project must be in conformance with that Plan. - Your project will be subject to MBE/WBE, prevailing wage, and workforce requirements. - Your project must be approved by the TIF Commission and City Council. - There is a 6-7 month timeframe to create a TIF.	- TIF Commission - \$20,000 application fee w/additional costs possible. (An additional \$10,000 retainer will be required.) - Your own attorney and consultant fees. - TIF Commission - 3% of all TIF revenues generated.
Missouri WORKS - EEZ (Enhanced Enterprise Zone)	EEZ Boards (There is an Enhanced Enterprise Zone Board for each of the 3 EEZs in KOMO) Contact the EDCKC.	Retention of State Income Tax or Tax Credits and Local Real Property Tax Abatement (Local benefit is a 10 years abatement of 50% of the increased taxes, more possible)	- Your business must be an "eligible business" for the Missouri WORKS program, retail, housing, foodservice, printing, and other-oriented businesses are not eligible. - Your business must create at least 2 jobs and invest at least \$100,000 to qualify. - Your property must be located within one of the three Kansas City EEZs. - Rezoning may not be required, depending upon the business use and existing zoning. - Your property does not have to be "blighted" or "stagnant" to qualify. - If your business is awarded Missouri WORKS benefits, real property tax abatement is awarded. - There is a 1-2 month EEZ application timeframe.	- Enhanced Enterprise Zone Board - \$300 application fee. - EEZ property tax abatement fee depends upon the building's total square footage.