UNIFIED GOVERNMENT TRANSIT COMPREHENSIVE SERVICE ANALYSIS

SEPTEMBER 2010

UNIFIED GOVERNMENT
Wyandotte County • Kansas City, Kansas

OLSSON ASSOCIATES

UNIFIED GOVERNMENT TRANSIT COMPREHENSIVE SERVICE ANALYSIS

FUNDED BY:

FEDERAL TRANSIT ADMINISTRATION
SECTION 5307

AND

UNIFIED GOVERNMENT OF WYANDOTTE COUNTY/KANSAS CITY, KANSAS
LOCAL MATCHING FUNDS

Table of Contents

EXECUTIVE SUMMARY ES.1

SECTION 1. EXISTING CONDITIONS 1.1

1.1 INTRODUCTION 1.1

1.2 HISTORY 1.1

1.3 CURRENT SYSTEM DESCRIPTION AND RIDERSHIP 1.1

1.4 FIXED ROUTE DESCRIPTIONS AND RIDERSHIP 1.7

1.5 SYSTEM PERFORMANCE 1.27

1.6 FIXED ROUTE BUDGET 1.29

1.8 MANAGEMENT AND OPERATIONS 1.32

1.9 CONCLUSIONS 1.35

SECTION 2. ALTERNATIVES AND RECOMMENDATIONS 2.1

2.1 INTRODUCTION 2.1

2.2 RECOMMENDED SERVICE RECONFIGURATIONS 2.1

2.3 MANAGEMENT ALTERNATIVES 2.7

2.4 CAPITAL IMPROVEMENTS 2.12

2.5 DETAILED COSTING OF ALTERNATIVES 2.14

2.6 CONCLUSIONS 2.19

GLOSSARY A.1

LIST OF FIGURES

Figure ES.1. Transit Route Map for Wyandotte County ES.1
Figure ES.2. Proposed Route Reconfiguration ES.4
Figure 1.1. Transit Route Map for Wyandotte County 1.2
Figure 1.2. Transit Service Area for Wyandotte County 1.3
Figure 1.3. Major UGT Daily Boarding Locations 1.5
Figure 1.4. Weekday Boardings per Revenue Hour 1.6
Figure 1.5. Route 102 Central Route Map 1.7
Figure 1.6. Route 102 Inbound Boardings 1.8
Figure 1.7. Route 102 Outbound Boardings 1.8
Figure 1.8. Route 102 Inbound and Outbound Boardings 1.9
Figure 1.9. Route 103 3rd Street /Fairfax Route Map 1.10
Figure 1.10. Route 103 Inbound Boardings 1.11
Figure 1.11. Route 103 Outbound Boardings 1.11
Figure 1.12. Route 103 Inbound and Outbound Boardings 1.12
Figure 1.13. Route 113 Leavenworth Road Route Map 1.13
Figure 1.14. Route 113 Inbound Boardings 1.14
Figure 1.15. Route 113 Outbound Boardings 1.14
Figure 1.16. Route 113 Inbound and Outbound Boardings 1.15
Figure 1.17. Route 115 Kansas Avenue Route Map 1.16
Figure 1.18. Route 115 Inbound Boardings 1.17
Figure 1.19. Route 115 Outbound Boardings 1.17
Figure 1.20. Route 115 Inbound and Outbound Boardings 1.18
Figure 1.21. Route 116 West Parallel Route Map 1.19
Figure 1.22. Route 116 Inbound Boardings 1.20
Figure 1.23. Route 116 Outbound Boardings 1.20
Figure 1.24. Route 116 Inbound and Outbound Boardings 1.21
Figure 1.25. Route 101 Minnesota/State Avenue Route Map 1.22
Figure 1.26. Route 102 Central Route Map 1.23
Figure 1.27. Route 104 Argentine Route Map 1.24
Figure 1.28. Route 106 Quindaro Route Map 1.25
Figure 1.29. Route 107 7th Street /Parallel Route Map 1.26
Figure 1.30. Indian Springs Transit Center 1.31
Figure 1.31. UGT Organizational Chart 1.32
Figure 2.1. Modified Route 101 Minnesota/State Avenue 2.2
Figure 2.2. Interlined Route 102 Central Avenue and Route 103 3rd Street/Fairfax 2.3
Figure 2.3. Extended Route 113 Leavenworth Road to Village West 2.4
Figure 2.4. Interlined Route 115 Kansas Avenue and Route 116 West Parallel 2.5
Figure 2.5. Recommended Service Reconfigurations 2.6
Figure 2.6. Bus Security Cameras 2.12
Figure 2.7. Electronic Farebox 2.12

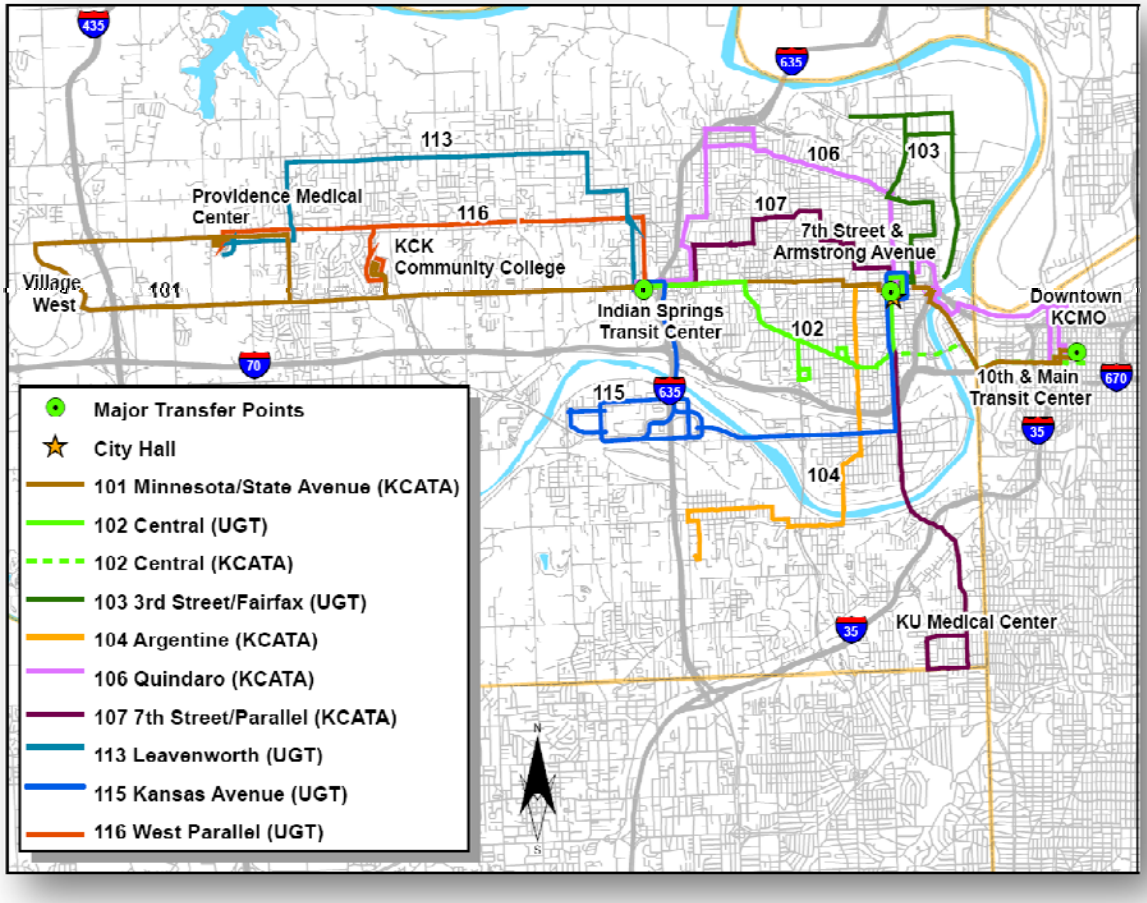
LIST OF TABLES

Table ES.1. Current Route Cost Comparison for Management Alternatives ES.5
Table ES.2. Proposed Route Cost Comparison for Management Alternatives ES.5
Table 1.1. 2009 System Characteristics 1.2
Table 1.2. Average Daily Boardings 1.4
Table 1.3. System Efficiency by Route*, UGT 2009 Costs and KCATA March 2010 Costs 1.6
Table 1.4. UGT's and Peer Cities' Cost and Revenue Statistics 1.27
Table 1.5. UGT's and KCATA's Operating and Cost Statistics 1.28
Table 1.6. 2009 Transit Funding Sources 1.29
Table 1.7. UGT 2009 Expenditures 1.29
Table 2.1. FTA Compliance Requirements 2.11
Table 2.2. Current Route Cost Comparison for Management Alternatives 2.15
Table 2.3. Proposed Route Cost Comparison for Management Alternatives 2.15
Table 2.4. Existing Management Alternative Detailed Costing 2.16
Table 2.5. UGT Management Alternative Detailed Costing 2.17
Table 2.6. Contractor Management Alternative Detailed Costing 2.18

EXECUTIVE SUMMARY

The *Unified Government Comprehensive Service Analysis* examined transit in Wyandotte County to improve transit service efficiency and effectiveness without increasing costs. This analysis was performed in the context of increasing economic development in the western areas of Wyandotte County, and in preparation for a possible State Avenue BRT route in Kansas City, Kansas. Transit routes serving Wyandotte County have remained largely unchanged, although transit needs may have shifted. The UGT fixed-route system performs less effectively in comparison to transit systems in peer communities and KCATA routes with similar characteristics. The following sections layout the contributing factors on why UGT's system is less effective.

Figure ES.1. Transit Route Map for Wyandotte County



KEY POLICY RELATED ISSUES

- **Separate fixed route services and dial-a-ride services from the other department activities**: The current arrangement is unusual for urban systems and distracts staff's focus
- **FTA compliance is required:** Not complying with FTA rules and regulations can result in federal funding being withheld.

- **Customer service training:** Anecdotal evidence suggests a need.
- **Bus fleet management:** Lack of fleet management plan is causing uneven vehicle depreciation in relation to daily vehicle assignments, and UGT currently has excess vehicles.
- **Safety training:** Adherence to a formalized safety program is undeveloped.
- **Low level of technological investment:** This is impeding performance, compliance, accountability, and passenger experience.

KEY SERVICE RELATED ISSUES

- **Service redundancy:** Routes operate along the same street segments for portions of their respective alignments.
- **Changing travel patterns:** Service is not well matched to current development activities.
- **Lack of passenger amenities:** The virtual absence of such things as sheltered waiting areas and on-street schedule information inhibits ridership.
- **Budgeting practices:** Contributing to lower than expected financial performance. Positions budgeted in the fixed-route transit program are actually performing work in other programs.
- **Contractual limitations on work assignment:** Operators are assigned work on the basis of eight-hour shifts. Most UGT routes are in service for only twelve to fourteen hours. However, sixteen operator hours (two eight-hour shifts) are scheduled and paid to provide the service.
- **Fare revenue collections are low:** Collections are primarily low due to operators allowing non fare paying passengers to use the transit system. Additionally the lack of a revenue sharing agreement for bus pass sales with KCATA may contribute to lower collections. In order for a sharing agreement to be enacted electronic fareboxes would be required.

RECOMMENDED INDUSTRY PRACTICES

- **Fleet management plan:** To ensure that vehicles are deployed and operated in accordance with a predetermined schedule to replace vehicles as they age.
- **Additional department specific budget procedures:** Would more fully account for department revenue and expenditures.
- **Separate labor contract:** A transit department-specific labor contract would allow for the unique nature of transit operations.
- **Bus operator training program**
- **Sensitivity and customer service training program**

- **Formal route standards and policy document:** Guide to plan service and to determine if routes are meeting ridership and operating goals.
- **Updated transit manual:** Inclusive manual of all UG Transit instructions, operating rules, policies, procedures, and discipline code.
- **Revised Farebox Procedure and Fare Policies:** A written, revised farebox processing procedure will minimize opportunities for the mismanagement of fares. A pass revenue sharing agreement will slightly increase fare recovery, but is only possible if electronic fareboxes are installed on all buses.

RECOMMENDED CAPITAL IMPROVEMENTS

- **Security Cameras:** Security cameras on buses and at transit centers would increase safety and security for passengers. The cameras can also help with farebox recovery by ensuring drivers are not allowing non fare paying riders.
- **Electronic Fareboxes:** Electronic fareboxes would increase efficiencies and ease the reconciliation process for fare revenue collection.
- **Automatic Vehicle Locator (AVL):** AVL systems can be used to track the on-time performance of buses, verify that vehicles are using the proper route, and are a required component in other transit amenities that UGT may consider in the future, including displaying real-time arrival information to passengers, and voice annunciation systems.
- **Automatic Voice Annunciation (AVA):** AVA systems are tied to an AVL system and automatically play a pre-recorded audio message to on-board passengers announcing the next stop or major intersection, and when a bus stops at a station an exterior speaker announces to waiting passengers the route number and destination of the bus. AVA technology would ensure UGT complies with FTA requirements of voice announcements on vehicles and at stops.
- **Bus Stop Amenities:** Installing additional bus stop amenities, besides those currently at Indian Springs Transit Center, the Village West area, and stops served by KCATA routes, will improve passenger comfort and provide enhanced presence for UGT in Wyandotte County.

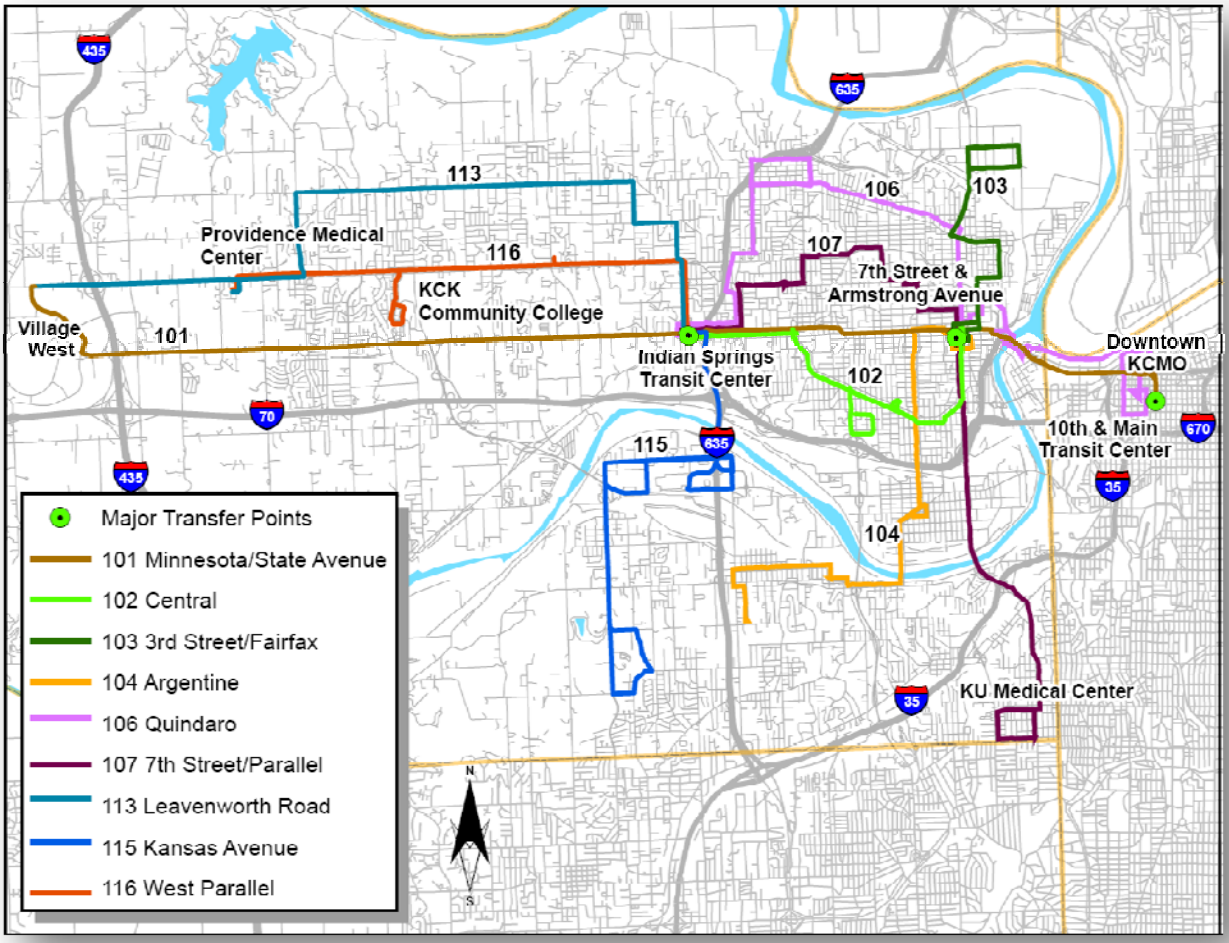
PROPOSED ROUTE RECONFIGURATIONS

The proposed route reconfiguration presented in this report attempts to address how transit can meet these changing development patterns. The proposed system reinforces a hub-and-spoke system out of the two major transfer centers in Kansas City, Kansas, while removing duplicative service. The following service reconfigurations have been identified to improve savings and efficiencies.

- **Modify Route 101 Minnesota/State Avenue**: A more direct route similar to the proposed BRT route will save revenue hours and revenue miles.
- **Interline Route 102 Central Avenue and Route 103 3rd Street/Fairfax**: Allows for the daily savings of 3 revenue hours and 100 revenue miles.

- **Extend Route 113 Leavenworth Road to Village West**: Connects the predominately residential area on Leavenworth Road with a one-seat ride to a major employment and shopping center, improve transfers at Providence Medical Center, and compliment Route 101's recommended change.
- **Interline Route 115 Kansas Avenue and Route 116 West Parallel**: Creates opportunities for additional one-seat rides, extend service south to Turner High School, and remove duplicative service into downtown Kansas City, Kansas.

Figure ES.2. Proposed Route Reconfiguration



MANAGEMENT ALTERNATIVES

This report has also identified new means of delivering transit service to Wyandotte County through new management alternatives. In addition to the current hybrid model of UGT directly operating five routes, and contracting KCATA to operate five routes, new management models were also examined. The potential management structures were identified based on a review of several sources including discussions with UGT staff, a review of area transit agencies, and best industry practices.

- **Existing Management Alternative:** Utilize the current management model while attaining greater efficiencies, and improving amenities and management practices to a level consistent with similar transit agencies.
- **UGT Management Alternative:** UGT managing and operating all transit services within Wyandotte County, while improving amenities and management practices to a level consistent with similar transit agencies.
- **Contractor Management Alternative:** Contracting out fixed route service and ADA demand response service, while UGT manages the service, and Unified Government continues to provide programs associated with senior services.

Table ES.1. Current Route Cost Comparison for Management Alternatives

	Existing Management Alternative UGT directly operates five routes and contracts KCATA to operate five routes	UGT Management Alternative UGT directly operates ten routes		Contractor Management Alternative Contractor directly operates ten routes	
	Current Route System (Baseline)	Current Route System	Additional Cost / (Savings)	Current Route System	Additional Cost / (Savings)
UGT Operating Cost	$ 1,412,000	$ 6,293,000	$ 4,881,000	$ -	$ (1,412,000)
UGT Capital Cost	$ 379,700	$ 3,818,750	$ 3,439,050	$ -	$ (379,700)
KCATA Operating Cost	$ 4,425,000	$ -	$ (4,425,000)	$ -	$ (4,425,000)
KCATA Capital Cost	$ -	$ -	$ -	$ -	$ -
Contractor Operating Cost	$ -	$ -	$ -	$ 5,676,000	$ 5,676,000
Contractor Capital Cost	$ -	$ -	$ -	$ 75,000	$ 75,000
UG Operating Expenditure	**$ 5,837,000**	**$ 6,293,000**	**$ 456,000**	**$ 5,676,000**	**$ (161,000)**
UG Capital Expenditure	**$ 379,700**	**$ 3,818,750**	**$ 3,439,050**	**$ 75,000**	**$ (304,700)**

Note: Costs are based on 2009 budget costs.

Table ES.2. Proposed Route Cost Comparison for Management Alternatives

	Existing Management Alternative UGT directly operates five routes and contracts KCATA to operate five routes	UGT Management Alternative UGT directly operates ten routes		Contractor Management Alternative Contractor directly operates ten routes	
	Proposed Route System (Baseline)	Proposed Route System	Additional Cost / (Savings)	Proposed Route System	Additional Cost / (Savings)
UGT Operating Cost	$ 1,559,000	$ 5,881,000	$ 4,322,000	$ -	$ -
UGT Capital Cost	$ 399,600	$ 3,828,700	$ 3,429,100	$ -	$ -
KCATA Operating Cost	$ 3,920,000	$ -	$ -	$ -	$ -
KCATA Capital Cost	$ -	$ -	$ -	$ -	$ -
Contractor Operating Cost	$ -	$ -	$ -	$ 5,313,000	$ 5,313,000
Contractor Capital Cost	$ -	$ -	$ -	$ 75,000	$ 75,000
UG Operating Expenditure	**$ 5,479,000**	**$ 5,881,000**	**$ 402,000**	**$ 5,313,000**	**$ (166,000)**
UG Capital Expenditure	**$ 399,600**	**$ 3,828,700**	**$ 3,429,100**	**$ 75,000**	**$ (324,600)**

Note: Costs are based on 2009 budget costs.

Based on costs the Contractor Management Alternative has the highest cost savings for both the current and proposed routes. The UGT Management Alternative would be the most expensive alternative. The proposed route enhancements would save money across the board for all management alternatives.

This page was left blank intentionally

SECTION 1. EXISTING CONDITIONS

1.1 INTRODUCTION

Olsson Associates (OA) is conducting a Comprehensive Service Analysis (CSA) of the Unified Government Transit (UGT) system in order to examine ways to improve transit efficiency and effectiveness in Wyandotte County without increasing costs. This section provides an analysis of the current UGT system. The CSA will include individual route and system-wide recommendations for consideration by UGT Management, the Unified Government Board of Commissioners and the public before implementation.

1.2 HISTORY

Transit service in Wyandotte County was operated as a private venture through the 1960's. Kansas City Area Transportation Authority (KCATA) absorbed the private venture and numerous employees in 1972. In 1981, Wyandotte County initiated its own transit service; this was in addition to services provided by the City of Kansas City, Kansas. In 1997, the governments of Wyandotte County and City of Kansas City, Kansas were consolidated into the Unified Government of Wyandotte County. The city and county transit departments were merged into one transportation unit. UGT continues to provide transit services for local connecting routes, while the KCATA provides routes into Kansas City, Missouri and connections across the region.

Wyandotte County experienced increased growth throughout the 2000's due to the development of a regional activity center in the western portion of the County. The Village West area contains several large activity generators including the Kansas Speedway, the Legends an outdoor shopping mall, the Community America Ball Park, and the Schlitterbahn Water Park.

The UGT system has remained largely unchanged although service needs may have shifted. Unified Government's Transportation Department is divided into a transit program which provides fixed route services, a dial-a-ride program that provides ADA complementary services, a demand response for seniors program, and a meals program.

1.3 CURRENT SYSTEM DESCRIPTION AND RIDERSHIP

This section includes descriptions of system characteristics, ridership, productivity, and efficiency for routes operated by both UGT and KCATA within the boundaries of the City of Kansas City, Kansas. UGT and KCATA each operate four separate routes, and jointly operate one additional route. Figure 1.1 shows the system wide route map.

Table 1.1 displays the characteristics of the UGT system. UGT utilizes a fleet of five **peak** vehicles to provide fixed route service at a **frequency** of 60 to 70 minutes. KCATA utilizes a fleet of nine peak vehicles to provide fixed route service at a frequency of 25 to 35 minutes. Figure 1.2 shows the system coverage as expressed by a quarter-mile buffer around each fixed route.

Peak: The period with the highest ridership during the entire service day, generally aligning with the traditional commuting hours.

Frequency: How often a bus arrives on a particular route.

Figure 1.1. Transit Route Map for Wyandotte County

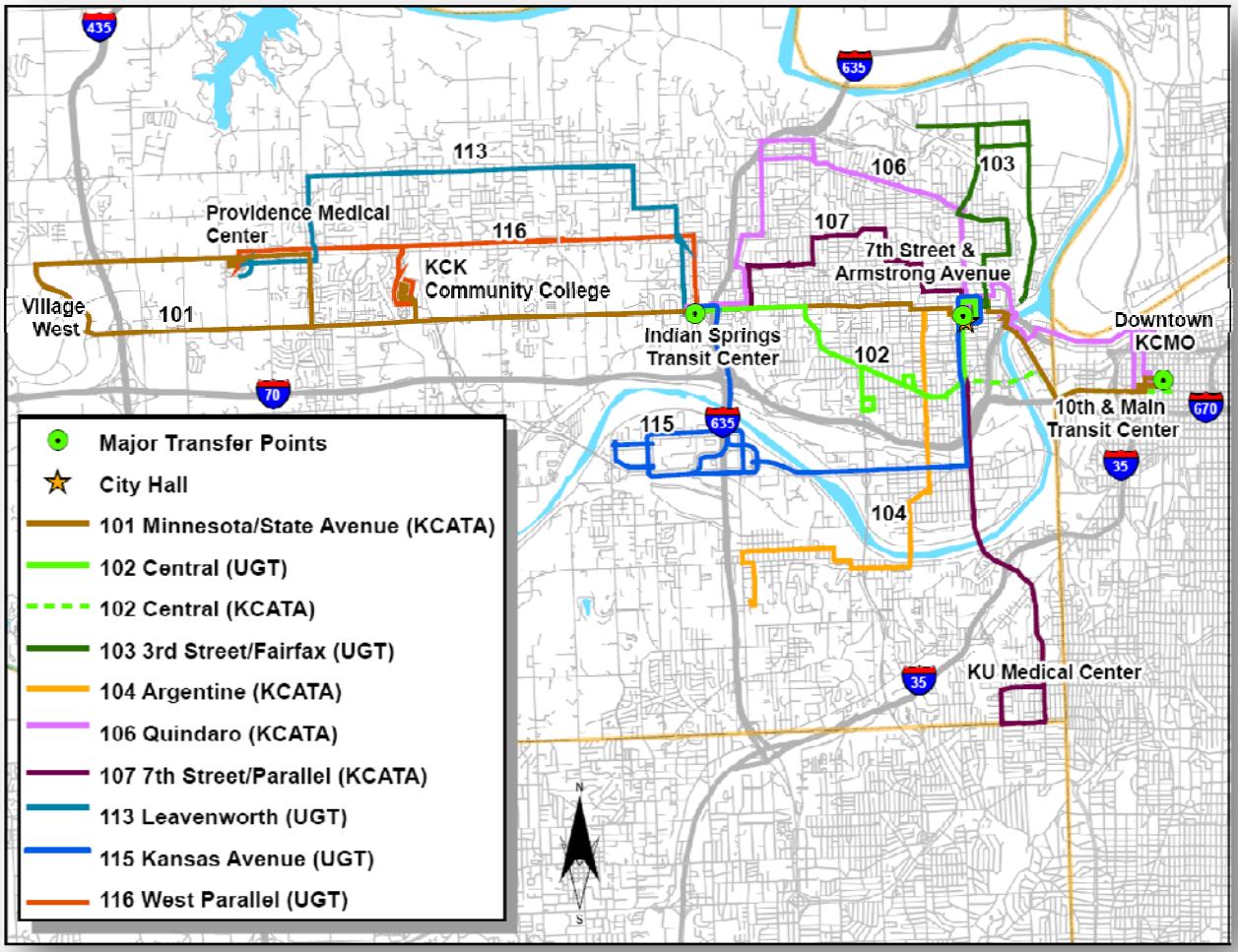
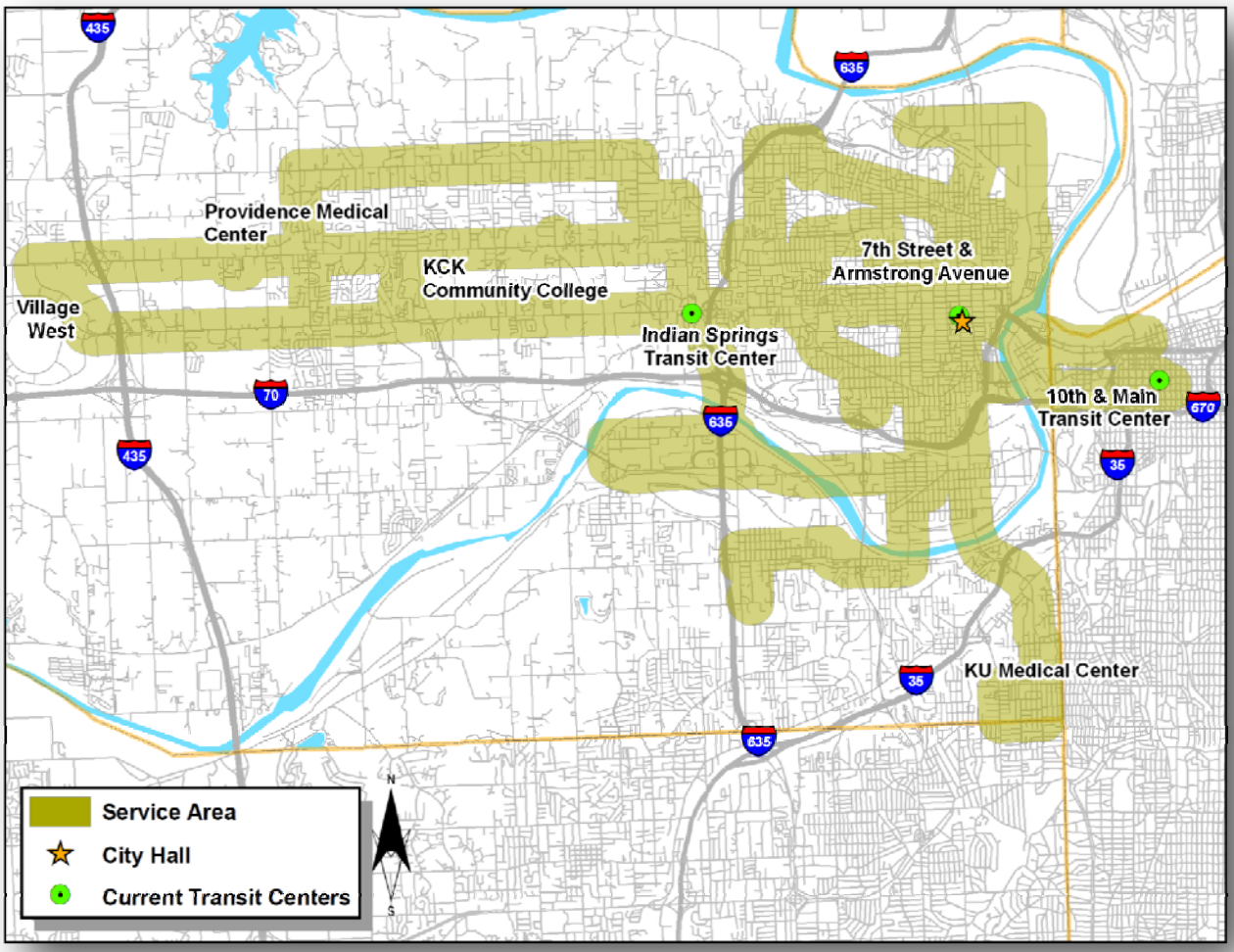


Table 1.1. 2009 System Characteristics

Characteristics	UGT	KCATA within Wyandotte County
Annual Fixed Route Ridership*	147,135	1,016,766
Core Service Span	5:30 AM - 7 PM, Mon. - Fri.	4:37 AM - 11:35 PM, Mon. - Fri., Sat, Sun
Service Cost (2009)	$2,803,712	$4,717,236
Number of Routes	5	5
Peak Fixed Route Vehicles	5	9
Frequencies	60 - 70 minutes	25 - 35 minutes

**Ridership is based off of 2010 sample data*

Figure 1.2. Transit Service Area for Wyandotte County



1.3.1 System Ridership

Examining system boardings for both geographic and temporal trends identifies route runs and locations with the highest demand. This provides information for evaluating resource allocation at specific locations in the system and specific times throughout the service day. In order to evaluate the boardings 100 percent ridership counts were performed on all UGT routes on Tuesday June 15th, 2010 and Wednesday June 16th, 2010. Designated counters rode each route run on all UGT fixed routes, and noted the number and location of boarding and **alighting** passengers per run.

Alight: To exit a vehicle.

Inbound: Traveling towards the major transfer point of the system.

Outbound: Traveling away from the major transfer point of the system.

Boardings and alightings are distinguished between inbound and outbound trips. **Inbound** routes travel towards the major transit system center, in this case Downtown Kansas City, Kansas, or Indian Springs Transit Center. **Outbound** routes travel away from the major transit

system center. UGT's transit system is designed for easy transfers by being a **pulse-based system** with multiple routes converging at the Indian Springs Transit Center or Downtown Kansas City, Kansas at the same time. Most passengers are likely to use two or more routes in travelling to their final destination. Examining the peak of inbound and outbound ridership across time can identify which routes serve as neighborhood circulators to deliver passengers from their homes to a transfer point or transit center, or which routes are employment or activity center based to deliver passengers from transfer points or transit centers to jobs, shopping or medical services. Some routes may serve both functions. Figure 1.3 indicates the major UGT daily boarding locations based off of the density of boardings.

Pulse-based System: A transit system where vehicles from multiple routes congruently arrive and depart at a single point allowing for easier passenger transfers.

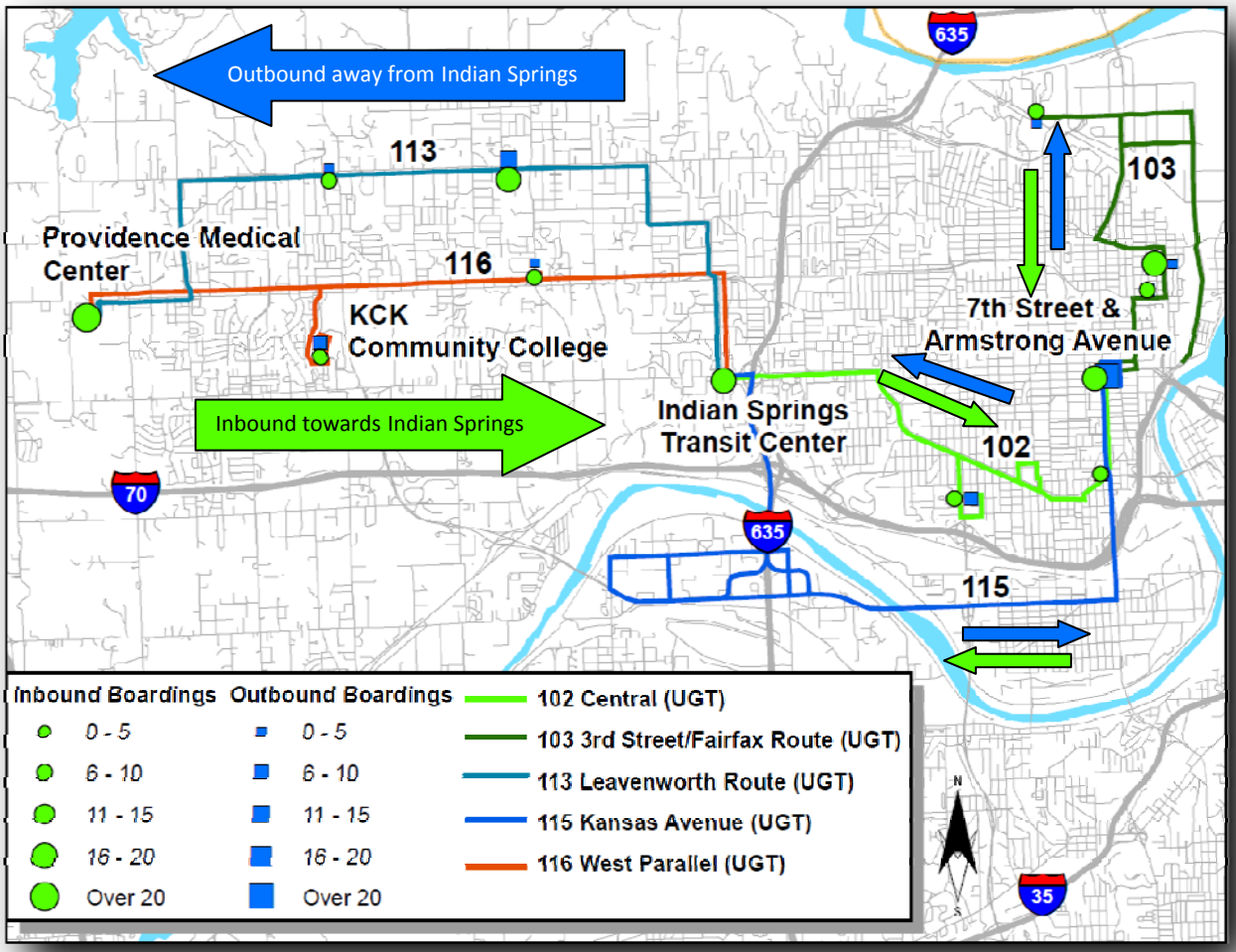
UGT's ridership data indicates that Route 113 Leavenworth Road serves as a neighborhood circulator, whereas Route 103 3rd Street/Fairfax and Route 116 West Parallel serve activity centers. Inbound and outbound ridership correlates throughout the day on Route 115 Kansas Avenue, which may indicate that the route serves both functions. Route 102 Central is operated by KCATA during peak hours and UGT during the midday. Only ridership for Route 102 Central under UGT operation was examined, missing indications of the typical peak travel hours. The following sections include the detailed ridership graphs for each route. Table 1.2 displays average daily boardings by route.

Table 1.2. Average Daily Boardings

Average Daily Boardings			
UGT Routes	**Weekday**	**Saturday**	**Sunday**
102 Central (UGT)	93	--	--
103 3rd St./Fairfax	116	--	--
113 Leavenworth	164	--	--
115 Kansas Avenue	64	--	--
116 West Parallel	215	--	--
UGT Daily Total	652	--	--
UGT Annual Total	*116,260*		
KCATA Routes (WyCo)	**Weekday**	**Saturday**	**Sunday**
101 Minnesota/State	1,446	499	290
102 Central (KCATA)	89	--	--
104 Argentine	366	156	--
106 Quindaro	1,232	441	--
107 7th Street/Parallel	541	117	--
KCATA Daily Total	3,674	1,213	290
KCATA Annual Total	*1,016,766*		
Total Wyandotte County Fixed Route Ridership by Year			***1,183,026***

*UGT ridership data derived from 2010 sample data
KCATA data from March 2010

Figure 1.3. Major UGT Daily Boarding Locations



1.3.2 System Efficiency

The efficiency of a transit system can be described by boardings per **revenue hour**, and average operating cost per passenger. Boardings per revenue hour is a measure of how many passengers utilize the fixed route system per hour of service provided, a higher figure signifies higher efficiency. Average operating cost per passenger describes the required cost to provide the service to each passenger, a lower number signifies higher efficiency.

Revenue Hour: An hour of scheduled service for a vehicle when it can pick up passengers, and not traveling to or from the garage or between routes.

Table 1.3 and Figure 1.4 show the efficiency by each fixed route within Kansas City, Kansas. For the UGT system, the average boarding per revenue hour is 9.6, and the average operating cost per passenger is $4.68. The KCATA operated routes in Wyandotte County average 15.0 boardings per hour, at an average cost of $3.11 per passenger.

The differences between the two systems can be attributed to the different functions that each system serves. The routes operated by the KCATA are city-wide routes that are part of the regional transit system. The UGT routes mainly serve as circulators that connect with the KCATA routes at the Indian Springs Transit Center or 7th and Armstrong Transit Center.

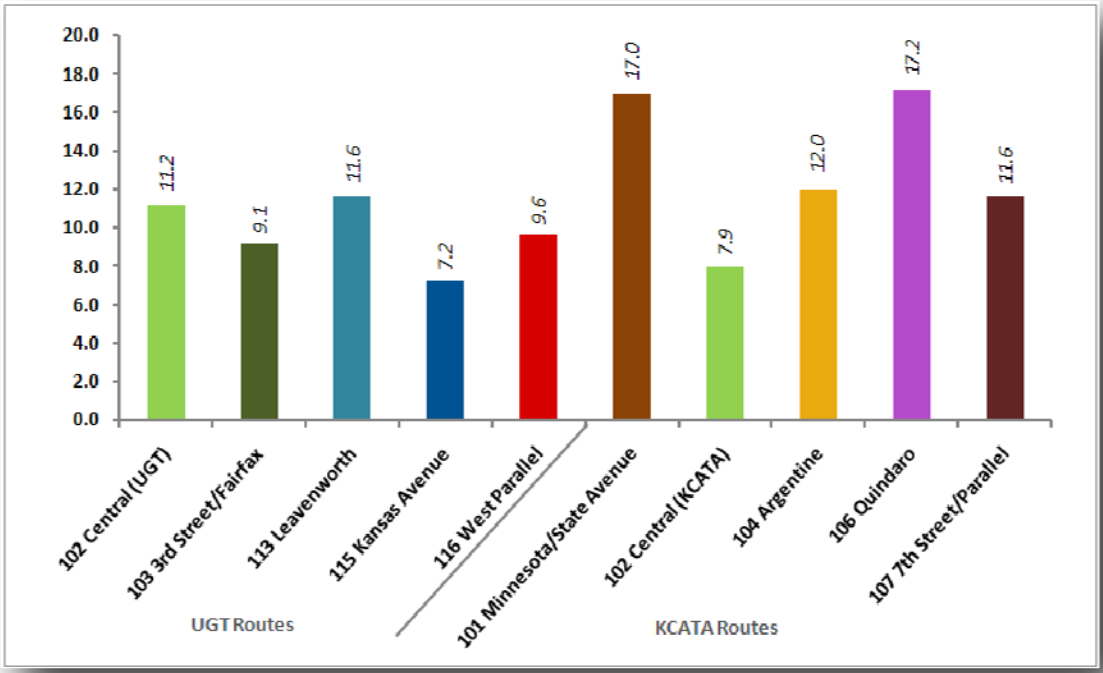
The lower average cost per rider on KCATA routes may be partially attributed to the magnitude of overall service operated throughout the region by the KCATA. In addition to the five KCATA operated routes in Kansas City, Kansas, the KCATA operates sixty-two other routes in the greater metropolitan area. This allows for scales of efficiency that a smaller system cannot achieve. For example, the salaries paid to the two transit supervisors working for the UGT are spread over just five bus routes serving 652 passengers per day whereas the salaries of the eight road supervisors employed by the KCATA are spread over sixty-seven bus routes serving over 50,000 passengers per day.

Table 1.3. System Efficiency by Route*, UGT 2009 Costs and KCATA March 2010 Costs

Route	Boardings per Revenue Hour			Average Cost per Rider		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
102 Central (UGT)	11.2	--	--	$3.97	--	--
103 3rd Street/Fairfax	9.1	--	--	$4.85	--	--
113 Leavenworth	11.6	--	--	$3.81	--	--
115 Kansas Avenue	7.2	--	--	$6.12	--	--
116 West Parallel	9.6	--	--	$4.62	--	--
UGT Fixed Route Total	***48.8***	**--**	**--**	***$4.68***	**--**	**--**
101 Minnesota/State Avenue	17.0	17.7	13.4	$2.30	$2.24	$2.97
102 Central (KCATA)	7.9	--	--	$4.67	--	--
104 Argentine	12.0	10.9	--	$3.18	$3.51	--
106 Quindaro	17.2	14.2	--	$2.19	$2.59	--
107 7th Street/Parallel	11.6	7.4	--	$3.19	$5.06	--
KCATA Fixed Route Total	***65.7***	***50.2***	***13.4***	***$3.11***	***$3.35***	***$2.97***

** UGT ridership derived from 2010 sample data, KCATA ridership March 2010 actual*

Figure 1.4. Weekday Boardings per Revenue Hour



1.4 FIXED ROUTE DESCRIPTIONS AND RIDERSHIP

The description for each route includes the general alignment, frequency, **service span** and efficiency measures. UGT routes are described first, followed by KCATA routes.

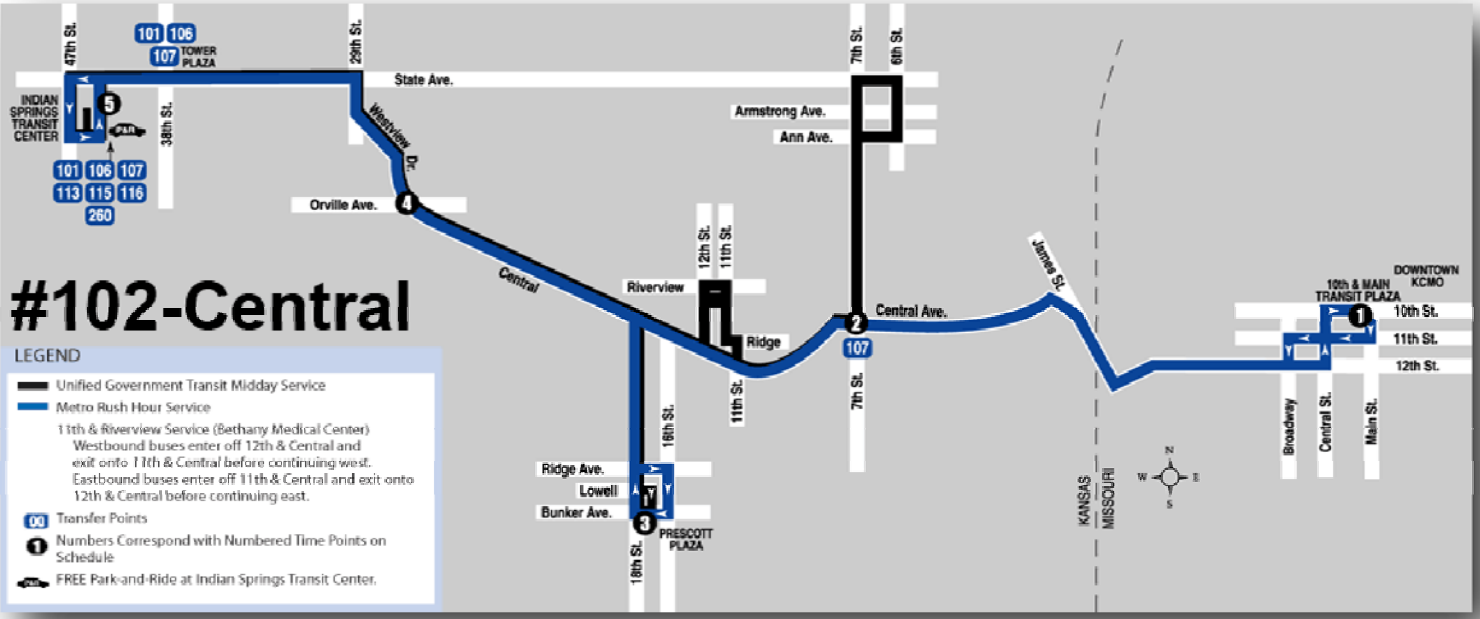
1.4.1 Route 102 Central

- **Operator:** UGT
- **Frequency**: 60 Minutes
- **Service Span**: Weekday, 8:25 AM – 4:23 PM
- **Peak Vehicles:** 1
- **Average Daily Ridership:** 89
- **Productivity Rating:** 2nd most productive out of the 5 UGT Routes
- **Cost per Passenger Rating:** 2nd lowest cost of the 5 UGT Routes

Service Span: The period of the day during which service is available.

Route 102 Central is operated in off-peak hours by UGT, and peak hours by KCATA. The route serves Indian Springs Transit Center, Prescott Plaza, and downtown Kansas City, Kansas. Route 102 Central (UGT) has the second highest productivity of UGT's routes, and the second lowest cost per passenger.

Figure 1.5. Route 102 Central Route Map



Route 102 Central (UGT) displays higher ridership levels in the morning and afternoon peak periods, and also a strong ridership peak in the midday. Mid-morning and mid-afternoon ridership is below two passengers per run. KCATA provides peak-hour operation of Route 102 where the route may display different ridership patterns.

Figure 1.6. Route 102 Inbound Boardings

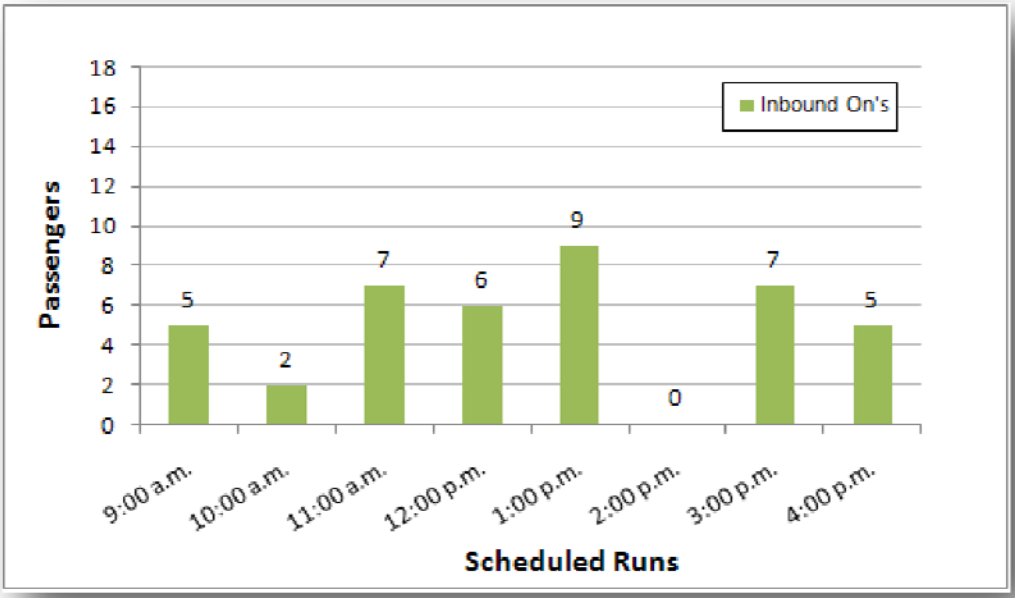


Figure 1.7. Route 102 Outbound Boardings

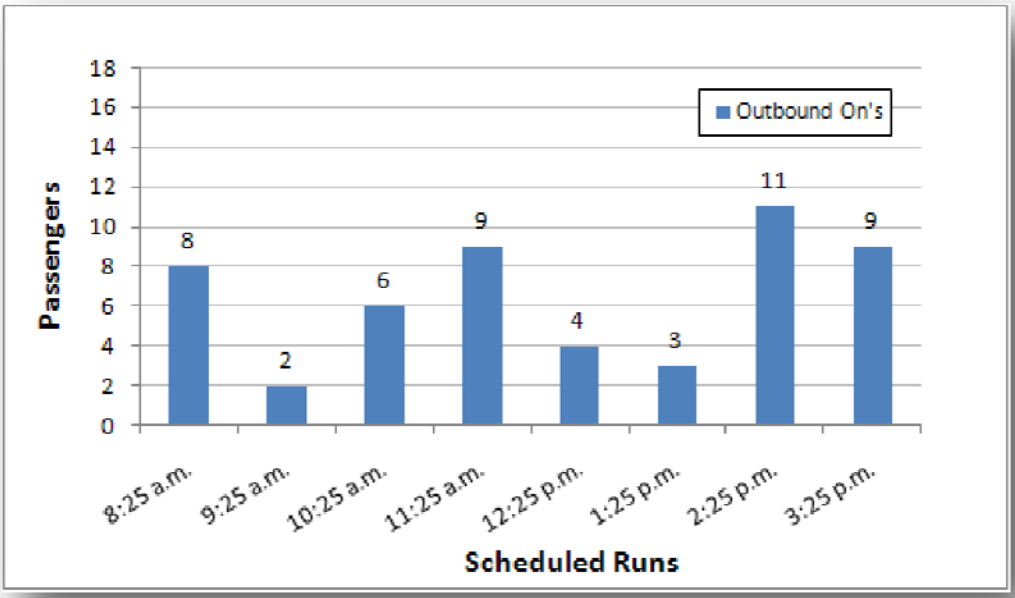
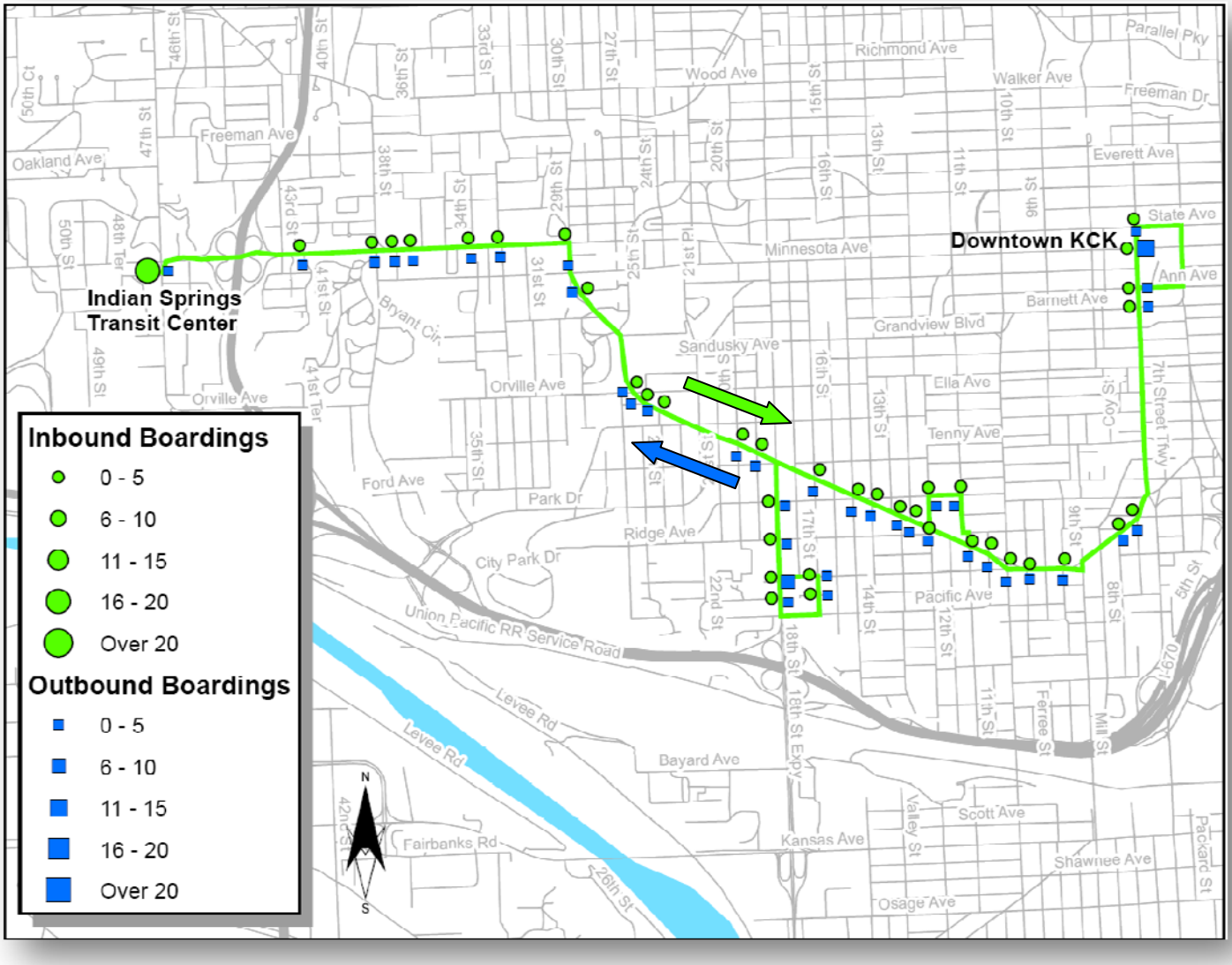


Figure 1.8. Route 102 Inbound and Outbound Boardings

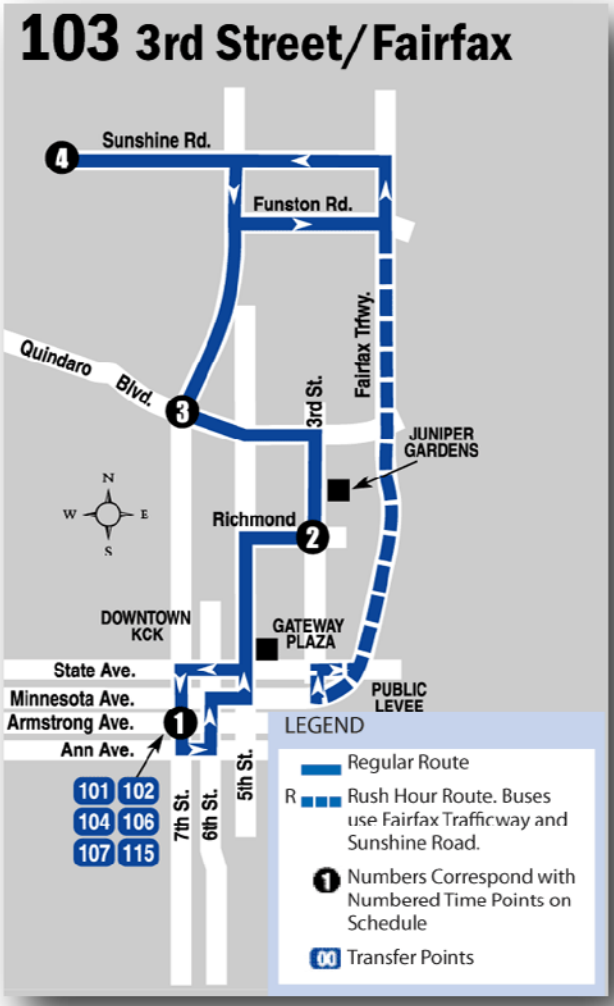


1.4.2 Route 103 3rd Street/Fairfax

- **Operator:** UGT
- **Frequency**: 60 Minutes
- **Service Span**: Weekday, 5:28 am – 6:10 pm
- **Peak Vehicles:** 1
- **Average Daily Ridership:** 116
- **Productivity Rating:** 4th most productive of the 5 UGT Routes
- **Cost per Passenger Rating:** 4th lowest cost of the 5 UGT Routes

The route serves downtown Kansas City, Kansas, Gateway Plaza, Juniper Gardens, 7th Trafficway and Quindaro Boulevard, Sunshine Road, and the Fairfax Trafficway. Route 103 3rd Street/Fairfax is the fourth most productive route in the UGT system, and has the second highest cost per passenger.

Figure 1.9. Route 103 3rd Street /Fairfax Route Map



Route 103 3rd Street/Fairfax has strong peak ridership for the outbound morning trips and again for the inbound afternoon trips. This would indicate morning passengers boarding buses traveling away from Downtown heading northbound and then afternoon passengers returning.

Figure 1.10. Route 103 Inbound Boardings

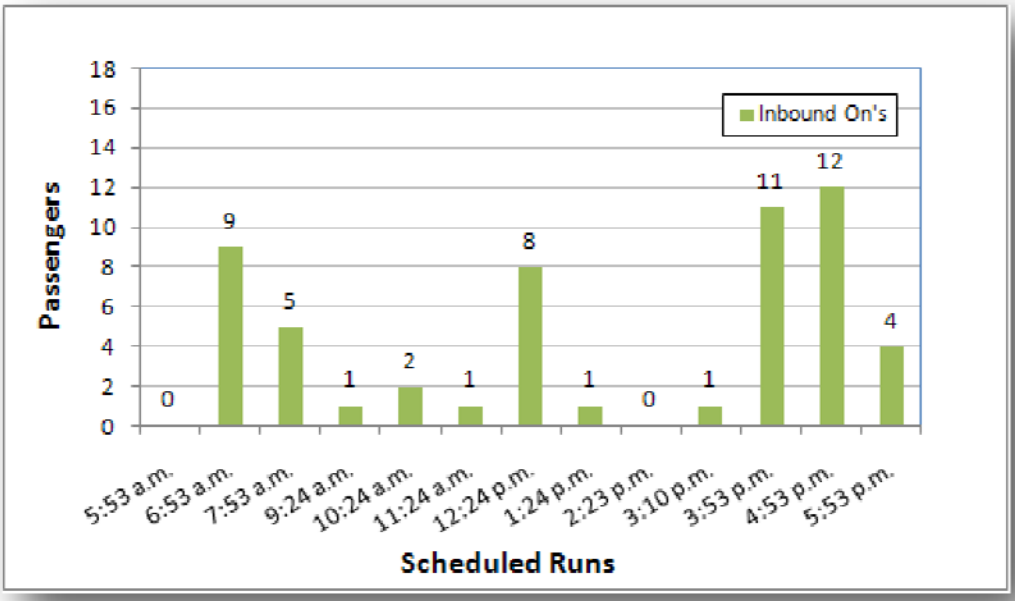


Figure 1.11. Route 103 Outbound Boardings

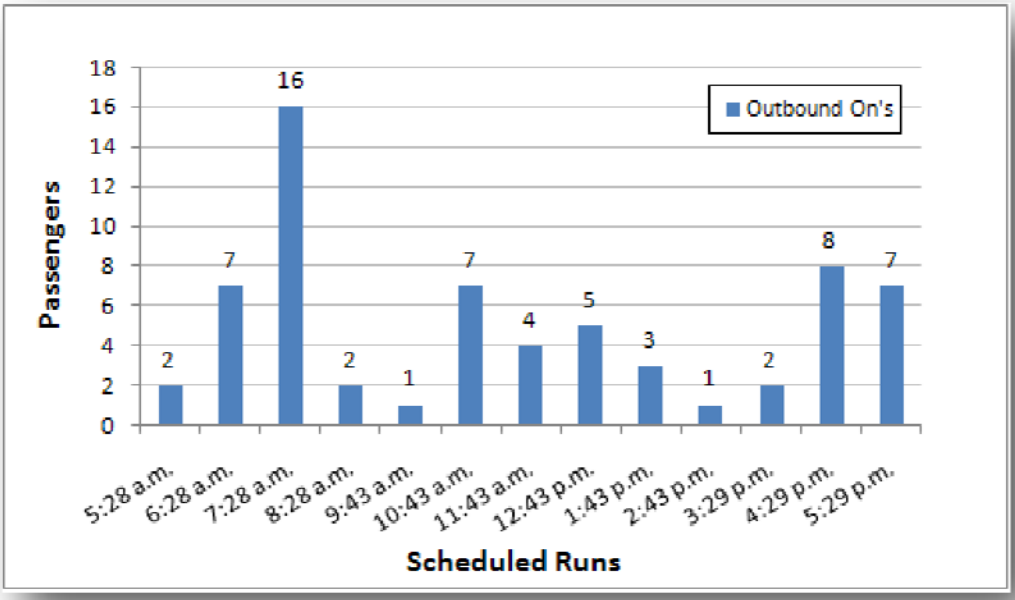
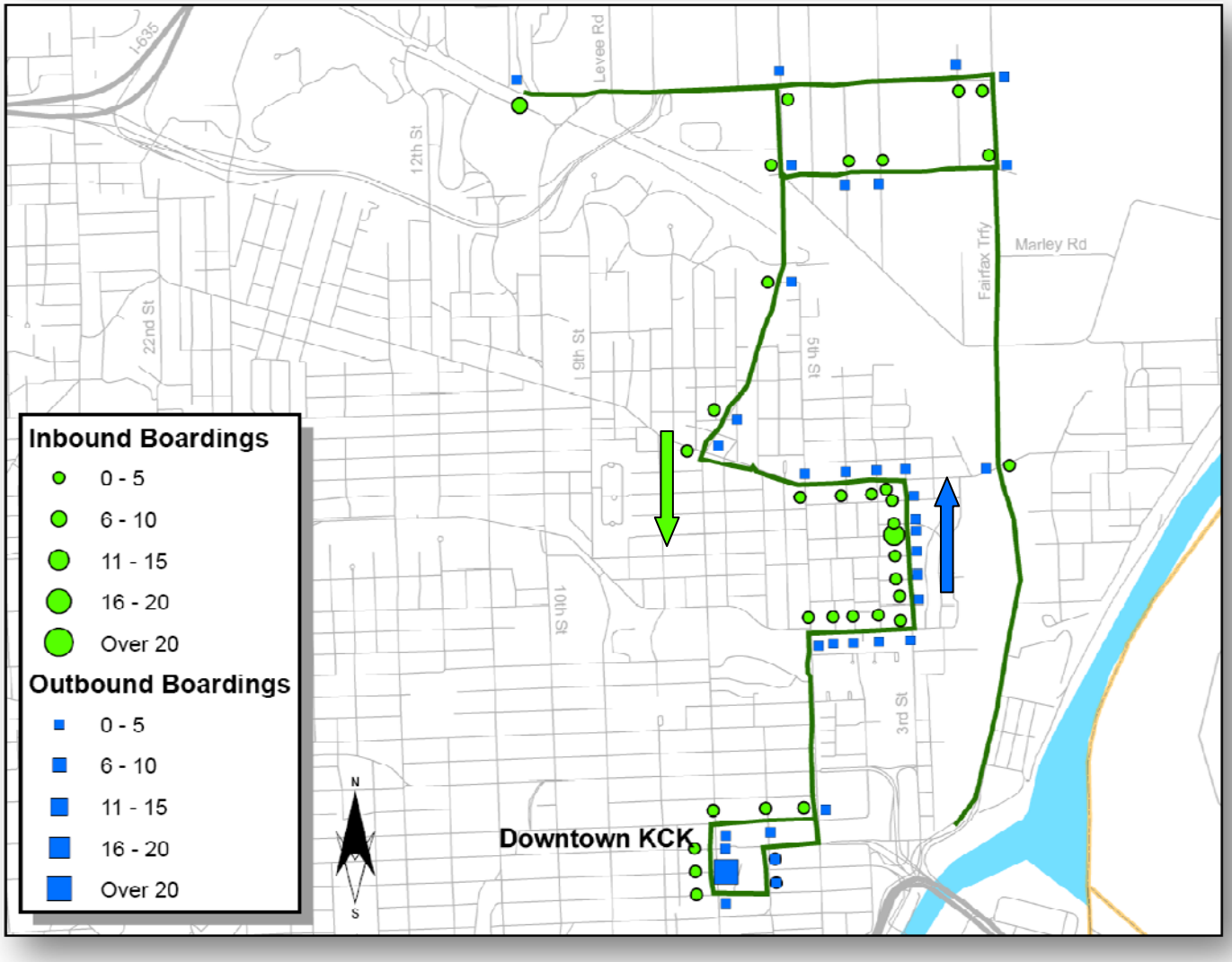


Figure 1.12. Route 103 Inbound and Outbound Boardings

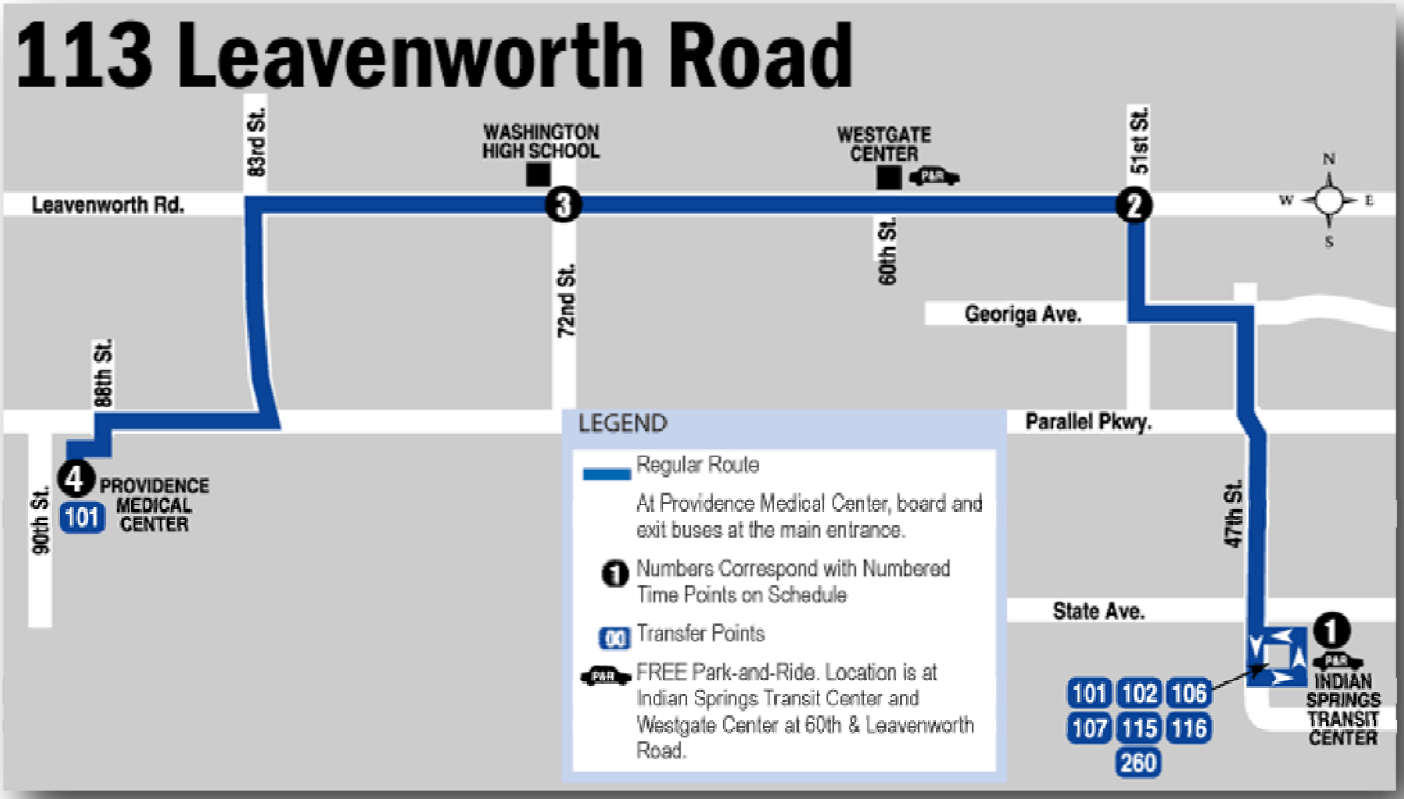


1.4.3 Route 113 Leavenworth Road

- **Operator:** UGT
- **Frequency**: 60 Minutes
- **Service Span**: Weekday, 6:00 am – 6:54 pm
- **Peak Vehicles:** 1
- **Average Daily Ridership:** 150
- **Productivity Rating:** 1st most productive of the 5 UGT Routes
- **Cost per Passenger Rating:** 1st lowest cost of the 5 UGT Routes

The route serves Indian Springs Transit Center, Westgate Center, Washington High School, and Providence Medical Center. Route 113 Leavenworth Road is the most productive route in the UGT system, and has the lowest cost per passenger.

Figure 1.13. Route 113 Leavenworth Road Route Map



Route 113 Leavenworth Road exhibits strong peaking inbound in the morning as passengers travel towards Indian Springs Transit Center, and a definite afternoon outbound peak as passengers travel away from Indian Springs Transit Center. This indicates that Route 113 Leavenworth serves as a neighborhood circulator that picks passengers up in the morning at their home, delivers them to Indian Springs Transit Center to transfer to other routes and then delivers passengers home in the afternoon.

Figure 1.14. Route 113 Inbound Boardings

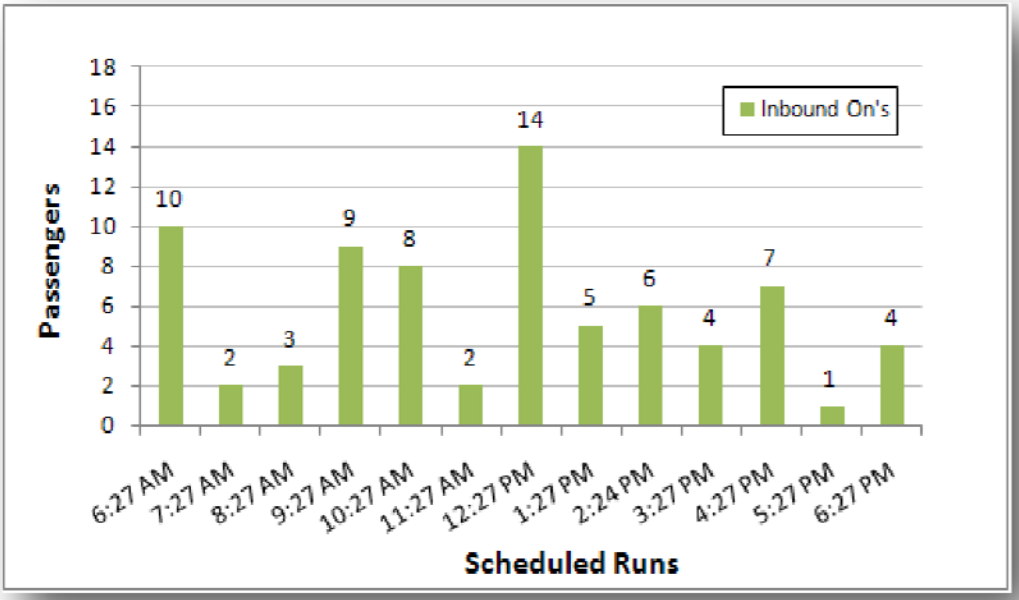


Figure 1.15. Route 113 Outbound Boardings

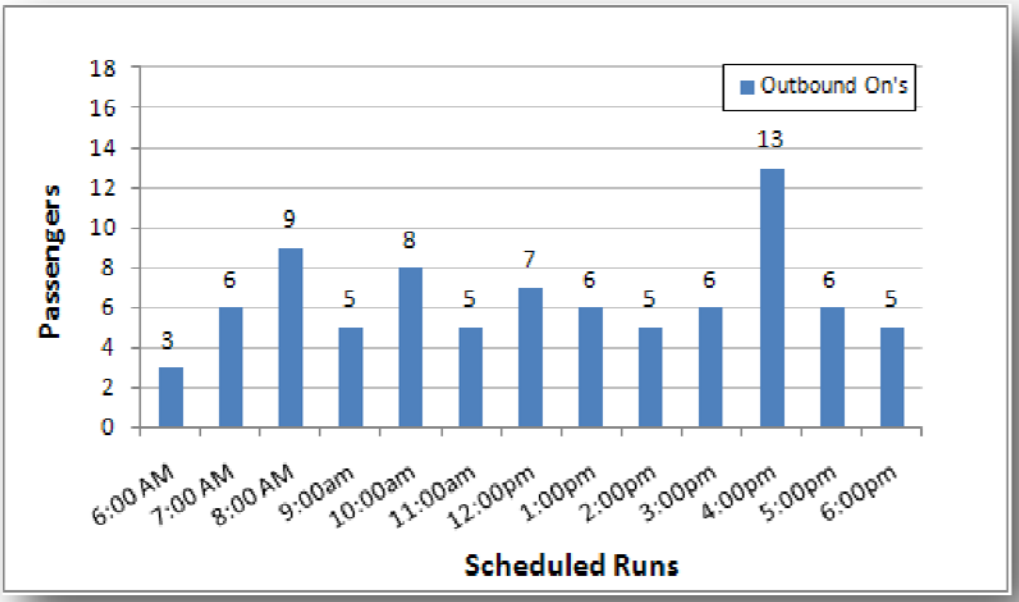
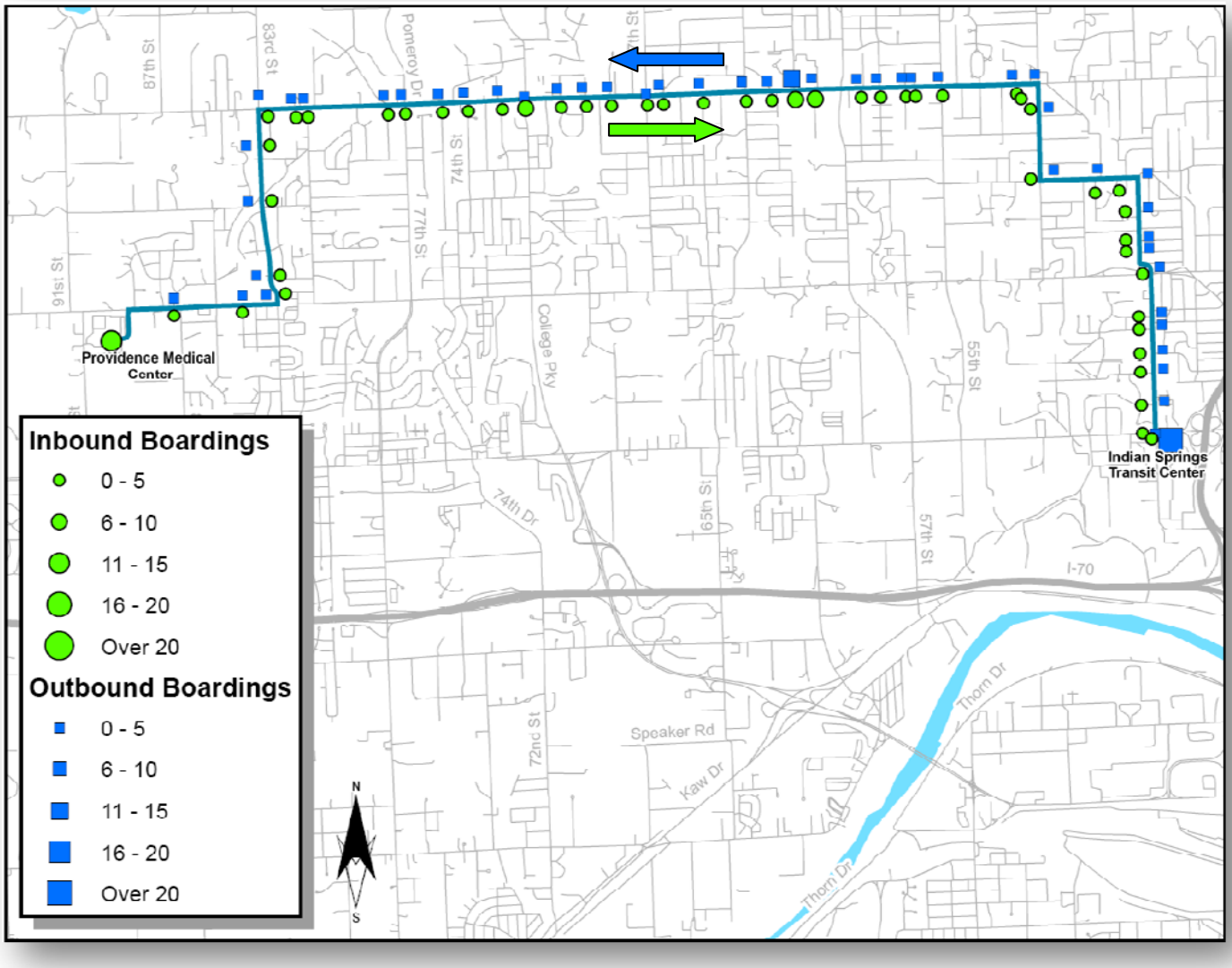


Figure 1.16. Route 113 Inbound and Outbound Boardings

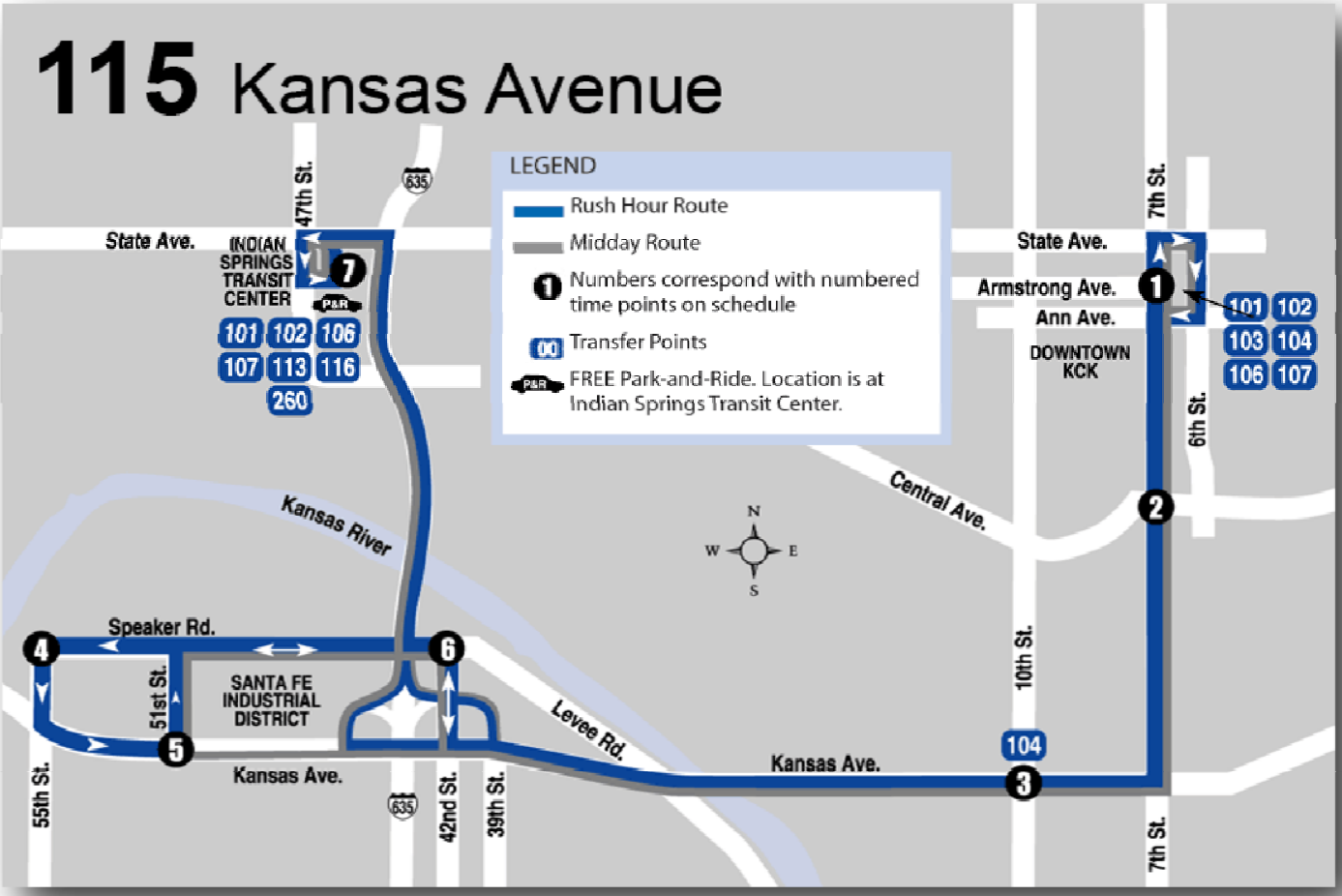


1.4.4 Route 115 Kansas Avenue

- **Operator:** UGT
- **Frequency**: 70 Minutes (**Peak**), 60 Minutes (Off **Peak**)
- **Service Span**: Weekday, 6:00 AM – 6:50 PM
- **Peak Vehicles:** 1
- **Average Daily Ridership:** 98
- **Productivity Rating:** 5th most productive of the 5 UGT Routes
- **Cost per Passenger Rating:** 5th lowest cost of the 5 UGT Routes

The route serves Indian Springs Transit Center, the Santa Fe Industrial District, Kansas Avenue, and downtown Kansas City, Kansas. Route 115 Kansas Avenue has the lowest productivity and financial measures of UGT routes.

Figure 1.17. Route 115 Kansas Avenue Route Map



Route 115 Kansas Avenue exhibits peak characteristics, with the highest ridership in the morning before 8:00 AM and in the afternoon around 3:00 PM. Ridership between those time periods is low, often around 3-4 passengers per run. A **flex route** may be able to serve this level of activity.

Flex Route: A demand response service within a fixed zone. Trips are scheduled in advance to take customers to and from their destinations within the zone. This type of service is used in other communities where ridership in a given area is lower.

Figure 1.18. Route 115 Inbound Boardings

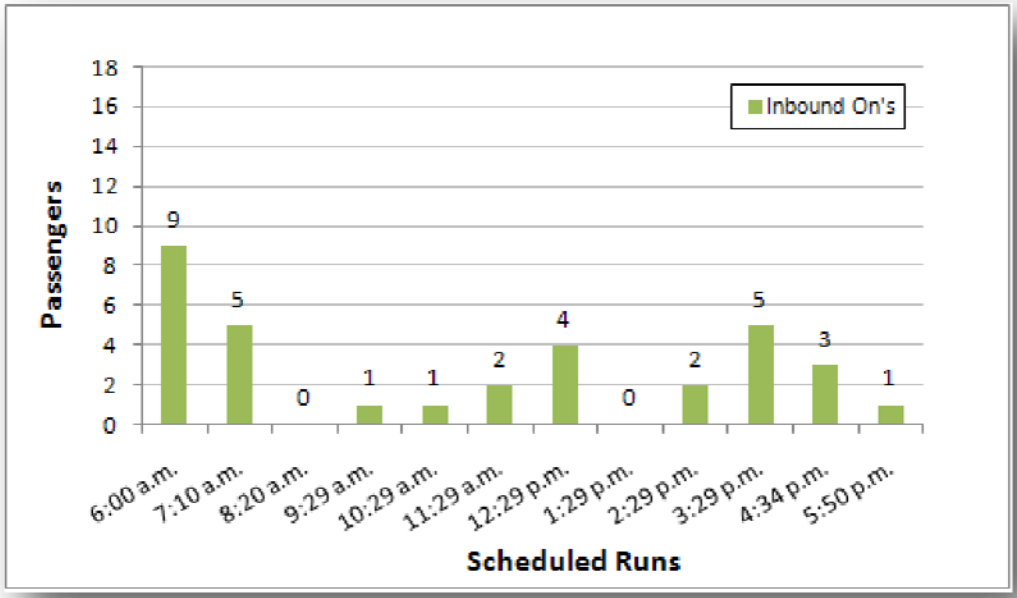


Figure 1.19. Route 115 Outbound Boardings

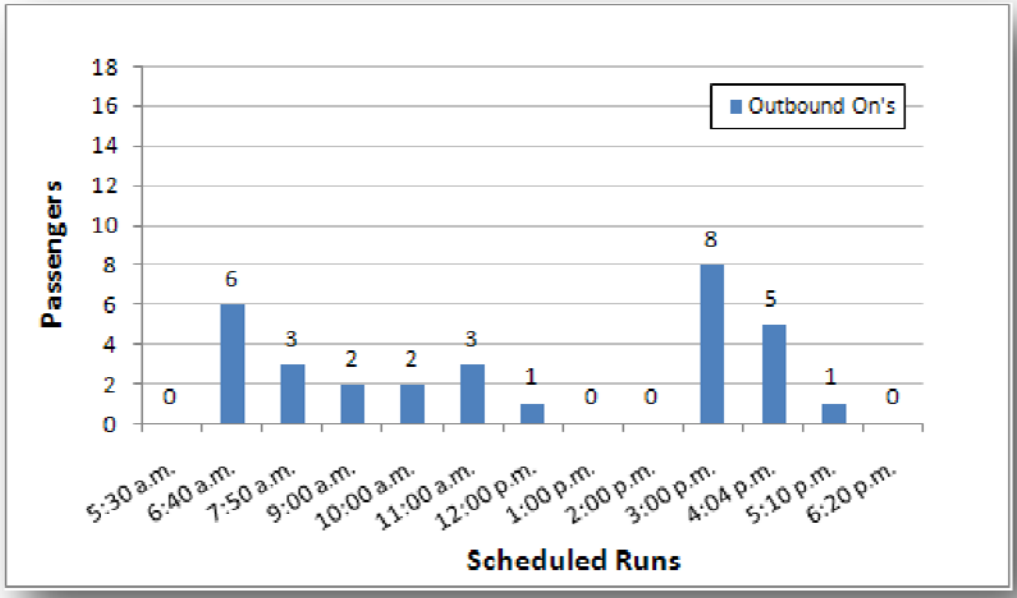
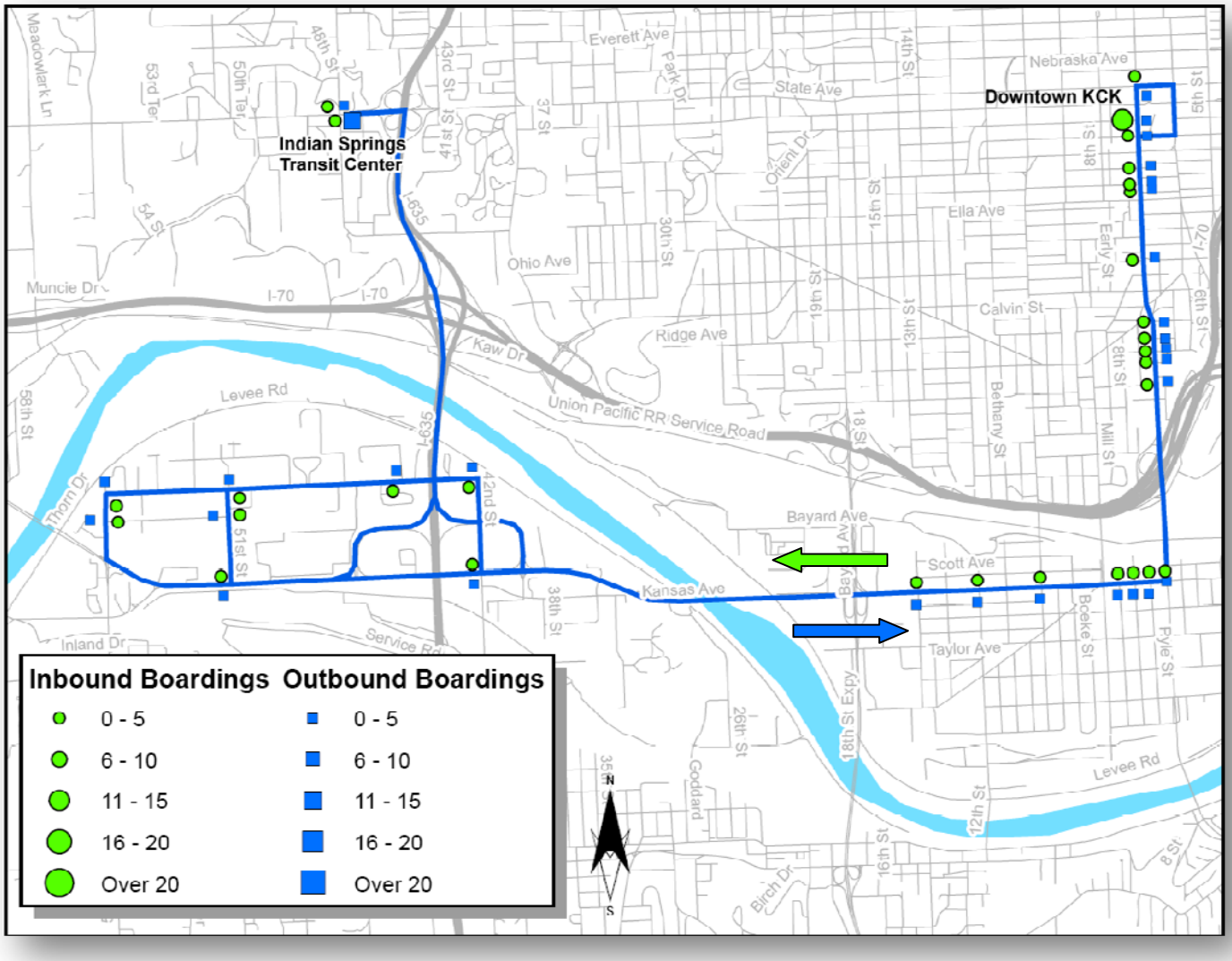


Figure 1.20. Route 115 Inbound and Outbound Boardings



1.4.5 Route 116 West Parallel

- **Operator:** UGT
- **Frequency**: 60 Minutes
- **Service Span**: Weekday, 6:00 AM – 6:55 PM
- **Peak Vehicles:** 1
- **Average Daily Ridership:** 124
- **Productivity Rating:** 3rd most productive of the 5 UGT Routes
- **Cost per Passenger Rating:** 3rd lowest cost of the 5 UGT Routes

The route serves Indian Springs Transit Center, Kansas City Kansas Area Vocational-Technical School, Kansas City Kansas Community College, and Providence Medical Center. Route 116 West Parallel has the third highest productivity and financial measures in the UGT system.

Figure 1.21. Route 116 West Parallel Route Map

Route 116 West Parallel has strong peaks outbound during the morning and inbound during the afternoon. This would indicate the route picking up morning passengers as its travels towards Providence Medical Center, and then picking up passengers in the afternoon as it travels towards Indian Springs Transit Center. This displays a route that delivers passengers to employment destinations, rather than serving their home directly. Both Route 116 West Parallel and Route 113 Leavenworth Road concurrently arrive and depart Indian Springs Transit Center and Providence Medical Center, it is unlikely that passengers are using both routes for different trip portions.

Figure 1.22. Route 116 Inbound Boardings

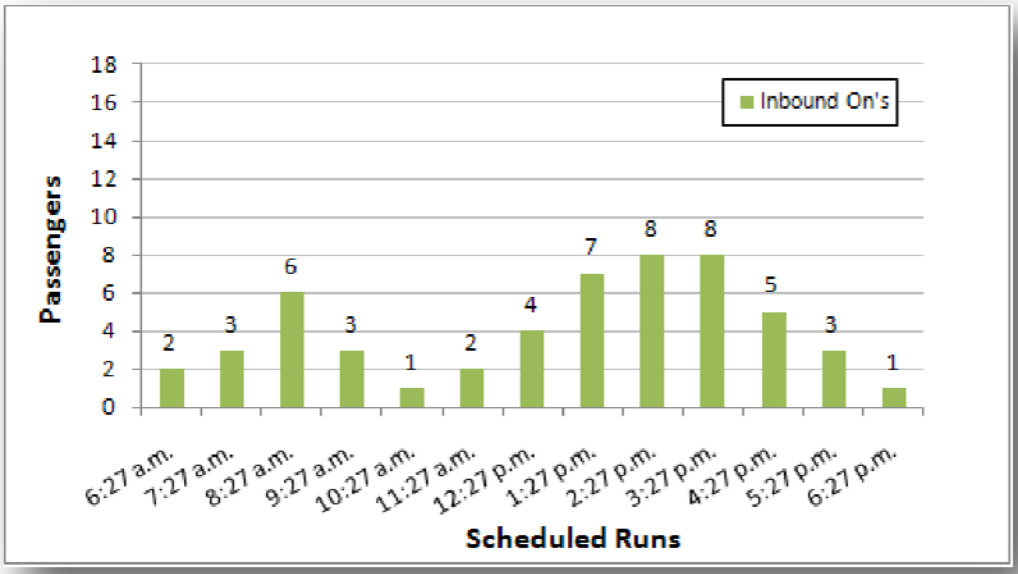


Figure 1.23. Route 116 Outbound Boardings

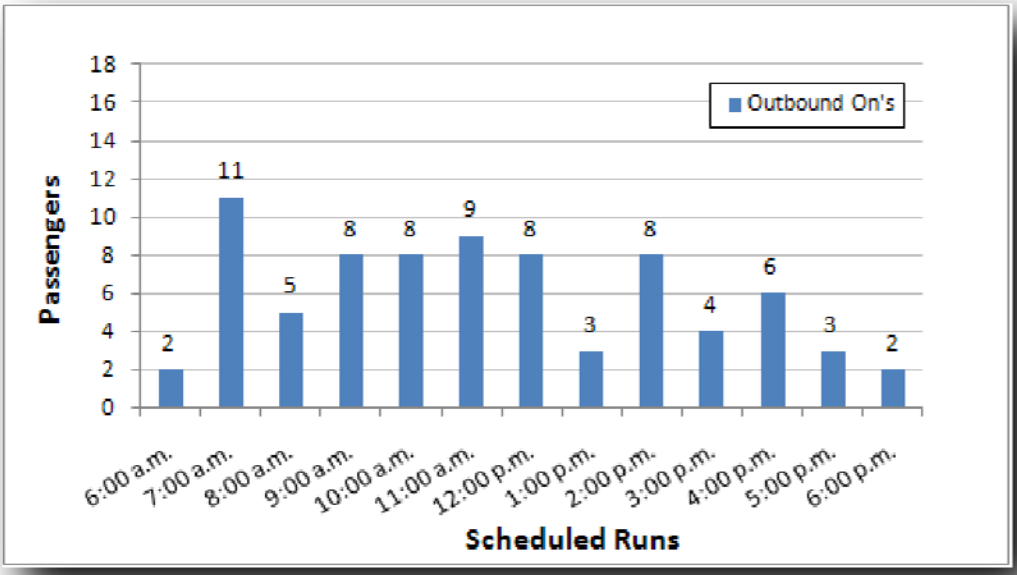
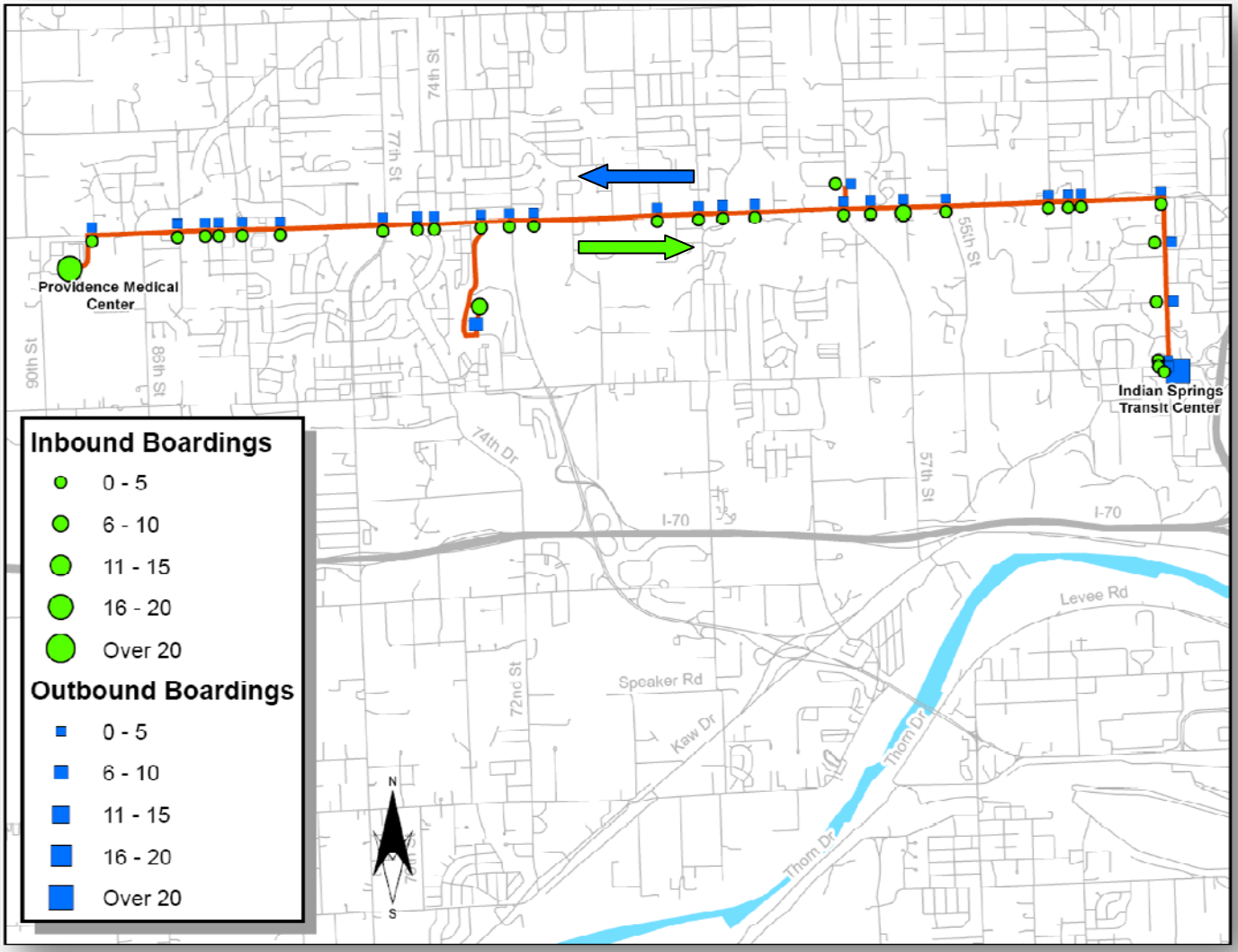


Figure 1.24. Route 116 Inbound and Outbound Boardings

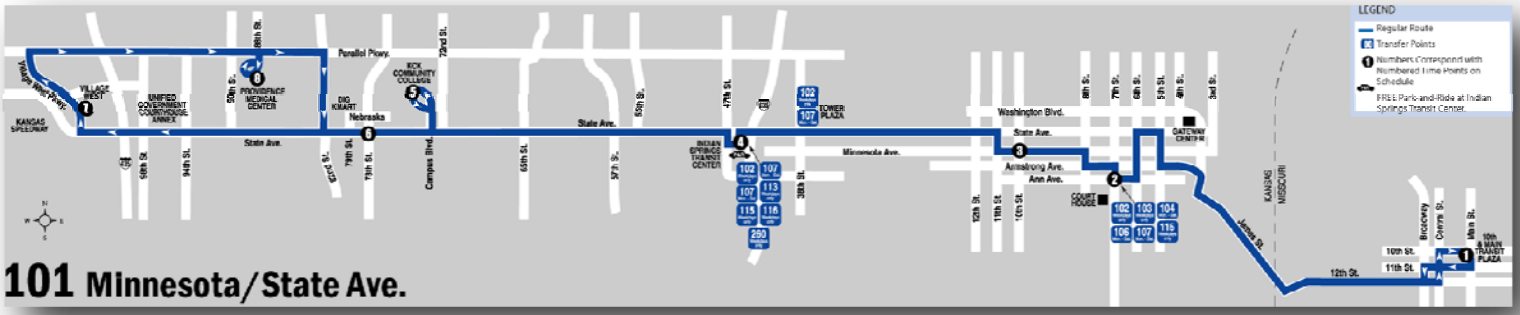


1.4.6 Route 101 Minnesota/State Avenue

- **Operator:** KCATA
- **Frequency**: Weekday, 30 Minutes
  Saturday and Sunday, 60 Minutes
- **Service Span**: Weekday, 5:27 AM – 11:02 PM
  Saturday, 6:35 AM – 6:31 PM; Sunday, 9:06 AM to 6:53 PM
- **Peak Vehicles:** Weekday, 4; Saturday and Sunday, 2
- **Average Daily Ridership** 1,446
- **Productivity Rating:** 2nd most productive out of the 5 KCATA Routes in Wyandotte
- **Cost per Passenger Rating:** 2nd lowest cost out of the 5 KCATA Routes in Wyandotte

The route serves the 10th and Main Transit Center in Kansas City, Missouri, downtown Kansas City, Kansas, Indian Springs Transit Center, Kansas City Kansas Community College, the Village West area, and Providence Medical Center. Route 101 has the second highest weekday productivity of the KCATA operated routes in Wyandotte County, and the second lowest cost per passenger.

Figure 1.25. Route 101 Minnesota/State Avenue Route Map

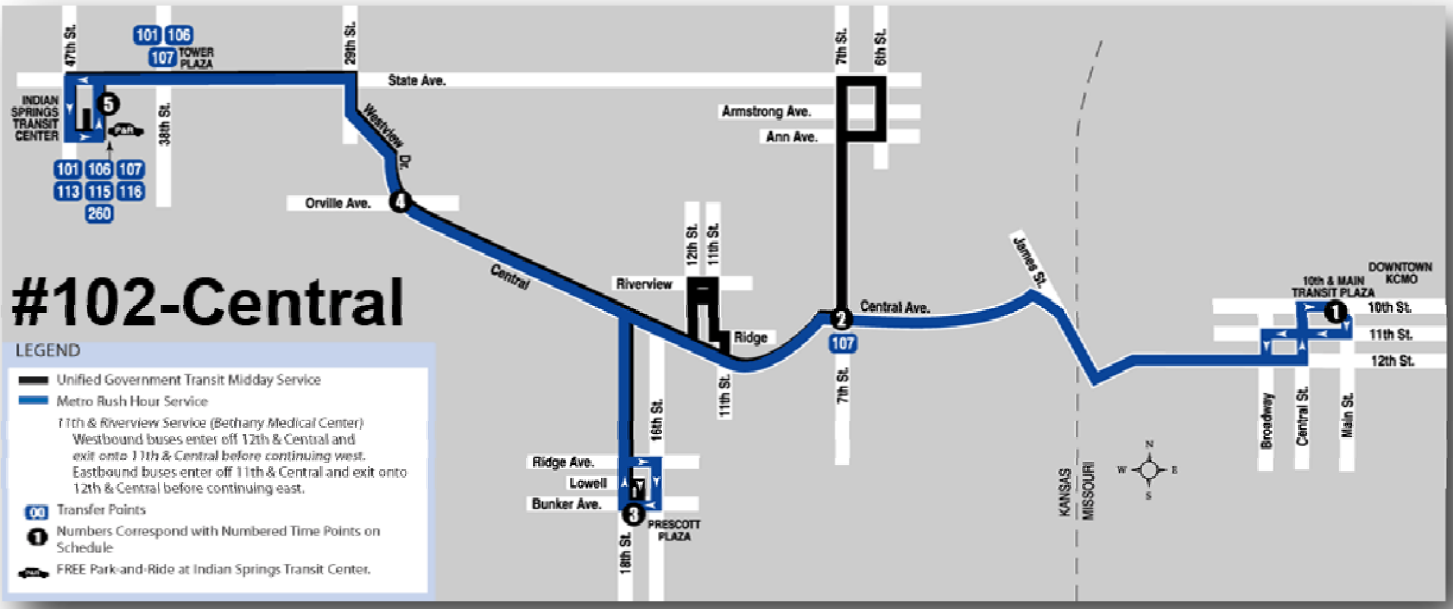


1.4.7 Route 102 Central

- **Operator:** KCATA
- **Frequency**: 33-82 minutes
- **Service Span**: Weekday, 5:21 to 8:37 AM, and 4:09 to 6:40 PM
- **Peak Vehicles:** 1
- **Average Daily Ridership:** 89
- **Productivity Rating:** 5th most productive out of the 5 KCATA Routes in Wyandotte
- **Cost per Passenger Rating:** 5th lowest cost out of the 5 KCATA Routes in Wyandotte

The route serves the 10th and Main Transit Center in Kansas City, Missouri, 7th Street and Central Avenue, Prescott Plaza, and Indian Springs Transit Center. For the KCATA operated portions, the route has the lowest productivity measures, and the highest cost per rider compared to the other KCATA routes.

Figure 1.26. Route 102 Central Route Map

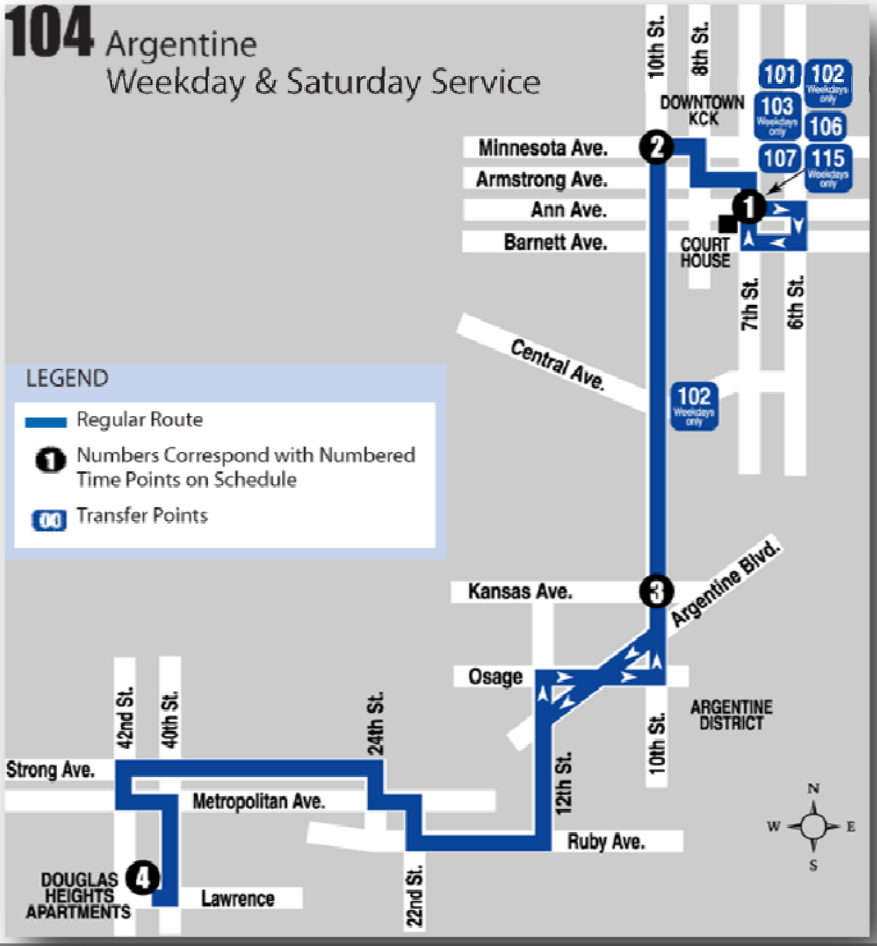


1.4.8 Route 104 Argentine

- **Operator:** KCATA
- **Frequency**: Weekday, 30 Minutes
  Saturday, 60 Minutes
- **Service Span**: Weekday, 5:14 AM – 10:21 PM
  Saturday, 6:49 AM to 6:46 PM
- **Peak Vehicles:** Weekday, 2; Saturday, 1
- **Average Daily Ridership:** 366
- **Productivity Rating:** 3rd most productive out of the 5 KCATA Routes in Wyandotte
- **Cost per Passenger Rating:** 3rd lowest cost out of the 5 KCATA Routes in Wyandotte

The route serves 7th Street and Armstrong Avenue, 10th Street and Minnesota Avenue, 10th and Kansas in the Argentine District, and 40th Street and Lawrence Avenue at the Douglas Heights Apartments. Route 104 Argentine is the third most productive KCATA operated route in Wyandotte County, and has the third lowest cost per passenger.

Figure 1.27. Route 104 Argentine Route Map

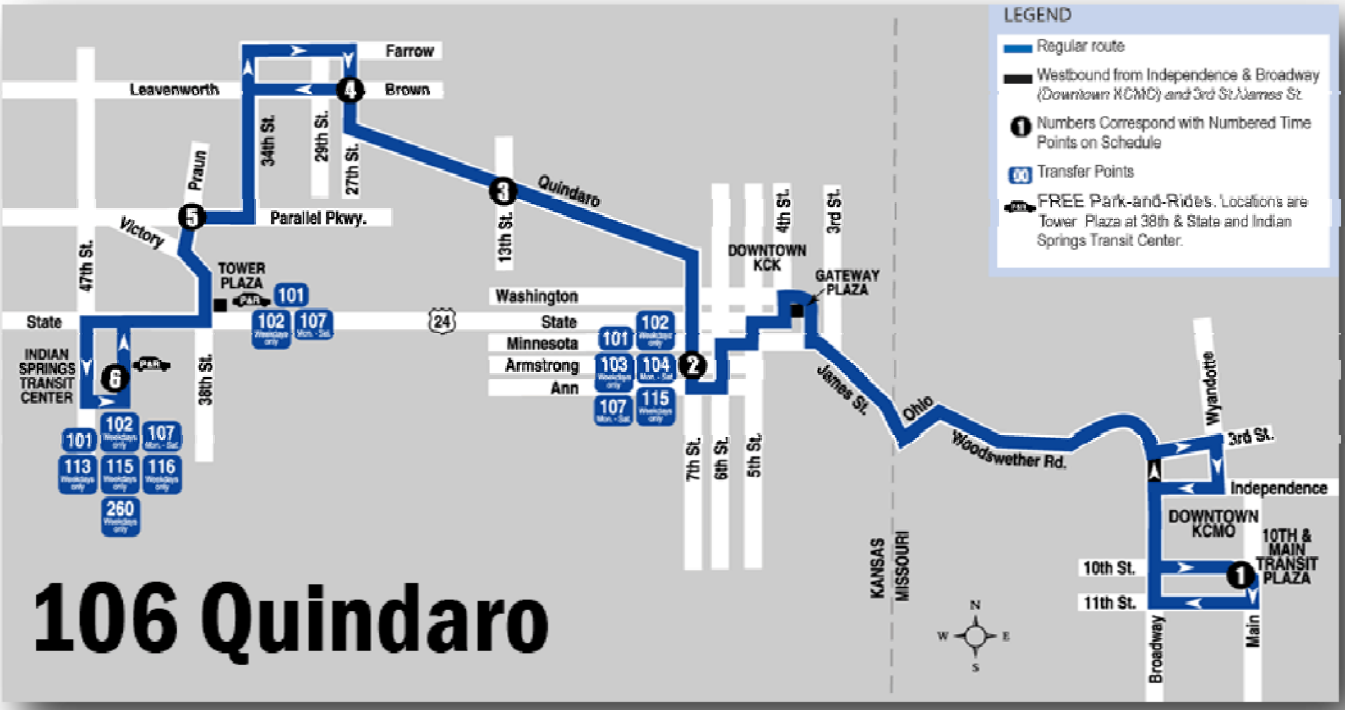


1.4.9 Route 106 Quindaro

- **Operator:** KCATA
- **Frequency**: Weekday, 25-32 Minutes
  Saturday, 60 Minutes
- **Service Span**: Weekday, 4:37 AM – 11:35 PM
  Saturday, 6:06 AM to 8:01 PM
- **Peak Vehicles:** Weekday, 4; Saturday, 2
- **Average Daily Ridership:** 1,232
- **Productivity Rating:** 1st most productive out of the 5 KCATA Routes in Wyandotte
- **Cost per Passenger Rating:** 1st lowest cost out of the 5 KCATA Routes in Wyandotte

The route serves the 10th and Main Transit Center in Kansas City, Missouri, Gateway Plaza, 7th Street and Armstrong Avenue, Quindaro Boulevard, Tower Plaza at 38th Street and State Avenue, and Indian Springs Transit Center. Route 106 Quindaro is the most productive route that KCATA operates in Wyandotte County, and has the lowest cost per passenger.

Figure 1.28. Route 106 Quindaro Route Map

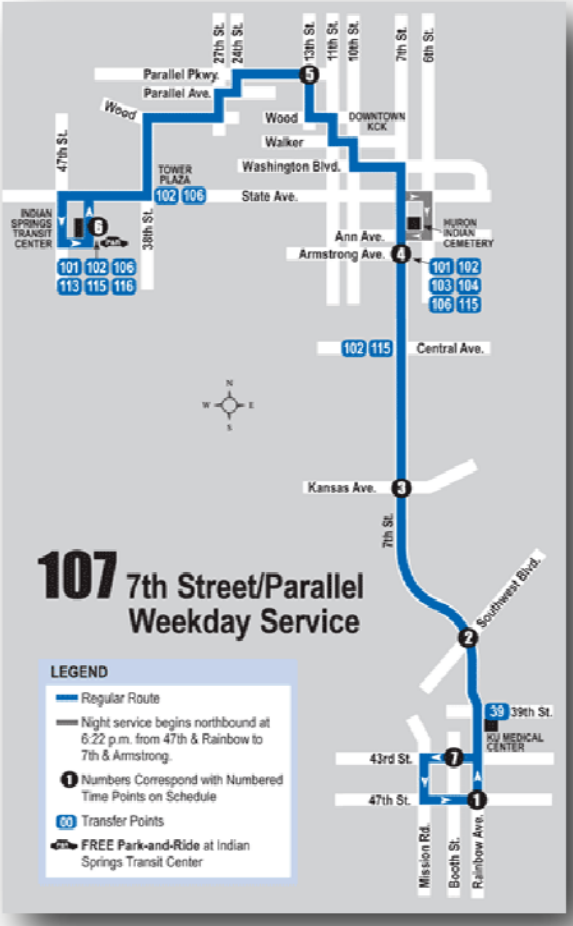


1.4.10 Route 107 7th Street/Parallel

- Operator: KCATA
- **Frequency**: Weekday, 21-32 Minutes
  Saturday, 60 Minutes
- **Service Span**: Weekday, 5:30 AM – 7:12 PM
  Saturday, 5:49 AM to 6:47 PM:
- **Peak Vehicles:** Weekday, 2; Saturday, 1
- **Average Daily Ridership:** 541
- **Productivity Rating:** 4th most productive out of the 5 KCATA Routes in Wyandotte
- **Cost per Passenger Rating:** 4th lowest cost out of the 5 KCATA Routes in Wyandotte

The route serves the Indian springs Transit Center, the Tower Plaza Park & Ride at 38th Street and State Avenue, Parallel Parkway and 13th Street, Downtown Kansas City, Kansas, 7th Street, and the KU Medical Center. Route 107 has the second lowest productivity and the second highest cost of the KCATA routes in Wyandotte County.

Figure 1.29. Route 107 7th Street /Parallel Route Map



1.5 SYSTEM PERFORMANCE

Table 1.4 shows a comparison of UGT's and other cities' cost and revenue statistics for transit services. This information was gathered from the National Transit Database which presents operating statistics in a uniform format from transit agencies receiving federal funding. A variety of regional and Midwestern transit operators were chosen. Total cost per platform mile, total cost per platform hour and fare recovery ratio (a percentage of operating costs recovered through collected fares), were compared. UGT's fare recovery ratio was determined by multiplying fare revenue records from October 2009 by the number of annual service days. Weekday ridership and population are included to indicate the type of city and transit system. All UGT data is from 2009; the peer cities data is from 2008 and was adjusted for inflation.

Table 1.4. UGT's and Peer Cities' Cost and Revenue Statistics

System	Total Cost Per Platform Mile	Total Cost Per Platform Hour	Average Weekday Ridership	Fare Recovery Ratio	Population	Funding Source
The T *Lawrence, KS*	$3.41	$45.41	1,498	9.6%	79,647	0.25% Sales Tax
TMTA *Topeka, KS*	$4.99	$74.78	6,682	8.0%	142,411	General Mill Levy
StarTran *Lincoln, NE*	$5.03	$67.28	7,393	14.1%	226,582	General Mill Levy
St. Joseph Transit *St. Joseph, MO*	$5.12	$56.62	1,330	5.5%	77,231	3/8 Cent Sales Tax, 1% Utilty Tax
CyRide *Ames, IA*	$5.34	$56.74	17,272	4.6%	51,726	.6182 dedicated mill levy, Student Fee
Columbia Transit *Columbia, MO*	$5.63	$53.41	7,191	6.8%	98,779	Shared 1/2 Cent Sales Tax
KCATA* *Only Independence, MO*	$6.07	$73.77	785	15.2%	121,180	General Mill Levy
UGT** *Kansas City, KS*	$6.94	$84.27	577	3.3%	143,209	General Mill Levy
Peer Cities Average	$5.32	$64.04		8.4%		

**2010 Ridership and Costs*

***2009 Ridership and Costs*

Source: National Transit Database (2008 figures, 2008 costs adjusted for 2.85% inflation)

Peer cities have an average total cost of $5.32 per platform mile, and $64.04 per platform hour. This is lower than UGT's total cost of $6.94 per platform mile, and $84.27 per platform hour. The fare recovery ratio for UGT is 3.3 percent. UGT's figure is the lowest fare recovery ratio among the peer group, and is lower than the peer group average of 8.4 percent.

Table 1.5 compares the performance of UGT routes to routes of similar nature in the KCATA system. The median derived standard provides a more meaningful comparison than using an arbitrary standard, and allows comparisons to be made over time. This allows for any circumstances affecting ridership for the entire region, such as gas prices, to be reflected as an automatic adjustment of the standard.

Table 1.5. UGT's and KCATA's Operating and Cost Statistics

	Route	Route Name	Average Daily Ridership	Daily Hours	Daily Miles	Passengers/ Hour	Passengers/ Mile	Direct Op. Cost/Passenger	Direct Operating Cost Recovery
UGT Routes	102	Central Avenue	89	8.0	110	11.17	0.81	$5.82	7.6%
	103	3rd Street/Fairfax	116	12.7	111	9.13	1.04	$7.12	4.8%
	113	Leavenworth	150	12.9	236	11.63	0.64	$5.59	8.8%
	115	Kansas Avenue	98	13.5	298	7.24	0.33	$8.98	2.4%
	116	West Parallel	124	12.9	265	9.60	0.47	$6.77	5.7%
KCATA Routes	136	Boardwalk/Antioch	43	9.2	162	4.67	0.27	$7.79	11.9%
	137	Metro North/Antioch	59	6.9	101	8.55	0.58	$4.22	15.0%
	156	Red Bridge Connector	462	44.4	607	10.41	0.76	$3.69	20.3%
	183	Green Independence	192	11.4	155	16.84	1.24	$2.28	27.4%
	243	Antioch/Barry Conn.	72	16.1	251	4.47	0.29	$8.06	11.7%
	251	TMC Lakewood Conn.	59	17.0	296	3.47	0.20	$10.52	6.8%
	284	Purple Independence	130	14.0	163	9.29	0.80	$3.78	13.7%
	285	Blue Independence	128	13.1	162	9.77	0.79	$3.59	24.9%
	291	Yellow Independence	91	6.5	89	14.03	1.02	$2.74	35.9%
	292	Orange Independence	102	11.3	113	9.03	0.90	$3.81	14.4%
	293	Red Independence	142	7.1	89	20.02	1.60	$1.89	42.7%
		Standard				**10.39**	**0.85**	**$4.42**	**14.1%**

Standard is 110% of the median value

Less than or equal to 50% of the standard

Between 50-75% of the standard

Greater than or equal to 125% of the standard

Notes: Routes 102, 103, 113, 115, 116 daily hours and miles from July 2010, KCATA
Remaining route information from March 2010, KCATA

The UGT routes have a higher cost per mile and per hour than the other peer cities and higher direct operating costs than similar routes in the Kansas City metropolitan area. This budget review identified several areas of interest, which may explain UGT's costs per platform mile and hour being higher.

UGT's low recovery ratios may be explained through a variety of reasons. Revenues may be lower due to how bus passes between systems are handled. The UGT and KCATA do not have a bus pass sales revenue agreement. The UGT does not produce its own bus passes, but does accept KCATA bus passes as a valid fare medium. While convenient to the transit user, this allows KCATA bus pass holders to ride UGT buses without UGT seeing any resulting revenue.

In addition, the procedure to process fares at the end of a shift leaves opportunities for mishandling fares. Currently, fares are counted from each farebox without any verification procedures. Industry best practices typically recommend a dedicated money counting room with strict entry controls, electronic controls, records kept of entering personnel and written procedures requiring two or more people to be in the room. Farebox vaults that minimize non-authorized personnel exposure to fare revenue can also be used. Finally, consistent fare collection is an industry-wide challenge. As with many systems, no monitoring system is in place to ensure that operators consistently collect full fare. Some transit agencies are now using electronic fare media to reduce these occurrences. It should be stressed that no

mismanagement of fares was identified or implied during the course of this study, only that current procedures create opportunities that may cause low fare revenue collection.

1.6 FIXED ROUTE BUDGET

Transit services are provided by both the UGT directly and through a contract of services with the KCATA. The cost of contracting service to the KCATA was $4.7 million in 2009. The UG paid about $1.7 million for these services, as shown in Table 1.6.

Table 1.6. 2009 Transit Funding Sources

	UG Routes	KCATA Routes (WyCo)	Total
Passenger Fares	$56,000	$579,068	$635,068
Federal Government			
FTA Formula Funds		$723,947	$723,947
Jobs Access		$381,729	$381,729
CMAQ		$854,400	$854,400
State of Kansas		$460,462	$460,462
Unified Government	$1,663,034	$1,717,630	$3,380,664
Total	***$1,719,034***	***$4,717,236***	***$6,436,270***

The UGT 2009 budget for the UGT operated routes was $1.7 million, and operated 17,000 miles and 286,000 hours. Table 1.7 provides details on the UGT expenditures for UGT operated routes for 2009. The cost and budget information was compiled by examining expenditure reports, pay scales, driver assignment sheets and maintenance records. Expenditures were also categorized as either a fixed cost or a variable cost. This allowed the cost of providing each additional unit of service, such as by mile, by hour or by route to be separated from the costs of administrating the service. This is a standard method of determining transit system costs on a unit basis. The total cost per mile including overhead is $6.94, or $84.27 per hour. The overhead rate, or total fixed costs as a percentage of total variable costs, is 54.6 percent.

Table 1.7. UGT 2009 Expenditures

2009 Expense Account (Transit Program) - 20 Drivers	Total Cost	Variable Cost		Fixed Cost
		Vehicle Hours	Vehicle Miles	
Vehicle Operations and Maintenance				
Labor				
Drivers Salaries and Wages	$ 724,260	$ 724,260		
Dispatcher Salaries and Wages	$ 37,877			$ 37,877
Mechanic Salaries and Wages	--		--	
Fringe Benefits				
Drivers Fringe Benefits	$ 180,133	$ 180,133		
Dispatcher's Fringe Benefits	$ 5,921			$ 5,921
Mechanic Fringe Benefits				
Contract Maintenance Services	$ 116,521		$ 116,521	
Materials & Supplies				
Fuel & Lubricants				
Gasoline (110 5351)	$ 2,744		$ 2,744	
Diesel Fuel (110 5252)	$ 75,161		$ 75,161	
Vehicle and Equipment Fluids				
Gasoline (266 5351)	$ -			
Tires & Tubes				
Vehicle Parts/Supplies (110 5359)	$ 12,900		$ 12,900	
Vehicle Parts/Supplies (266 5359)	$ -			
Other Parts and Supplies				

Table 1.7 (cont.) UGT 2009 Expenditures

Vehicle Licensing & Registration Fees				
Purchased Transportation				
Depreciation -- Passenger Revenue Vehicles				
Depreciation -- Maintenance Facilities				
Insurance --Passenger Revenue Vehicles				
Leases & Rentals -- Passenger Revenue vehicles				
Lease or Rental for Maintenance Facilities				
General Administrative				
Labor				
Transportation Manager's Salaries and Wages	$ 80,954			$ 80,954
Director's Salaries and Wages	$ 68,058			$ 68,058
Other Administrative Salaries & Wages	$ 74,630			$ 74,630
Fringe Benefits				
Transportation Manager's Fringe Benefits	$ 11,842			$ 11,842
Director's Fringe Benefits	$ 5,921			$ 5,921
Other Administrative Fringe Benefits	$ 27,642			$ 27,642
Other Personnel Costs	$ 252,560			$ 252,560
Professional & Technical Services				
Other Specialty Service Fees	$ 571			$ 571
Physician & Medical Services	$ 572			$ 572
Other Contractual Services (110 5299)	$ -			$ -
Other Professional Services	$ -			$ -
Other Contractual Services (220 5299)	$ -			$ -
Other Professional Serivces (110 5279)	$ 8,509			$ 8,509
Legal Printing & Advertising	$ 46			$ 46
Printing and Duplicating	$ 1,087			$ 1,087
Postage	$ -			$ -
Materials and Supplies				
Food and Beverage	$ 1,470			$ 1,470
Natural Gas	$ -			$ -
Main/Constructuion Materials	$ 641			$ 641
Office Supplies	$ 4,895			$ 4,895
Office Equipment/Furniture $5,000 or Less	$ 1,153			$ 1,153
Utilities				
Telephone	$ 2,352			$ 2,352
Municipal Waste Charges	$ -			$ -
Insurance (other than Pass Rev Vehicles)				
Insurance and Notary Bonds	$ 549			$ 549
Depreciation on Buildings & Equipment	$ -			$ -
Miscellaneous Expenses				
Dues & Subscriptions	$ 300			$ 300
Travel & Meetings	$ -			$ -
Repair/Maint-Bldgs/Grounds	$ 674			$ 674
Repair/Maint-Equip, Machinery	$ 940			$ 940
Food and Beverage	$ 1,471			$ 1,471
Leases & Rentals				
General Administration Facilities	$ -			$ -
Rent/Lease-Uniform Clothing	$ 12,261			$ 12,261
Rent/Lease-Equipment, Machinery	$ 4,419			$ 4,419
Total Costs	$ 1,719,034	$ 904,393	$ 207,326	$ 607,315
Annual Operating Statistics (Hours, Miles)		18,360.00	260,100.00	
Operating Unit Cost		$ 49.26 Per Hour	$ 0.80 Per Mile	
Annual Indirect Mileage Cost:				$ 2.33 Per Mile
Total Cost Per Hour				$ 93.63
Total Cost Per Mile				$ 6.61
Overhead Rate (Total Fixed Cost as a % of Total Variable Cost)		54.63%		

Key:
Blue: Line item directly from U.G. Budget
Black: Line item from other UG sources

1.7 FACILITIES AND VEHICLES

UGT operates out of the UG Fleet Center at 5033 State Avenue, Kansas City, Kansas. This facility also contains the staff that maintains all of the UG vehicles for the public works department, police department and city personnel.

The Transportation Department maintains 41 vehicles used for fixed route, dial-a-ride, senior group transportation, aging services and support vehicles. The fixed route program uses 15 El Dorado 22-passenger buses. The dial-a-ride program utilizes 5 vehicles.

Many bus stops on KCATA routes in Wyandotte County feature KCATA-maintained blade signs, shelters with benches and KCATA route schedule information. Bus stops served only by UGT routes feature blade signs.

KCATA operated routes utilize 30 foot Gillig heavy duty coaches with a seating capacity of 23.

The Indian Springs Transit Center is located adjacent to the former Indian Springs Shopping Center. Accommodations for up to seven transit coaches currently exist by taking advantage of existing infrastructure associated with the former mall. Amenities are limited and include only a single bus shelter, a trash receptacle and limited route signage. There is an absence of lighting and very limited landscaping.

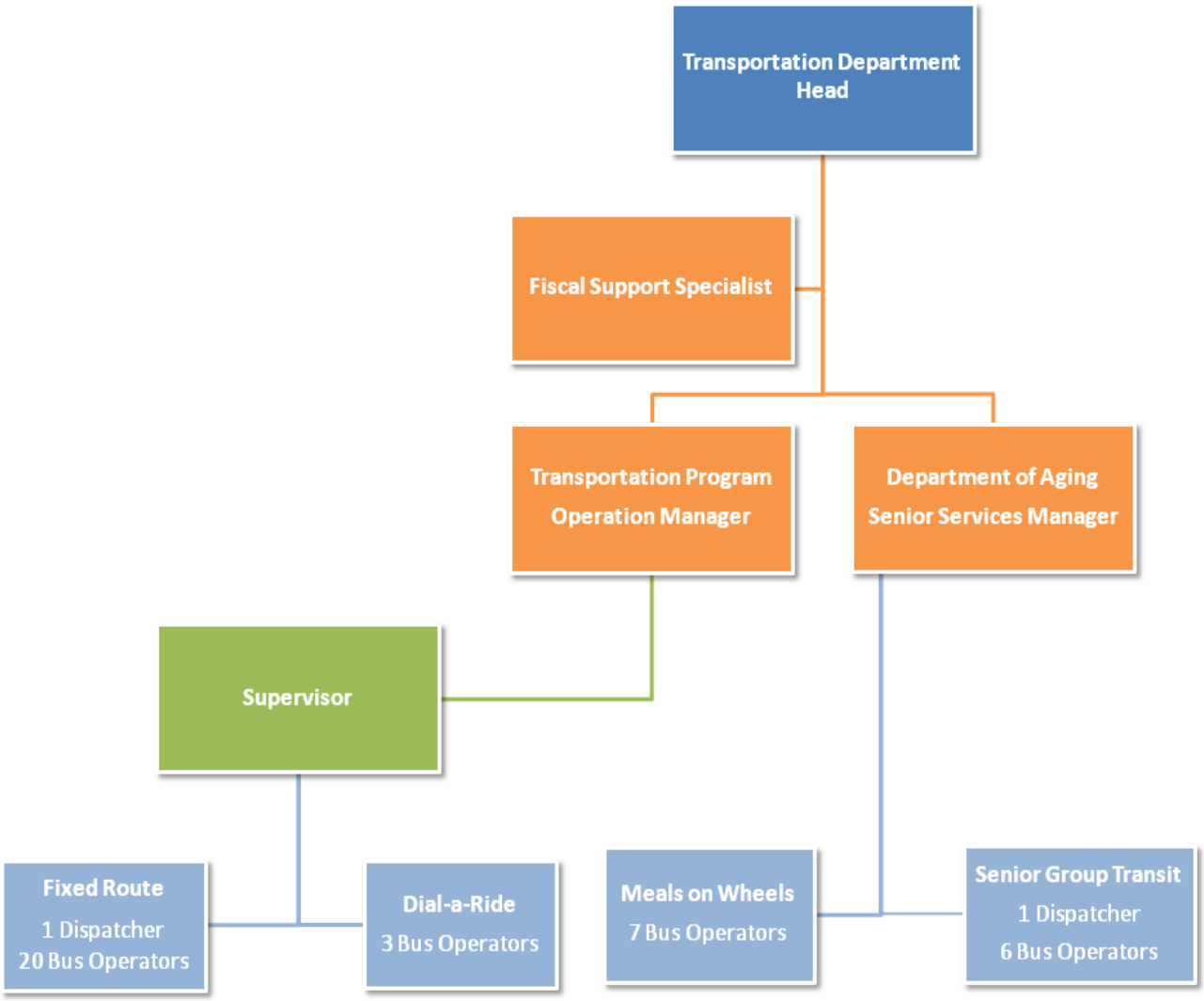
Figure 1.30. Indian Springs Transit Center

1.8 MANAGEMENT AND OPERATIONS

1.8.1 Organizational Structure

The Transportation Department operates as a separate unit in the Unified Government, and oversees the transit program and the drivers of the aging programs. Figure 1.31 shows the organizational chart for the Transportation Department. Drivers and dispatchers are listed according to how those positions are allocated in the respective program budget.

Figure 1.31. UGT Organizational Chart



Transit, dial-a-ride, demand response and aging are separate units within the Transportation Department with separate budgets. In some cases, salaries and benefits for non-transit staff are allocated to the transit program.

For instance, UGT assigns nine daily drivers to operate five fixed routes. Three or four additional drivers are assumed to be required as spare operators for a total of 12 or 13 drivers required for UGT fixed route operations. However, expenditures reflect approximately 20

driver positions in the transit program, plus the entire salaries of the director, operation manager, and supervisor, even though those positions provide services at times to the other programs. The additional drivers that are programmed in the transit program budget are actually assigned to dial-a-ride, demand response or aging operations. A continued management commitment needs to be made to separate fixed route services and dial-a-ride services from the other department activities. This would allow for more focused management, and would improve the allocation of costs between those programs associated with transit.

1.8.2 Operations Issues and Planning Concerns

Similar to many agencies in the transit industry, UGT focuses its limited resources on the immediate challenges of the daily deployment and operations of its current transit system. Discussions with staff and management suggest that this focus may be to the detriment of a broader need for resource management, training, ensuring federal compliance, and long-term planning.

UGT vehicles in operation are replaced as they meet the end of their federally designated life-span. The daily deployment and route assignment techniques of UGT may be causing uneven vehicle depreciation, and an unpredictable or undesirable pace of vehicle replacement.

Current operational practices are dependent on the long-term institutional knowledge of key individuals. Without this knowledge being transmitted to an updated transit manual, standard operating practices may be difficult to consistently implement across the entire organization. In addition, this lack of an updated transit manual may cause the inconsistent application of instructions, operating rules, policies, procedures, and discipline codes.

UGT receives federal funding to acquire various capital needs including vehicles, bus stop infrastructure, and operational grants. Various data reporting requirements are required of federal fund recipients, and UGT may be deficient in these reporting requirements, which may in turn result in federal funding being withheld from UGT.

While UGT operators and managers are personally committed to providing safe and courteous services, UGT has an unwritten training program overly reliant on the institutional knowledge of a few key staff members. This may result in different staff among the same positions in the fixed route and demand response programs receiving different standards of training. This appears to have resulted in uneven standards of both safety training and customer service training. Written training programs in operations, safety, and customer service are currently being developed and implemented by UGT staff. These written training programs should continue to be developed to ensure customer satisfaction of UGT, and mitigate the risk of both safety incidents and litigation.

Finally, the lack of outside industry experience or formal strategic planning documents may exhibit itself in the quality of service experienced by riders. For example, UGT staff and management have expressed a desire for on-vehicle security cameras, voice annunciation systems, automatic vehicle locator technology, and service enhancements, without strategic plans or documents that could be used to promote or justify improved amenities to local policy makers or federal grant program administrators.

1.8.3 Labor

Currently, UGT operators and dispatchers are bargaining unit members. The bargaining unit is represented by the Public Service Employees (PSE) Union Local #1290. An agreement between the UG and PSE #1290 serves to define qualifications, tenure, compensation and working conditions for all UG employees represented under the agreement. The lack of a specialized contract for UGT that allows for the unique nature of transit operations may inhibit efficient route scheduling. For instance, the current contract does not specifically allow split shifts which would allow one driver to operate a four hour morning shift, and a four hour afternoon shift with a midday break. The contract also does not specifically allow the use of part-time drivers. The lack of these types of provisions limits the flexibility to match transit service frequencies with demand.

1.9 CONCLUSIONS

The following policy related issues need to be addressed:

- **Separate fixed route services and dial-a-ride services from the other department activities**: The current arrangement is unusual for urban systems and distracts staff's focus.
- **FTA compliance is required:** Not complying with FTA rules and regulations can result in federal funding being withheld.
- **Customer service training:** Anecdotal evidence suggests a need.
- **Bus fleet management:** Lack of fleet management plan is causing uneven vehicle depreciation in relation to daily vehicle assignments, and UGT currently has excess vehicles.
- **Safety training:** Adherence to a formalized safety program is undeveloped.
- **Low level of technological investment:** This is impeding performance, compliance, accountability, and passenger experience.

The Unified Government Transit's fixed-route system performs less effectively in comparison to transit systems in peer communities. A number of critical service related issues contribute to this, including:

- **Service redundancy:** Routes operate along the same street segments for portions of their respective alignments.
- **Changing travel patterns:** Service is not well matched to current development activities.
- **Lack of passenger amenities:** The virtual absence of such things as sheltered waiting areas and on-street schedule information inhibits ridership.
- **Budgeting practices:** Contributing to lower than expected financial performance. Positions budgeted in the fixed-route transit program are actually performing work in other programs.
- **Contractual limitations on work assignment:** Operators are assigned work on the basis of eight-hour shifts. Most UGT routes are in service for only twelve to fourteen hours. However, sixteen operator hours (two eight-hour shifts) are scheduled and paid to provide the service.
- **Fare revenue collections are low:** Collections are primarily low due to operators allowing non fare paying passengers to use the transit system. Additionally the lack of a revenue sharing agreement for bus pass sales with KCATA may contribute to lower collections. In order for a sharing agreement to be enacted electronic fareboxes would be required.

The following is a list of standard transit industry practices and policies that are suggested for UGT:

- **Fleet management plan:** To ensure that vehicles are deployed and operated in accordance with a predetermined schedule to replace vehicles as they age.
- **Additional department specific budget procedures:** Would more fully account for department revenue and expenditures.
- **Separate labor contract:** A transit department-specific labor contract would allow for the unique nature of transit operations.
- **Bus operator training program**
- **Sensitivity and customer service training program**
- **Formal route standards and policy document:** Guide to plan service and to determine if routes are meeting ridership and operating goals.
- **Updated transit manual:** Inclusive manual of all UG Transit instructions, operating rules, policies, procedures, and discipline code.
- **Revised Farebox Procedure and Fare Policies:** A written, revised farebox processing procedure will minimize opportunities for the mismanagement of fares. A pass revenue sharing agreement will slightly increase fare recovery, but is only possible if electronic fareboxes are installed on all buses.

This page was left blank intentionally

SECTION 2. ALTERNATIVES AND RECOMMENDATIONS

2.1 INTRODUCTION

This section documents the results and recommendations of the Comprehensive Service Analysis (CSA). The possibility of a future BRT route, as well as a desire to lower operating costs and increase route efficiencies led to the management alternatives and route reconfigurations presented here. This section includes service reconfiguration recommendations, management alternatives, capital improvements and detailed costing of proposed route configurations.

2.2 RECOMMENDED SERVICE RECONFIGURATIONS

The existing route structure was analyzed for opportunities to achieve additional efficiencies. These recommendations could be implemented while minimally impacting existing transit service. Replacing some fixed routes with flex routes was examined, but ultimately rejected based on the lack of additional savings. The following service reconfigurations have been identified to improve savings and efficiencies.

2.2.1 Modify Route 101 Minnesota/State Avenue

Route 101 could eventually be upgraded to a future BRT service, which is currently in the design phase with capital elements, such as stations and transit centers, being significantly funded by federal stimulus grants. Modifying the existing route to a more direct route similar to the proposed BRT route will save revenue hours and revenue miles.

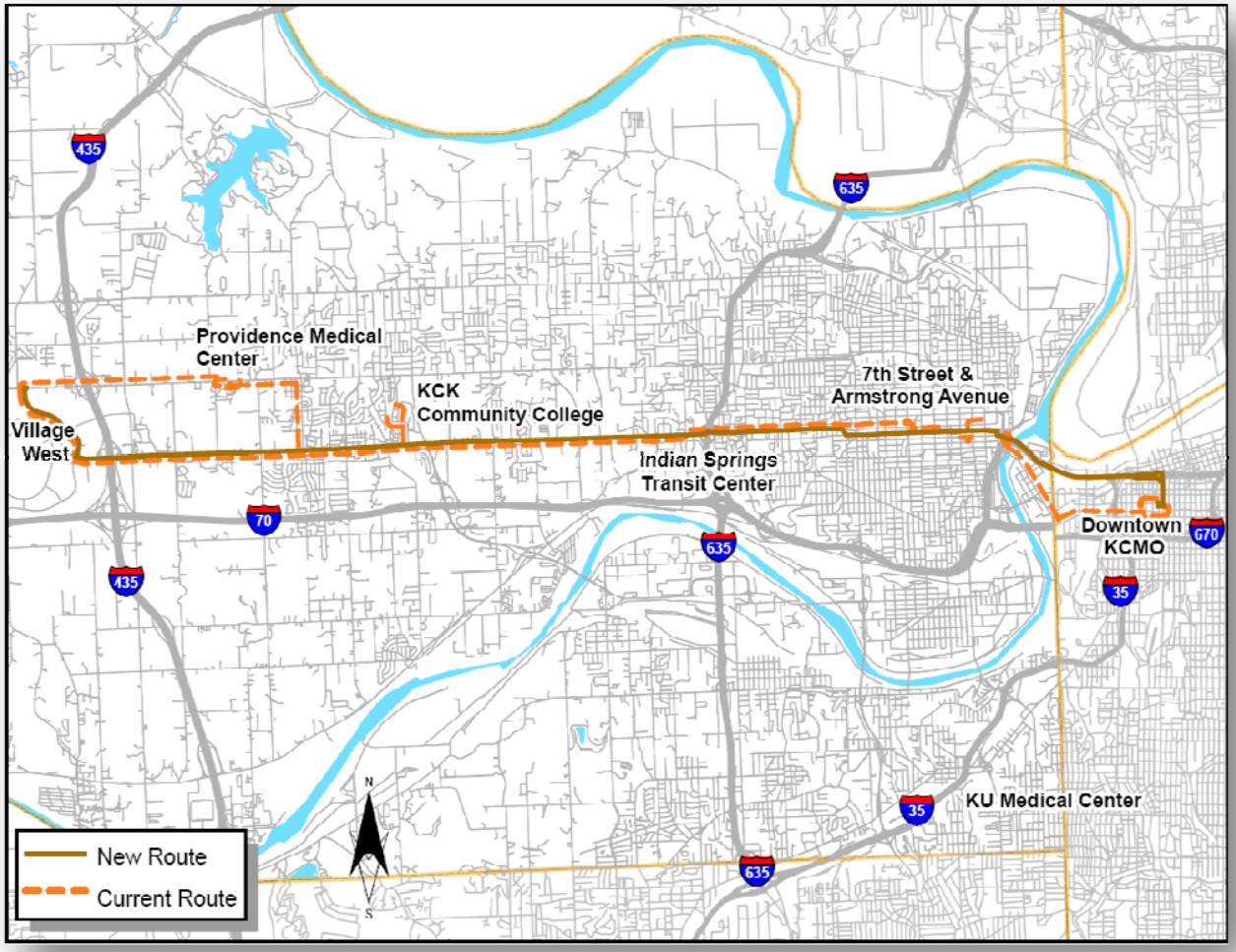
The modified route would exit Downtown Kansas City, Missouri, by turning east onto 10th Street, and immediately turning north onto Main Street, then continuing onto Delaware Street to enter onto I-70 westbound using the Independence Avenue on-ramp. The route would enter Kansas City, Kansas on Minnesota Avenue and continue to Hoel Parkway where it transitions to State Avenue. The route continues on State Avenue to Village West Parkway. Then the route would continue north on Village West Parkway to Parallel Avenue where it would turn west onto Parallel Parkway, and turn north onto 109th Street to enter the Wal-Mart parking lot where the route terminates. The inbound trip follows the same alignment.

A weekday connection to Providence Medical Center would be maintained through extending *Route 113* from the medical center to the Village West area as explained later in this section. *Route 113* does not operate on Saturday or Sunday, so the weekend *Route 101* would maintain the current one-way loop on the western end of the route. During weekend service *Route 101* would exit east on Parallel Parkway from the parking lot at 109th St in the Wal-Mart shopping center, enter the Providence Medical Center complex at 88th Street, and returns to Parallel Parkway before turning south onto 82nd Street. The route would resume its regular alignment after turning east on State Avenue from 82nd Street. The modified *Route 101* is shown in Figure 2.1.

The weekday Route 101 would operate on a 30-minute daytime/60-minute evening frequency, have a 17.5 hour service span, and require 5 peak vehicles. The Saturday Route 101 would operate on a 30 minute frequency, have a 12 hour service span, and require 5 vehicles. The

Sunday Route 101 would operate on a 60 minute frequency, have a 12 hour service span, and require 5 vehicles.

Figure 2.1. Modified Route 101 Minnesota/State Avenue



2.2.2 Interline Route 102 Central Avenue and Route 103 3rd Street/Fairfax

Currently *Route 102* and *Route 103* are separately operated routes. **Interlining** the two routes and simplifying the alignment would allow for the daily savings of 3 revenue hours and 100 revenue miles. This new configuration would create a single alignment that may attract additional riders and remove segments that have low ridership demand.

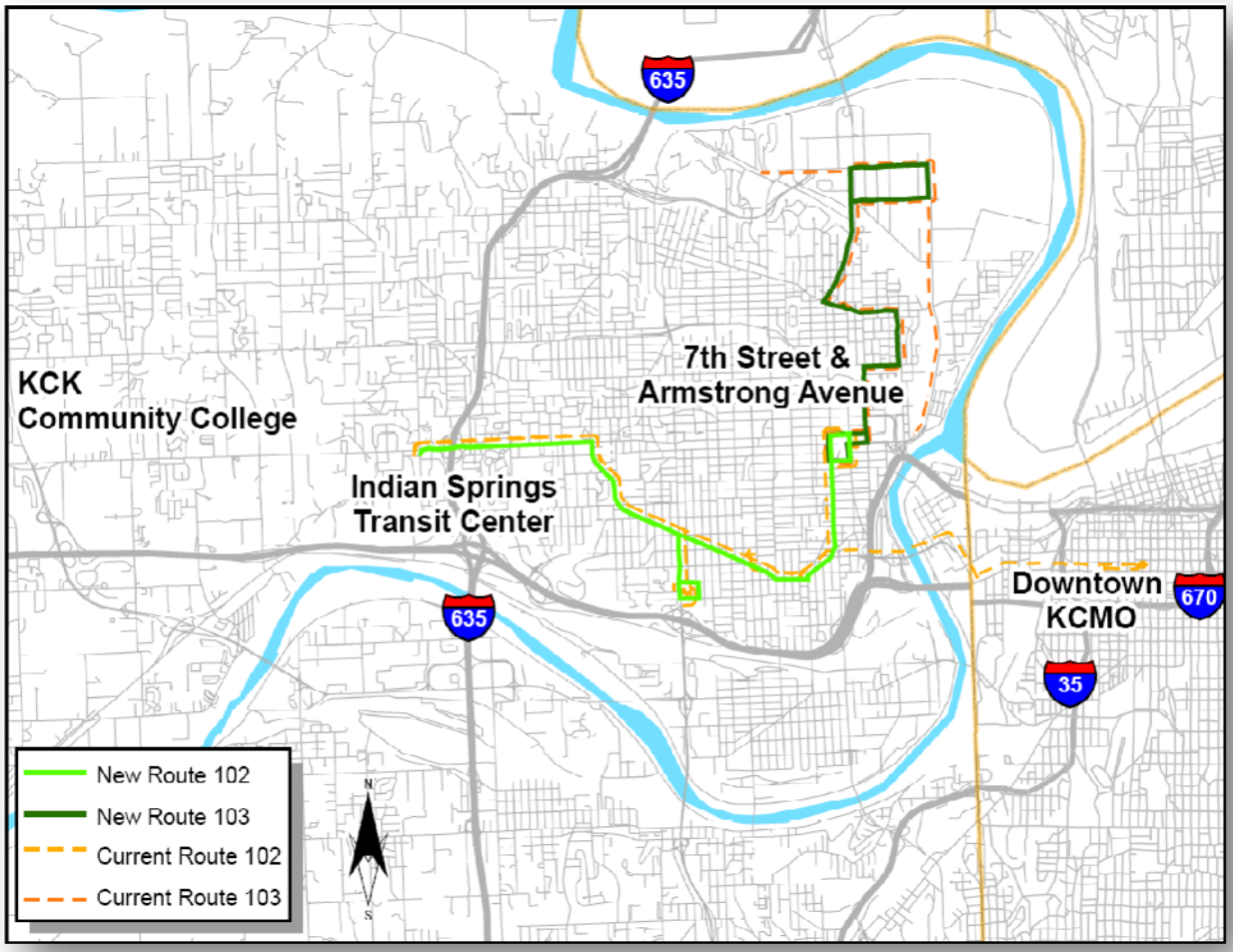
> **Interlining:** Allows the use of the same revenue vehicle and/or operator on more than one route without returning to the garage. Interlining can often minimize vehicle requirements as well as provide transfer enhancement for passengers.

The modified route would exit the Indian Springs Transit Center as *Route 102* on State Avenue to 29th Street. The route would turn south and proceed onto Westview Drive and Central Avenue. At 18th Street the route would perform a loop using 18th Street, Ridge Avenue, 16th Street, and Bunker Avenue. The route would resume on Central Avenue before proceeding north on 7th Street to Downtown Kansas City, Kansas. The modified route would serve the

Unified Government buildings at 7th Street and Ann Avenue, before proceeding north as *Route 103*. *Route 102* would no longer connect to Downtown Kansas City, Missouri, and would no longer perform the loop spur at Riverview Avenue and 12th Street.

The interlined portion of *Route 103* would exit Downtown Kansas City, Kansas on 7th Street, State Avenue, and 5th Street. The route would then proceed east on Richmond Avenue to 3rd Street, north to Quindaro Boulevard, west to 7th Street, and then perform a one-way loop on Funston Road, Fairfax Trafficway, and Sunshine Road, before proceeding inbound on 7th Street. *Route 103* would no longer perform a peak spur south on Fairfax Trafficway, or a trunk spur on Sunshine Road west of 7th Street. The interlined *Route 102* and *Route 103* are shown in Figure 2.2. The interlined *Route 102* and *Route 103* would operate on a 60 minute frequency, have a 12.5 hour service span, and require 2 vehicles.

Figure 2.2. Interlined Route 102 Central Avenue and Route 103 3rd Street/Fairfax



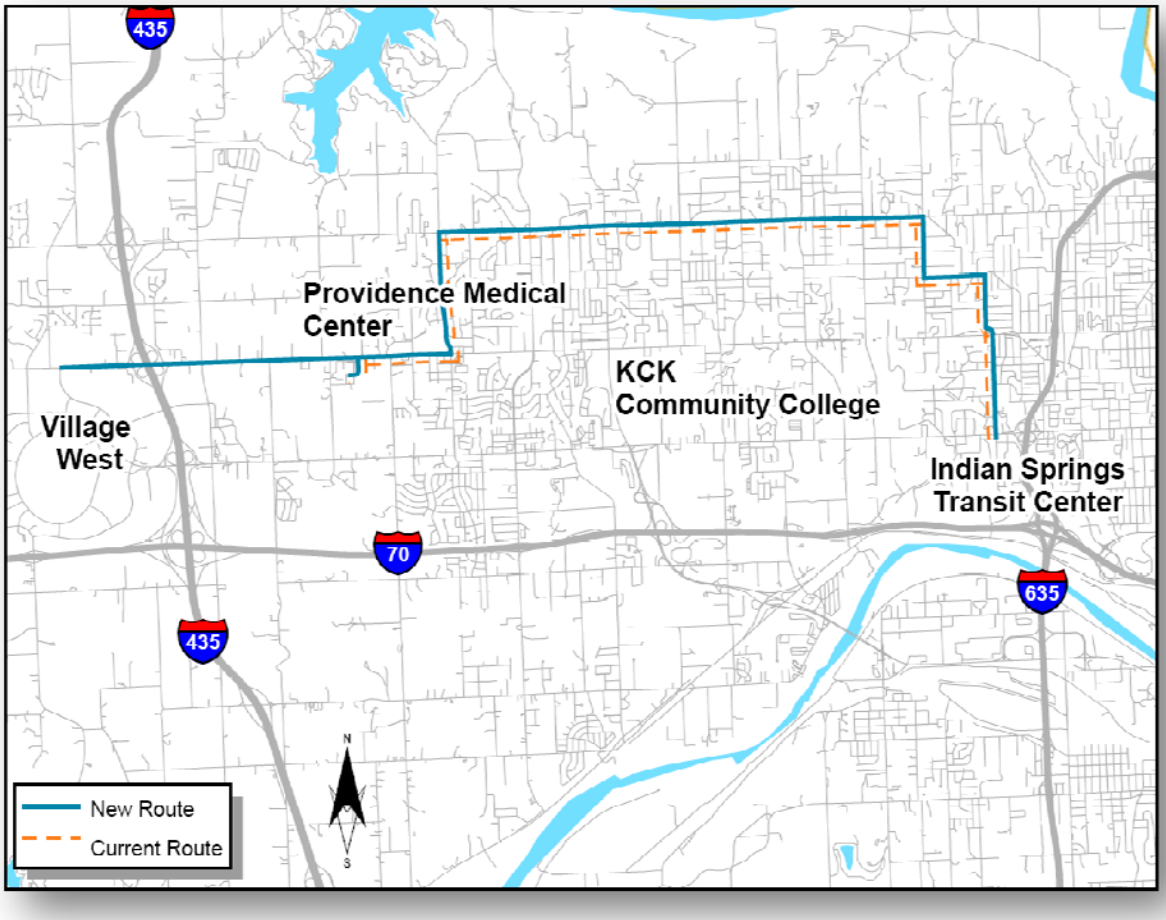
2.2.3 Extend Route 113 Leavenworth Road to Village West

Route 113 currently terminates at Providence Medical Center. Extending the route to the Village West would accomplish several objectives. The route extension would provide the predominately residential area on Leavenworth Road with a one-seat ride to a major

employment and shopping center. The passenger areas on Parallel Parkway served by *Route 116* would have a more direct transfer to the Village West area by transferring at Providence Medical Center, instead of first heading east to Indian Springs Transit Center, before heading west again. Finally, the route extension would maintain the connection between Providence Medical Center and the Village West area that would no longer be served by the modified *Route 101*.

Route 113 would continue its existing alignment between the Indian Springs Transit Center and Providence Medical Center. The route would proceed north on 47th Street from the Indian Springs Transit Center to Georgia Avenue, west on Georgia Avenue, north on 51st Street, west on Leavenworth Road, south on 83rd Street and west on Parallel Parkway. The route would enter Providence Medical Center at 88th Street, and exit the Medical Center heading north onto 90th Street, west on Parallel Parkway, before terminating at Village West by turning north onto 109th Street into the Wal-Mart parking lot. The reconfigurations to *Route 113* are shown in Figure 2.3. *Route 113* would operate on a 60 minute frequency, have a 12 hour service span, and require 2 vehicles.

Figure 2.3. Extended Route 113 Leavenworth Road to Village West

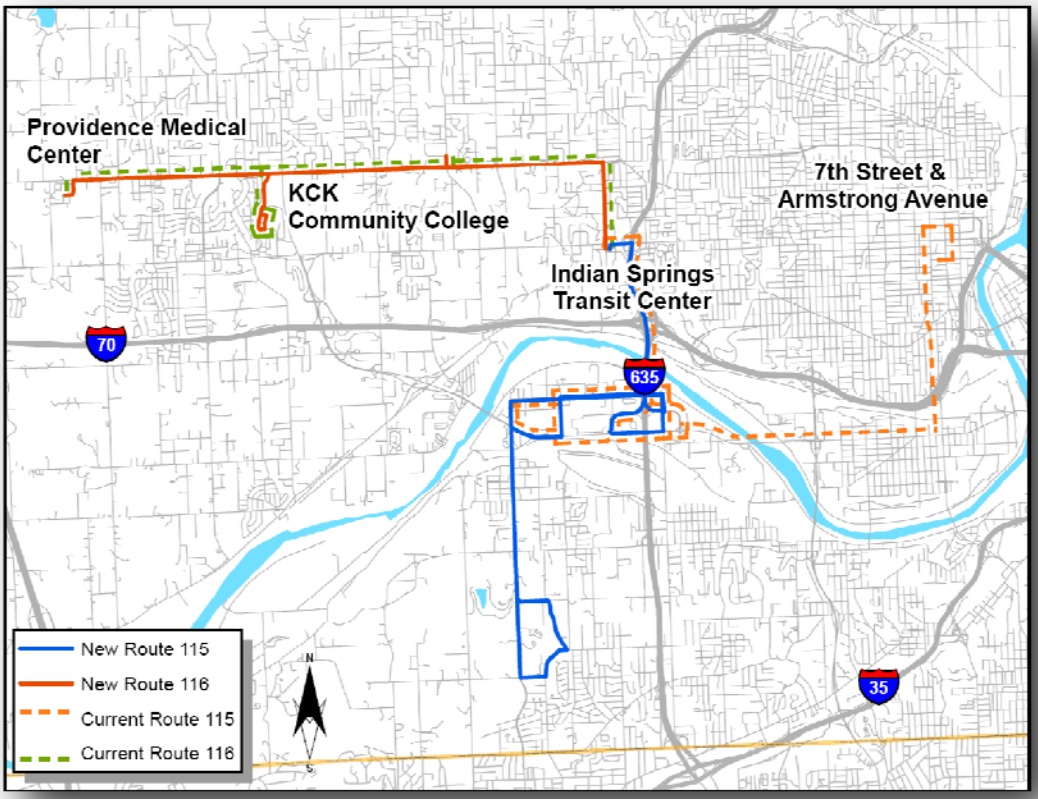


2.2.4 Interline Route 115 Kansas Avenue and Route 116 West Parallel

Currently *Route 115* and *Route 116* are separately operated routes. Interlining the two routes and simplifying the alignment of *Route 115* would create opportunities for additional one-seat rides, while the interlined routes would remain revenue neutral. The alignment reconfiguration of *Route 115* would extend service south to Turner High School, while also removing duplicative service into Downtown Kansas City, Kansas.

Route 115 would exit the Indian Springs Transit Center onto State Avenue, and then enter onto I-635 southbound. The route would exit at Kansas Avenue and proceed east, then turn north on 42nd Street, west on Speaker Road, south on 55th Street, and perform a one-way loop on 55th Street, Oak Grove Road, 53rd Street, Key Lane, and Douglas Avenue. The inbound trip will travel north on 55th Street, east on Kansas Avenue, north on 51st Street, east on Speaker Road, south on 42nd Street, east on Kansas Avenue, and access I-635 northbound. The route would exit I-635 at State Avenue, proceed west on State Avenue, and access the Indian Springs Transit Center. At the Indian Springs Transit Center *Route 115* would become *Route 116*. *Route 116* would maintain the current alignment. This alignment proceeds north on 47th Street, west on Parallel Parkway, spurs to access the Area Vocational-Technical School (AVTS), spurs into KCKCC, and continues west onto Parallel Parkway before terminating the route at Providence Medical Center. The inbound trip from Providence Medical Center to the Indian Springs Transit Center would follow the same alignment. The interlined *Route 115* and *Route 116* are shown in Figure 2.4. The interlined *Route 115* and *Route 116* would operate on a 60 minute frequency, have a 12 hour service span, and require 2 vehicles.

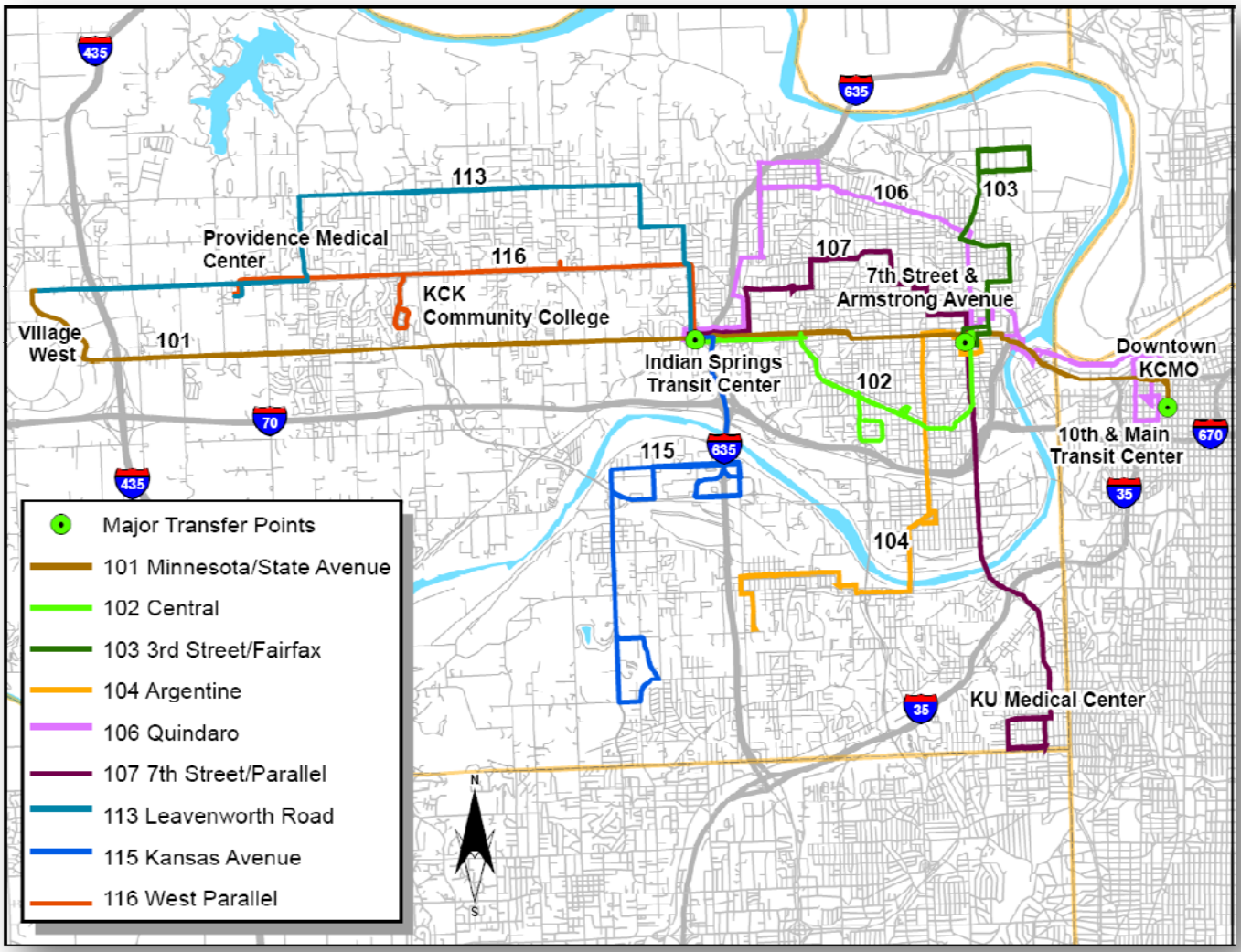
Figure 2.4. Interlined Route 115 Kansas Avenue and Route 116 West Parallel



2.2.5 Summary of Recommended Service Reconfigurations

The identified service reconfigurations address recent land use developments in Wyandotte County, while also removing duplicative transit service. A new transit connection at the Village West area and a redefined transit connection at Providence Medical Center will allow for a more streamlined trip between the Village West area, and residents, businesses and services on Parallel Parkway and Leavenworth Road. These changes utilize existing resources, while also extending new service into the Turner area, and creating an all day connection between Central Avenue and Downtown Kansas City, Kansas. All of the recommended service reconfigurations are shown in Figure 2.5. Costing of the proposed route reconfiguration is dependent on the management alternative, and is discussed later in this report.

Figure 2.5. Recommended Service Reconfigurations



2.3 MANAGEMENT ALTERNATIVES

This section identifies and defines alternative management and organizational structures for providing transit services in Wyandotte County. Each alternative includes potential funding requirements and impacts on the recommended system reconfigurations described above. The potential management structures are identified based on a review of several sources including discussions with UGT staff, a review of area transit agencies, and best industry practices.

2.3.1 Management Practices of Area Agencies

The management and operating structure of a variety of urban or small urban transit agencies within the area were reviewed. The reviewed cities and their management system are listed below.

- *The T, Lawrence, Kansas* – The T contracts service to MV Transportation, whereas the city owns vehicles, and provides a director and administrative staff to oversee the contract, service planning, manages bus passes, and provide customer service. Bus operators, dispatchers, supervisors, and a general manager are MV employees. The T is funded through a .25% sales tax.
- *Topeka Metropolitan Transit Authority (TMTA), Topeka, Kansas* – TMTA manages and operates all functions of the transit system. The director, administrative staff, dispatchers, and bus operators are employees of the transit authority, which is an extension of the city. TMTA is funded through general mill levy appropriations.
- *Johnson County Transit (JCT), Johnson County, Kansas* – JCT contracts operations to First Transit, whereas the county owns vehicles and provides a director and administrative staff to oversee the contract, plan service, and marketing. Bus operators, dispatchers, supervisors, and a general manager are First Transit employees. JCT is funded through general mill levy appropriations.
- *Kansas City Area Transportation Authority (KCATA), Independence, Missouri* – The City of Independence, Missouri, contracts out to KCATA to provide transit service to Independence, Missouri. The contract is managed by the city planning department. KCATA service in Independence, Missouri is paid through general mill levy appropriations.
- *The Ride, St. Joseph, Missouri* – The City of St. Joseph Missouri, contracts out to First Transit to provide transit service to the City. Transit is part of the public works department, but the general manager and the maintenance manager are First Transit employees, and the remaining transit employees are part of a sub-corporation of First Transit. The Ride is funded through a 3/8 cent sales tax, and a 1% utility tax.

2.3.2 Management Models

As reviewed, a variety of management models are present within the area. These models can be generally classified as:

- *City Managed & City Operated* – The city owns the vehicles and transit operators and staff are city employees. This management model is used by Topeka.
- *City Managed & Contractor Operated* – The city owns the vehicles and a relatively small number of personnel to manage the contract, whereas a contractor is hired to operate the service. Bus operators are contractor employees. This management model is used by Johnson County, Kansas and Lawrence, Kansas.
- *Contractor Managed & Contractor Operated* – The contractors owns the vehicles and employees are employed by the contractor. The city has an employee who is responsible for contract administration. This is the current method utilized by Independence, Missouri and The Ride in St. Joseph, Missouri.

UGT's current model is a hybrid, where the Unified Government manages and operates transit service using its own vehicles, but also contracts out the operations of five routes to KCATA using KCATA's vehicles. UGT also operates aging and senior services, which is unusual for urban transit providers; typically aging and senior services are managed under a completely separate department.

2.3.3 Management Alternatives

Three primary alternatives have been analyzed for the UGT, they include the following:

- *Existing Management Alternative* – Utilize the current management model while attaining greater efficiencies, and improving amenities and management practices to a level consistent with similar transit agencies.
- *UGT Management Alternative* – UGT managing and operating all transit services within Wyandotte County, while improving amenities and management practices to a level consistent with similar transit agencies.
- *Contractor Management Alternative* – Contracting out fixed route service and ADA demand response service, while UGT manages the service, and Unified Government continues to provide programs associated with senior services.

2.3.4 Improving Operating Practices in the Existing Management Alternative and UGT Management Alternative

Improving operating practices was a theme heard throughout interviews and discussions with transit staff and management. In the Contractor Management Alternative where fixed route transit service is provided by an outside contractor, the contractor would likely have already incorporated a higher standard of operating practices into its operations than currently exists at UGT.

Training

Standard bus operator training, along with sensitivity and customer service training, would aid in lowering incident rates and increase passenger satisfaction. Developing an ongoing training

program can be a substantial process. However, resources exist for this purpose, which include an annual three-day Transit Trainers' Workshop sponsored by the National Transit Institute.

Updating UGT training procedures needs to be an ongoing process. In many instances, an accepted procedure or policy already exists. Many of these existing procedures and policies are in the process of being written and formally accepted. This process should be completed for all training procedures. A thorough review of all training procedures needs to be conducted.

Operating Procedures & Planning

The following items are being recommended to improve UGT's operations and standards:

- *Revised Farebox Processing Procedure* – A written, revised farebox processing procedure will minimize opportunities for the mismanagement of fares. While industry best practices recommend dedicated money rooms with electronic surveillance and entry controls, the cost may be prohibitive to the UGT. A farebox processing procedure will at a minimum require a two person verification of the daily fare counts, farebox key control, counters in short-sleeve shirts, and a reconciliation procedure. The written policy should also detail the role of each employee in the farebox counting process, and detail the resulting action if an employee should not follow the policy. Electronic fareboxes provide additional opportunities to more efficiently reconcile fares, but will also require more maintenance. Any written farebox processing policy will require revision should UGT acquire new fareboxes.
- *Fleet Management Plan* – FTA Circular 5010.1D provides guidance for property management, including rolling stock, obtained through federal funding. For UGT, this includes maintaining equipment records, a physical inventory and reconciliation every two years, a control system to prevent loss, damage, or theft, identification as government property, and warranty standards. An official property records or rolling stock status report in which future needs, expansion and replacement, are discussed must be available upon request by FTA, or when disposing of federally funded equipment. More information can be found in FTA Circular 5010.D, page IV-23.
- *Additional Department-Specific Budget Procedures* – Procedures for the budget would include a line item for revenue, and also allocate expenditures as either a fixed cost or an overhead cost. This would allow for an easier tracking of operating metrics, such as cost per revenue hour and cost per revenue mile. These procedures would then allow for UGT to more accurately determine the cost of providing route specific service. These procedures would also allow for the allocation of shared department costs to specific programs, such as the department head, and supervisors who are responsible for management of several programs.
- *Updated Transit Manual* – In order for UGT to deliver high quality transit service in a professional manner, an updated transit manual needs to be created. This would contain all UGT transit instructions, operating rules, policies, procedures, and discipline code. This updated transit manual would begin by writing down the current, accepted rules, policies, and procedures of UGT. This could then be updated as needed.

- *Maintain FTA Compliance* – UGT receives federal funding support for the purchase of transit vehicles through the FTA's Bus and Bus Facilities Grant (Section 5309). In addition, UGT has historically received funding for operations support through various other FTA grant programs, including the Jobs Access/Reverse Commute Program (Section 5316), and the Congestion Mitigation/Air Quality Program. All of these FTA grants have historically been administered on the UGT's behalf by the KCATA.

  As a recipient of federal funds UGT is obligated to follow grant management guidelines under FTA circulars 5010.1, 9300.1, 9050.1, and 9045.1. Many of these requirements are fulfilled on UGT's behalf by the KCATA. KCATA is reporting mileage and age information for the vehicles UGT obtained through the federal earmark process to operate on UGT routes. UGT is the recipient of the federal funds to obtain the fixed route vehicles, and as such is required to report its ridership information to the National Transit Database.

  FTA circular 5010.1D details several specific reports that grantees are required to submit once a grant is active. These reports can be submitted through a FTA provided streamlined electronic interface between grantees and FTA that allows for electronic management of all grants. Management items include filing Financial Status Reports and Milestone/Progress Reports. These reports are due to FTA within 30 days after the end of each calendar quarter. Program specific guidelines, such as 9300.1, 9050.1 and 9045.1, are given preference in instances where those guidelines may conflict with guidelines in FTA circular 5010.1D.

  Additional program requirements were examined and noted in Table 2.1 below. This is not an exhaustive list of the FTA requirements, but does identify some major areas that apply to UGT.

  Failure to comply with federal grant management guidelines may result in the withholding of federal funding. UGT received $1.96 million of federal funding in 2009.

Table 2.1. FTA Compliance Requirements

Item	Relevant Grant	Qualifications	Circular	Due Date
Financial Status Report	Grant Management Requirements		FTA C 5010.1	Within 30 days after end of each calendar quarter
Milestone/Progress Report	Grant Management Requirements		FTA C 5010.1	Within 30 days after end of each calendar quarter
Equal Employment Opportunity	Grant Management Requirements	Grantees employing 50 or more people, and receiving more than $1 million in FTA assistance	FTA C 4702.1	
Reports of Significant Events	Grant Management Requirements	Unforeseen events that impact a FTA-funding project	FTA C 5010.1	Immediately after detection, and in next quarterly progress report
Equipment Records	Grant Management Requirements		FTA C 5010.1	
Rolling Stock Status Report	Grant Management Requirements		FTA C 5010.1, FTA C 9300.1	At FTA request, when disposing of federally-funded vehicles, when expanding fleet
Transit Enhancement Report	Section 5307	Recipients in population areas above 200,000	FTA C 5010.1	
National Transit Database Annual Report	Section 5307		http://www.ntdprogram.gov	Annually, refer to website for FTA-published NTD Annual Manual
National Transit Database Monthly Report (Urbanized)	Section 5307		http://www.ntdprogram.gov	Monthly, refer to website for FTA-published NTD Annual Manual
Safety and Security Report	Section 5307			Monthly, refer to FTA published NTD Safety & Security Manual
Drivers have CDL	Section 5309	All drivers have CDL of vehicles that transport 16 or more people	FTA C 9300.1	
No Charter Services	Section 5309		FTA C 9300.1	
No Service for Students Only	Section 5309	FTA Recipients may not provide exclusive school service	FTA C 9300.1	
Fleet Management Plan	Section 5309		FTA C 9300.1	
Appropriate Spare Ratio	Section 5309		FTA C 9300.1	
Contingency Plan	Section 5309	To store and maintain inactive vehicles in preparation for emergencies	FTA C 9300.1	
Buy America	Section 5309		FTA C 9300.1, FTA C 4220.1	
Civil Rights Compliance, including Title VI	Section 5309		FTA C 9300.1	
Debarment and Suspension	Section 5309		FTA C 9300.1	
Drug Free Workplace	Section 5309		FTA C 9300.1	
Environmental Reviews	Section 5309		FTA C 9300.1	
Labor Protections	Section 5309		FTA C 9300.1	
Lease Versus Buy Consideration	Section 5309		FTA C 9300.1	
Presidential Coin Act	Section 5309		FTA C 9300.1	
Private Sector Participation	Section 5309		FTA C 9300.1	
Project Inclusion in TIP and STIP	Section 5309		FTA C 9300.1	
Safety and Security Act	Section 5309		FTA C 9300.1	
Public Hearing Requirements	Section 5309		FTA C 9300.1	
Restrictions on Lobbying	Section 5309	Federal financial assistance may not be used to lobby members of the federal government.	FTA C 9300.1	
Procurement Requirements	Section 5309		FTA C 9300.1, FTA C 4220.1, Best Practices Procurement Manual	
Drug and Alcohol Testing	Section 5309, Section 5307		FTA C 9300.1	

The latest versions of FTA circulars are at http://www.fta.dot.gov/laws/leg_reg_circulars_guidance.html

2.4 CAPITAL IMPROVEMENTS

UGT's capital improvement program has historically focused on vehicle acquisition. This resulted in a lower number of other transit infrastructure and passenger amenities than is found in neighboring fixed route transit agencies in the Kansas City metropolitan area. In addition to increasing passenger satisfaction and comfort, the acquisition of these items would also increase safety, security, fare revenue collections, and compliance with federal regulations. Identifying vendors in this section does not constitute an endorsement by Olsson Associates.[1] Many of capital improvements may be provided by the contractor under the Contractor Management Alternative. UGT would need to procure these capital items under the Existing Management Alternative and the UGT Management Alternative. In addition to the initial capital cost of procurement, many of the capital improvements will incur ongoing expenses in the form of personnel training and additional maintenance costs.

- *Security Cameras* – Security cameras at transit centers would increase safety and security for passengers. Security cameras on buses, directed both inside the vehicle and outside the vehicle, would mitigate litigation, ensure fare collection, and enhance passenger security. Data storage can be handled and processed in a variety of ways. Images can either be stored on hard drives in the vehicles for a set amount of time (usually a number of weeks) and only pulled when incidents occur, or stored footage can automatically be transferred wirelessly to hard drives at the maintenance facility as the bus ends its shift. A typical unit cost for security cameras is around $5,500 per bus. Industry vendors for these systems include AngelTrax[2], Bus-Watch[3], and Seon[4].

- *Electronic Fareboxes* – Electronic fareboxes would increase efficiencies and ease the reconciliation process for fare revenue collection. The farebox has buttons that the driver uses to record the number of passengers and the fare rate (bus pass, transfer, discount, etc). The farebox also records the amount of money entered into the farebox. This can later be used to reconcile the amount of

Figure 2.6. Bus Security Cameras

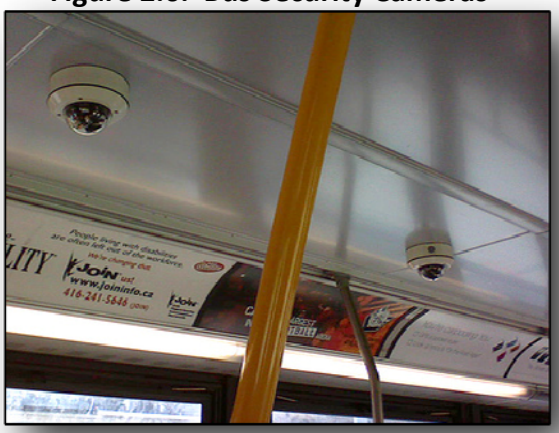


Figure 2.7. Electronic Farebox

[1] APTA maintains a list of transit industry vendors at http://www.apta.com/resources/Pages/comps.aspx
[2] http://www.angeltrax.com/
[3] http://www.bus-watch.com/
[4] http://www.seon.com/

money that should have been collected, with the amount of money that was collected. Farebox data can be tied to specific routes and runs to identify patterns of discrepancies. Farebox processing procedures will have to reflect the additional capabilities of electronic fareboxes. A typical unit cost for electronic fare boxes is around $1,200 per vehicle, with a farebox vault, electronic probes, and other accessories costing between $25,000 and $50,000. For costing purposes $35,000 was used. Industry vendors for these systems include Cubic Transportation Systems[5] and GFI Genfare[6].

- *Automatic Vehicle Locator (AVL)* – AVL systems allow for real-time tracking of transit vehicles. This capability can be used to track the on-time performance of buses, verify that vehicles are using the proper route, and are a required component in other transit amenities that UGT may consider in the future, including displaying real-time arrival information to passengers, and voice annunciation systems. Nextbus[7], an industry AVL vendor, provided an initial quote of $210,000 for a system with UGT's characteristics. Other industry vendors include ACIS[8] and Mentor Engineering[9].
- *Automatic Voice Annunciation (AVA)* – AVA systems are tied to an AVL system and automatically play a pre-recorded audio message to on-board passengers announcing the next stop or major intersection, and when a bus stops at a station an exterior speaker announces to waiting passengers the route number and destination of the bus. AVA technology would ensure UGT complies with FTA requirements of voice announcements on vehicles and at stops. A typical unit cost for AVA technology is between $2,500 to $4,000 per vehicle[10], depending on if the system is linked to GPS and completely automatic. For costing purposes $3,250 per vehicle was used. Industry vendors for these systems include Clever Devices[11] and Nextbus Inc[12].
- *Bus Stop Amenities* – Installing additional bus stop amenities, besides those currently at Indian Springs Transit Center, the Village West area, and stops served by KCATA routes, will improve passenger comfort, visibility, and provide additional presence for UGT in Wyandotte County. Besides KCATA-served stops, UGT stops are currently limited to blade signs with no identifying route information or schedule information. Providing concrete pads, bus shelters, benches, and static schedule information at stops will improve passenger comfort and increase the public image of UGT. Creating additional UGT presence at transit stops will also serve as "free marketing". A typical unit cost for a bus shelter, information sign, and concrete pad is $13,000. A typical unit cost for a bench is $500. Installation costs are estimated to be $1,500. Industry vendors for these

[5] http://cts.cubic.com/
[6] http://www.gfigenfare.com/
[7] Nextbus Inc, Lawrence Rosenshein, 973-768-3606, larryr@nextbus.com
[8] http://www.acis.uk.com/
[9] http://www.mentoreng.com/solutions/fix-route/index.html
[10] John Barberis, Transit Marketing Group. jbarberis@transitmarketinggroup.com, 303-530-1491.
[11] www.cleverdevices.com
[12] Nextbus Inc, Lawrence Rosenshein, 973-768-3606, larryr@nextbus.com

systems include Daytech Limited[13], Handi Hut[14], and Duo Gard[15]. Shelter placement can be either a policy decision or a performance decision[16]. The cost of improving 5 bus stop locations was assumed for costing purposes.

2.5 DETAILED COSTING OF ALTERNATIVES

Cost comparisons were conducted to evaluate the three management alternatives on the current route configuration and the proposed route configuration. Comparing the costs of applying the three management alternatives to the current route configuration and proposed route configuration provides decision makers with the entire range of options and costs.

The costing of all of the alternatives discussed here reflect more accurate cost allocations of the appropriate number of bus operators to fixed routes, while also improving amenities and management practices to a level consistent with adjacent transit agencies. However, the costs used to calculate did not capture elements typically associated with transit operations costing, including the real estate costs of administrative and maintenance facilities, insurance costs, and vehicle depreciation costs. Therefore, the true cost of the UG operating transit in the Existing Management Alternative and the UGT Management Alternative are higher than the stated costs, but the additional costs are unable to be quantified.

The cost of improving amenities and introducing upgraded technologies, such as adding security cameras, AVL and AVA, are included in the Existing Management Alternative, and the UGT Management Alternative. Tables 2.2 and 2.3 show the comparison of costs for the three management alternatives by the current and proposed routes. Tables 2.4, 2.5 and 2.6 show the detailed costs for each management alternative.

[13] http://www.daytechlimited.com/
[14] http://www.handi-hut.com/
[15] http://www.duo-gard.com/products/bus-shelters
[16] *TCRP Report 19 Guidelines for the Location and Design of Bus Stops* provides additional guidance on this topic.

Table 2.2. Current Route Cost Comparison for Management Alternatives

	Existing Management Alternative UGT directly operates five routes and contracts KCATA to operate five routes	UGT Management Alternative UGT directly operates ten routes		Contractor Management Alternative Contractor directly operates ten routes	
	Current Route System (Baseline)	Current Route System	Additional Cost / (Savings)	Current Route System	Additional Cost / (Savings)
UGT Operating Cost	$ 1,412,000	$ 6,293,000	$ 4,881,000	$ -	$ (1,412,000)
UGT Capital Cost	$ 454,700	$ 3,893,750	$ 3,439,050	$ -	$ (454,700)
KCATA Operating Cost	$ 4,425,000	$ -	$ (4,425,000)	$ -	$ (4,425,000)
KCATA Capital Cost	$ -	$ -	$ -	$ -	$ -
Contractor Operating Cost	$ -	$ -	$ -	$ 5,676,000	$ 5,676,000
Contractor Capital Cost	$ -	$ -	$ -	$ 150,000	$ 150,000
UG Operating Expenditure	**$ 5,837,000**	**$ 6,293,000**	**$ 456,000**	**$ 5,676,000**	**$ (161,000)**
UG Capital Expenditure	**$ 454,700**	**$ 3,893,750**	**$ 3,439,050**	**$ 150,000**	**$ (304,700)**

Note: Costs are based on 2009 budget costs.

Table 2.3. Proposed Route Cost Comparison for Management Alternatives

	Existing Management Alternative UGT directly operates five routes and contracts KCATA to operate five routes	UGT Management Alternative UGT directly operates ten routes		Contractor Management Alternative Contractor directly operates ten routes	
	Proposed Route System (Baseline)	Proposed Route System	Additional Cost / (Savings)	Proposed Route System	Additional Cost / (Savings)
UGT Operating Cost	$ 1,559,000	$ 5,881,000	$ 4,322,000	$ -	$ -
UGT Capital Cost	$ 474,600	$ 3,903,700	$ 3,429,100	$ -	$ -
KCATA Operating Cost	$ 3,920,000	$ -	$ -	$ -	$ -
KCATA Capital Cost	$ -	$ -	$ -	$ -	$ -
Contractor Operating Cost	$ -	$ -	$ -	$ 5,313,000	$ 5,313,000
Contractor Capital Cost	$ -	$ -	$ -	$ 150,000	$ 150,000
UG Operating Expenditure	**$ 5,479,000**	**$ 5,881,000**	**$ 402,000**	**$ 5,313,000**	**$ (166,000)**
UG Capital Expenditure	**$ 474,600**	**$ 3,903,700**	**$ 3,429,100**	**$ 150,000**	**$ (324,600)**

Note: Costs are based on 2009 budget costs.

Table 2.4. Existing Management Alternative Detailed Costing

	Current Route Configuration							Proposed Route Configuration						
	UGT Operated			KCATA Operated				UGT Operated			KCATA Operated			
Annual Operating Costs:	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Route Subtotal	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Route Subtotal
Route 102 Central Avenue (UG Transit)	$ 155,000	$ -	$ -	$ -	$ -	$ -	$ 155,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 103 3rd St / Fairfax	$ 225,000	$ -	$ -	$ -	$ -	$ -	$ 225,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 113 Leavenworth Road	$ 321,000	$ -	$ -	$ -	$ -	$ -	$ 321,000	$ 511,000	$ -	$ -	$ -	$ -	$ -	$ 511,000
Route 115 Kansas Avenue	$ 368,000	$ -	$ -	$ -	$ -	$ -	$ 368,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 116 West Parallel	$ 343,000	$ -	$ -	$ -	$ -	$ -	$ 343,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interlined Route 102 and Route 103	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 460,000	$ -	$ -	$ -	$ -	$ -	$ 460,000
Interlined Route 115 and Route 116	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 579,000	$ -	$ -	$ -	$ -	$ -	$ 579,000
UGT Subtotal:	$ 1,412,000	$ -	$ -	$ -	$ -	$ -	$ 1,412,000	$ 1,559,000	$ -	$ -	$ -	$ -	$ -	$ 1,559,000
Route 101 State Avenue	$ -	$ -	$ -	$ 1,511,000	$ 108,000	$ 92,000	$ 1,711,000	$ -	$ -	$ -	$ 1,195,000	$ 97,000	$ 87,000	$ 1,379,000
Route 102 Central Avenue (KCATA)	$ -	$ -	$ -	$ 173,000	$ -	$ -	$ 173,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 104 Argentine	$ -	$ -	$ -	$ 503,000	$ 50,000	$ -	$ 553,000	$ -	$ -	$ -	$ 503,000	$ 50,000	$ -	$ 553,000
Route 106 Quindaro	$ -	$ -	$ -	$ 1,136,000	$ 95,000	$ -	$ 1,231,000	$ -	$ -	$ -	$ 1,136,000	$ 95,000	$ -	$ 1,231,000
Route 107 7th Street	$ -	$ -	$ -	$ 707,000	$ 50,000	$ -	$ 757,000	$ -	$ -	$ -	$ 707,000	$ 50,000	$ -	$ 757,000
KCATA WyCo Subtotal:	$ -	$ -	$ -	$ 4,030,000	$ 303,000	$ 92,000	$ 4,425,000	$ -	$ -	$ -	$ 3,541,000	$ 292,000	$ 87,000	$ 3,920,000
Combined Subtotal	$ 1,412,000	$ -	$ -	$ 4,030,000	$ 303,000	$ 92,000	$ 5,837,000	$ 1,559,000	$ -	$ -	$ 3,541,000	$ 292,000	$ 87,000	$ 5,479,000

Additional Capital Items	QTY	UNIT	Total	UGT	KCATA	QTY	UNIT	Total	UGT	KCATA
30' Heavy Duty Bus	0	$ 325,000	$ -	$ -	$ -	0	$ 325,000	$ -	$ -	$ -
Automatic Vehicle Locator (Capital + 5yrs Operating	1	$ 210,000	$ 210,000	$ 210,000	$ -	1	$ 210,000	$ 210,000	$ 210,000	$ -
Electronic Fareboxes	6	$ 1,200	$ 7,200	$ 7,200	$ -	8	$ 1,200	$ 9,600	$ 9,600	$ -
Electronic Farebox Vault, Probes, Accessories	1	$ 35,000	$ 35,000	$ 35,000	$ -	1	$ 35,000	$ 35,000	$ 35,000	$ -
Security Cameras	6	$ 5,500	$ 33,000	$ 33,000	$ -	8	$ 5,500	$ 44,000	$ 44,000	$ -
Automatic Voice Annunciation	6	$ 3,250	$ 19,500	$ 19,500	$ -	8	$ 3,250	$ 26,000	$ 26,000	$ -
Bus Stop Amenities	5	$ 15,000	$ 75,000	$ 75,000	$ -	5	$ 15,000	$ 75,000	$ 75,000	$ -
Subtotal				$ 379,700	$ -				$ 399,600	$ -

Summary	Route Configuration Current	Route Configuration Proposed	Net Change
Total UGT Fixed Route Annual Op. Cost	$ 1,412,000	$ 1,559,000	$ 147,000
Total UGT Initial Capital Costs	$ 379,700	$ 399,600	$ 19,900
Total KCATA WyCo Fixed Route Annual Op. Costs	$ 4,425,000	$ 3,920,000	$ (505,000)
Total KCATA Initial Capital Costs	$ -	$ -	$ -

Note: Costs are based on 2009 budget costs.

Table 2.5. UGT Management Alternative Detailed Costing

	Current Route Configuration							Proposed Route Configuration						
	UGT Operated			KCATA Operated			Route	UGT Operated			KCATA Operated			Route
Annual Operating Costs:	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Subtotal	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Subtotal
Route 102 Central Avenue (UG Transit)	$ 155,000	$ -	$ -	$ -	$ -	$ -	$ 155,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 103 3rd St / Fairfax	$ 225,000	$ -	$ -	$ -	$ -	$ -	$ 225,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 113 Leavenworth Road	$ 321,000	$ -	$ -	$ -	$ -	$ -	$ 321,000	$ 511,000	$ -	$ -	$ -	$ -	$ -	$ 511,000
Route 115 Kansas Avenue	$ 368,000	$ -	$ -	$ -	$ -	$ -	$ 368,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 116 West Parallel	$ 343,000	$ -	$ -	$ -	$ -	$ -	$ 343,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interlined Route 102 and Route 103	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 469,000	$ -	$ -	$ -	$ -	$ -	$ 469,000
Interlined Route 115 and Route 116	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 579,000	$ -	$ -	$ -	$ -	$ -	$ 579,000
UGT Subtotal:	$ 1,412,000	$ -	$ -	$ -	$ -	$ -	$1,412,000	$ 1,559,000	$ -	$ -	$ -	$ -	$ -	$1,559,000
Route 101 State Avenue	$ 1,708,000	$ 91,000	$ 77,000	$ -	$ -	$ -	$1,876,000	$ 1,344,000	$ 91,000	$ 77,000	$ -	$ -	$ -	$1,512,000
Route 102 Central Avenue (KCATA)	$ 195,000	$ -	$ -	$ -	$ -	$ -	$ 195,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 104 Argentine	$ 567,000	$ 43,000	$ -	$ -	$ -	$ -	$ 610,000	$ 567,000	$ 43,000	$ -	$ -	$ -	$ -	$ 610,000
Route 106 Quindaro	$ 1,278,000	$ 84,000	$ -	$ -	$ -	$ -	$1,362,000	$ 1,278,000	$ 84,000	$ -	$ -	$ -	$ -	$1,362,000
Route 107 7th Street	$ 794,000	$ 44,000	$	$	$	$	$ 838,000	$ 794,000	$ 44,000	$	$	$	$	$ 838,000
KCATA WyCo Subtotal:	$ 4,542,000	$ 262,000	$ 77,000	$ -	$ -	$ -	$4,881,000	$ 3,983,000	$ 262,000	$ 77,000	$ -	$ -	$ -	$4,322,000
Combined Subtotal	$ 5,954,000	$ 262,000	$ 77,000	$ -	$ -	$ -	$6,293,000	$ 5,542,000	$ 262,000	$ 77,000	$ -	$ -	$ -	$7,440,000

Additional Capital Items	QTY	UNIT	Total	UGT	KCATA	QTY	UNIT	Total	UGT	KCATA
30' Heavy Duty Bus	10	$ 325,000	$ 3,250,000	$ 3,250,000	$	10	$ 325,000	$ 3,250,000	$ 3,250,000	$
Automatic Vehicle Locator (Capital + 5yrs Operatir	1	$ 210,000	$ 210,000	$ 210,000	$ -	1	$ 210,000	$ 210,000	$ 210,000	$ -
Electronic Fareboxes	25	$ 1,200	$ 30,000	$ 30,000	$ -	26	$ 1,200	$ 31,200	$ 31,200	$ -
Electronic Farebox Vault, Probes, Accessories	1	$ 35,000	$ 35,000	$ 35,000	$ -	1	$ 35,000	$ 35,000	$ 35,000	$ -
Security Cameras	25	$ 5,500	$ 137,500	$ 137,500	$ -	26	$ 5,500	$ 143,000	$ 143,000	$ -
Automatic Voice Annunciation	25	$ 3,250	$ 81,250	$ 81,250	$ -	26	$ 3,250	$ 84,500	$ 84,500	$ -
Bus Stop Amenities	5	$ 15,000	$ 75,000	$ 75,000	$ -	5	$ 15,000	$ 75,000	$ 75,000	$ -
Subtotal				$ 3,818,750	$ -				$ 3,828,700	$ -

Summary	Route Configuration Current	Route Configuration Proposed	Net Change
Total UGT Fixed Route Annual Op. Cost	$6,293,000	$5,881,000	$ (412,000)
Total UGT Initial Capital Costs	$3,818,750	$3,828,700	$ 9,950
Total KCATA WyCo Fixed Route Annual Op. Costs	$ -	$ -	$ -
Total KCATA Initial Capital Costs	$ -	$ -	$ -

Note: Costs are based on 2009 budget costs.

Table 2.6. Contractor Management Alternative Detailed Costing

	Current Route Configuration							Proposed Route Configuration						
	UGT Operated			Contractor Operated			Route	UGT Operated			Contractor Operated			Route
Annual Operating Costs:	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Subtotal	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Subtotal
Route 102 Central Avenue (UG Transit)	$ -	$ -	$ -	$ 137,000	$ -	$ -	$ 137,000	$ -	$ -	$ -		$ -	$ -	$ -
Route 103 3rd St / Fairfax	$ -	$ -	$ -	$ 203,000	$ -	$ -	$ 203,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 113 Leavenworth Road	$ -	$ -	$ -	$ 284,000	$ -	$ -	$ 284,000	$ -	$ -	$ -	$ 457,000	$ -	$ -	$ 457,000
Route 115 Kansas Avenue	$ -	$ -	$ -	$ 324,000	$ -	$ -	$ 324,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 116 West Parallel	$ -	$ -	$ -	$ 303,000	$ -	$ -	$ 303,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interlined Route 102 and Route 103	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 421,000	$ -	$ -	$ 421,000
Interlined Route 115 and Route 116	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 515,000	$ -	$ -	$ 515,000
UGT Subtotal:	$ -	$ -	$ -	$ 1,251,000	$ -	$ -	$1,251,000	$ -	$ -	$ -	$ 1,393,000	$ -	$ -	$1,393,000
Route 101 State Avenue	$ -	$ -	$ -	$ 1,511,000	$ 108,000	$ 92,000	$1,711,000	$ -	$ -	$ -	$ 1,195,000	$ 97,000	$ 87,000	$1,379,000
Route 102 Central Avenue (KCATA)	$ -	$ -	$ -	$ 173,000	$ -	$ -	$ 173,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Route 104 Argentine	$ -	$ -	$ -	$ 503,000	$ 50,000	$ -	$ 553,000	$ -	$ -	$ -	$ 503,000	$ 50,000	$ -	$ 553,000
Route 106 Quindaro	$ -	$ -	$ -	$ 1,136,000	$ 95,000	$ -	$1,231,000	$ -	$ -	$ -	$ 1,136,000	$ 95,000	$ -	$1,231,000
Route 107 7th Street	$ -	$ -	$ -	$ 707,000	$ 50,000	$ -	$ 757,000	$ -	$ -	$ -	$ 707,000	$ 50,000	$ -	$ 757,000
Contractor Subtotal:	$ -	$ -	$ -	$ 4,030,000	$ 303,000	$ 92,000	$4,425,000	$ -	$ -	$ -	$ 3,541,000	$ 292,000	$ 87,000	$3,920,000
Combined Subtotal	$ -	$ -	$ -	$ 5,281,000	$ 303,000	$ 92,000	$5,676,000	$ -	$ -	$ -	$ 4,934,000	$ 292,000	$ 87,000	$6,706,000

Additional Capital Items	QTY	UNIT	Total	UGT	Contractor	QTY	UNIT	Total	UGT	Contractor
30' Heavy Duty Bus	0	$ 325,000	$ -	$ -	$ -	0	$ 325,000	$ -	$ -	$ -
Automatic Vehicle Locator (Capital + 5yrs Operatin	0	$ 210,000	$ -	$ -	$ -	0	$ 210,000	$ -	$ -	$ -
Electronic Fareboxes	0	$ 1,200	$ -	$ -	$ -	0	$ 1,200	$ -	$ -	$ -
Electronic Farebox Vault, Probes, Accessories	0	$ 35,000	$ -	$ -	$ -	0	$ 35,000	$ -	$ -	$ -
Security Cameras	0	$ 5,500	$ -	$ -	$ -	0	$ 5,500	$ -	$ -	$ -
Automatic Voice Annunciation	0	$ 3,250	$ -	$ -	$ -	0	$ 3,250	$ -	$ -	$ -
Bus Stop Amenities	5	$ 15,000	$ 75,000	$ -	$ 75,000	5	$ 15,000	$ 75,000	$ -	$ 75,000
Subtotal				$ -	$ 75,000				$ -	$ 75,000

Summary	Route Configuration Current	Route Configuration Proposed	Net Change
Total UGT Fixed Route Annual Op. Cost	$ -	$ -	$ -
Total UGT Initial Capital Costs	$ -	$ -	$ -
Total KCATA WyCo Fixed Route Annual Op. Costs	$ 5,676,000	$ 5,313,000	$ (363,000)
Total Contractor Initial Capital Costs	$ 75,000	$ 75,000	$ -

Note: Costs are based on 2009 budget costs.

2.5.1 Comparison of Costs

Based on the calculations the cost for the Contractor Management Alternative yields the highest cost savings for both capital and operating costs. The most expensive alternative is the UGT Management Alternative. If the UGT Management Alternative is selected the UGT would incur significant capital costs to upgrade the transit system. The proposed route configuration saves over $400,000 in operating expenses per year with the Existing Management Alternative.

2.6 SUMMARY OF ALTERNATIVES AND RECOMMENDATIONS

The following is a list of capital improvements that are recommended to upgrade service amenities to match industry standards.

- **Security Cameras:** Security cameras on buses and at transit centers would increase safety and security for passengers. The cameras can also help with farebox recovery by ensuring drivers are not allowing non fare paying riders.
- **Electronic Fareboxes:** Electronic fareboxes would increase efficiencies and ease the reconciliation process for fare revenue collection.
- **Automatic Vehicle Locator (AVL):** AVL systems can be used to track the on-time performance of buses, verify that vehicles are using the proper route, and are a required component in other transit amenities that UGT may consider in the future, including displaying real-time arrival information to passengers, and voice annunciation systems
- **Automatic Voice Annunciation (AVA):** AVA systems are tied to an AVL system and automatically play a pre-recorded audio message to on-board passengers announcing the next stop or major intersection, and when a bus stops at a station an exterior speaker announces to waiting passengers the route number and destination of the bus. AVA technology would ensure UGT complies with FTA requirements of voice announcements on vehicles and at stops.
- **Bus Stop Amenities:** Installing additional bus stop amenities, besides those currently at Indian Springs Transit Center, the Village West area, and stops served by KCATA routes, will improve passenger comfort and provide enhanced presence for UGT in Wyandotte County.

The following proposed route reconfigurations attempt to address how transit can meet these changing development patterns. The proposed system reinforces a hub-and-spoke system out of the two major transfer centers in Kansas City, Kansas, while removing duplicative service.

The following service reconfigurations have been identified to improve savings and efficiencies.

- **Modify Route 101 Minnesota/State Avenue**: A more direct route similar to the proposed BRT route will save revenue hours and revenue miles.
- **Interline Route 102 Central Avenue and Route 103 3rd Street/Fairfax**: Allows for the daily savings of 3 revenue hours and 100 revenue miles.

- **Extend Route 113 Leavenworth Road to Village West**: Connects the predominately residential area on Leavenworth Road with a one-seat ride to a major employment and shopping center, improve transfers at Providence Medical Center, and compliment Route 101's recommended change.
- **Interline Route 115 Kansas Avenue and Route 116 West Parallel**: Creates opportunities for additional one-seat rides, extend service south to Turner High School, and remove duplicative service into downtown Kansas City, Kansas.

This report has also identified new means of delivering transit service to Wyandotte County through new management alternatives. In addition to evaluating the delivering service through the current hybrid model of UGT directly operating five routes, and contracting KCATA to operate five routes, new management models were also examined. These reviewed management models included maintaining the current management model, UGT assuming operations for all transit service within Wyandotte County, and UG contracting transit operations to a contract service vendor.

Based on costs the Contractor Management Alternative has the highest cost savings for both the current and proposed routes. The UGT Management Alternative would be the most expensive alternative. The proposed route enhancements would save money across the board for all management alternatives.

This page was left blank intentionally

GLOSSARY

Alight: To exit a vehicle.

Alignment: The scheduled path that a transit vehicle follows while on scheduled service, also referred to as a route.

Average Operating Cost Per Passenger: The total cost of operating a route, divided by the number of passengers using a route.

Fare Recovery Ratio: The percent of operating costs recovered through farebox and bus pass revenue.

Flex Route: A demand response service within a fixed zone. Trips are scheduled in advance to take customers to and from their destinations within the zone. This type of service is used in other communities where ridership in a given area is lower.

Frequencies: How often a bus arrives on a particular route.

Inbound: Traveling towards the major transfer point of the system.

Interlining: Allows the use of the same revenue vehicle and/or operator on more than one route without returning to the garage. Interlining can often minimize vehicle requirements as well as provide transfer enhancement for passengers. For interlining to be feasible, two (or more) routes must share a common terminus or be reasonably proximate to each other.

Peak: The period with the highest ridership during the entire service day, generally aligning with the traditional commuting hours.

Platform Hour: An hour when a vehicle is operating, regardless if the vehicle is in revenue service, or traveling between the route and garage.

Platform Mile: A mile when a vehicle is operating, regardless if the vehicle is in revenue service, or traveling between the route and garage.

Pulse-based System: A transit system where vehicles from multiple routes congruently arrive and depart at a single point allowing for easier passenger transfers.

Revenue Hour: An hour of scheduled service for a vehicle when it can pick up passengers, and not traveling to or from the garage or between routes.

Service Span: The span of hours over which service is operated, example 6:00 AM to 10:30 PM, this can often vary by weekday, Saturday, or Sunday.