



**Testimony of Chuck Ferguson  
Before the Senate Transportation Committee  
In Support of Senate Bill 35  
February 1, 2017**

The Kansas City Area Transportation Authority (KCATA) operates and manages public transportation systems in the Kansas City area and also performs immediate, short and long term transit planning for the region. Since 2015, the KCATA has managed Johnson County's transit system.

KCATA and Johnson County support SB 35 and the opportunity to operate buses on the shoulder of highways in Wyandotte County as we have done very successfully in Johnson County.

After passage of the current language in 2010, Johnson County worked with KDOT to study the I-35 corridor, make minor structure changes, and install signage and lane markings. Shoulder operation is only used in designated areas of I-35 in Johnson County. Bus-on-shoulder service started in 2012 and has worked very well for riders with no noticeable disruption to automobile commuters.

As buses leave Johnson County and head to downtown Kansas City, Missouri, they must travel through about 3.6 miles of I-35 located in Wyandotte County. This stretch of highway is often very congested at rush hours and is the focus of this bill. Passing SB 35 would allow buses to use the shoulder of I-35 in Wyandotte County, just as we have been doing in Johnson County.

Bus operators on the I-35 corridor go through enhanced training on how to safely utilize the shoulder. In addition, the current legislation limits when shoulders can be used and at what speed buses may travel. The combination of reasonable restrictions and appropriate training has made operations on the shoulder very safe. Since the program started in 2012, there have only been two non-injury, non-collision incidents. That's two incidents out of 13,432 miles driven on the shoulder.

Authorizing the use of the shoulder will reduce travel time for bus riders. Operators in Johnson County have demonstrated the ability to perform operations in a safe, efficient manner. KCATA asks for your support.

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RideKC

# I-35 Bus on Shoulder Operations 2016 Review



JOHNSON  
COUNTY  
KANSAS

## RideKC Johnson County

Public transit service in Johnson County is provided by Johnson County Government, operated by a private contractor, and managed by staff at the Kansas City Area Transportation Authority (KCATA). In 2015, fixed-route service in Johnson County transitioned from “The JO” to the new “RideKC” brand that is now in use throughout the region. This rebranding is one of many initiatives—including fare integration and route restructuring—to make transit service more seamless across the Kansas City region. The regional website and updated schedule brochures are shown in **Figure 1**.

RideKC Johnson County consists of 14 routes operating primarily in Johnson County but also connecting to Kansas City, Missouri, Kansas City, Kansas, and Lawrence, Kansas. Four express routes that travel from Park & Ride lots in Johnson County to Downtown Kansas City, Missouri use the shoulders on designated sections of I-35 to improve travel time and service reliability.

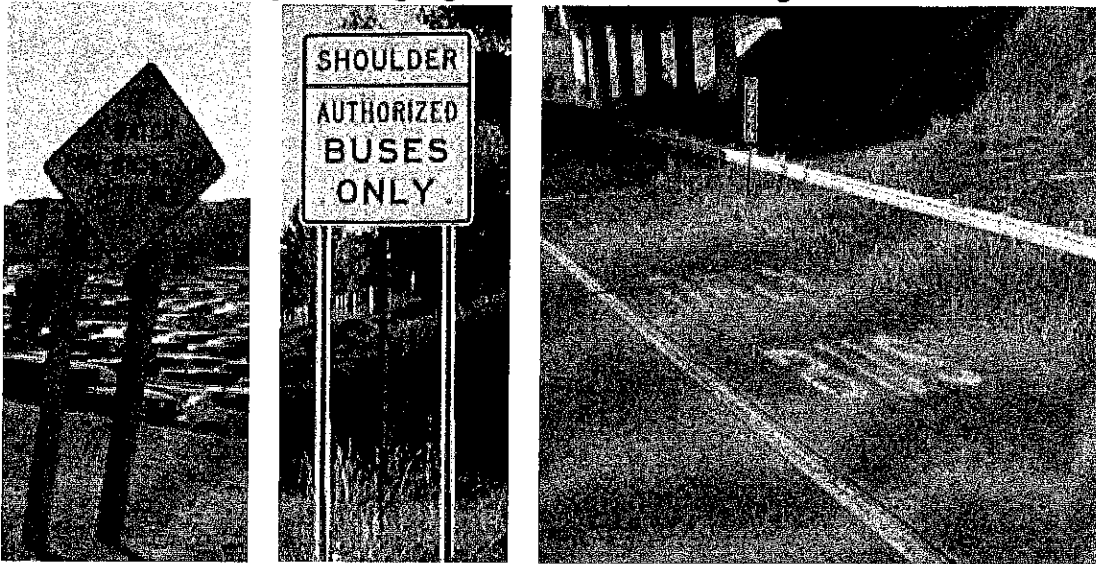
**Figure 1: RideKC regional website and new schedule brochures**



## Bus on Shoulder Background

Bus-on-Shoulder (BoS) operations in Johnson County is the result of research and planning for ways to enhance transit services, increase transit ridership, and decrease congestion transit riders encounter in the I-35 corridor. The initial solution was commuter rail on the parallel BNSF railroad, but ultimately it became clear that Bus-on-Shoulder was the preferred alternative in the 2007 I-35 Fixed Guideway Alternatives Analysis. After several years of planning and preliminary engineering by Johnson County and the Kansas Department of Transportation (KDOT), minor improvements were made along the shoulders in an approximately 8-mile segment of I-35 in 2011. As shown in **Figure 2**, these improvements consisted of moving sections of guardrail, moving or strengthening drainage inlets, and installing signage and pavement markings.

**Figure 2: Signage and Pavement Markings on I-35**



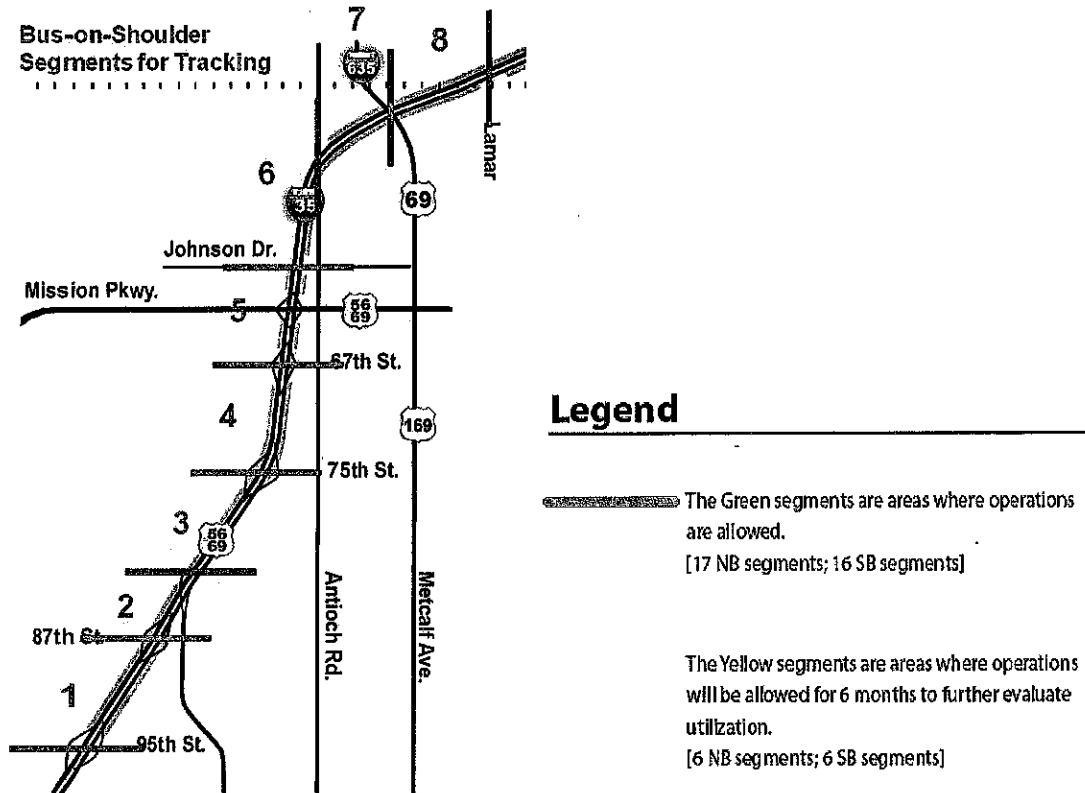
The planning process included learning from other regions that have implemented Bus-on-Shoulder, most notably Minneapolis, which has more than 300 miles of bus-only shoulders. State authorization for Johnson County buses to use shoulders within Johnson County was provided by HB 2561 in 2010 and by an Operating Agreement with KDOT. Amending state law to include Wyandotte County is a high priority for Johnson County and KCATA as this segment of highway will provide greater benefit for customers.

### **Operations Overview**

Four Johnson County commuter express routes are able to use the right shoulders, both northbound and southbound, of I-35 in Johnson County, between approximately 95<sup>th</sup> Street to Lamar Avenue. Buses are able to use the shoulders of I-35 within the defined segments only if traffic speed drops below 35 miles per hour. Buses using the shoulder can only travel a maximum of 35 miles per hour, and no more than 10 miles per hour more than adjacent traffic. Bus operators must yield to merging or exiting traffic at conflict points. Johnson County bus drivers undergo specialized training to prepare for highway travel and Bus-on-Shoulder operations. The decision of whether or not to use the shoulder in any given situation is ultimately at the discretion of the operator, in consideration of safety considerations and other factors.

For purposes of tracking usage, the eligible area is divided into eight segments of approximately one mile each. Bus operators note their usage of the shoulder by segment at the end of their trip. These segments are shown in Figure 3.

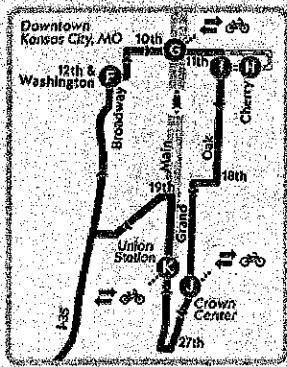
**Figure 3: BoS-Eligible Segments of I-35**



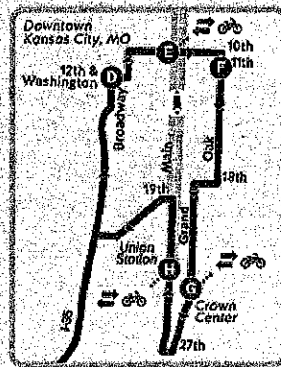
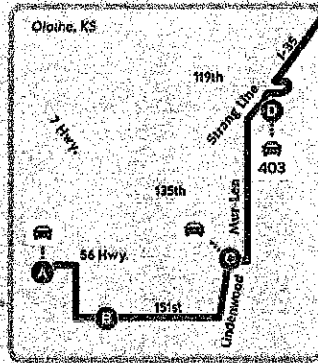
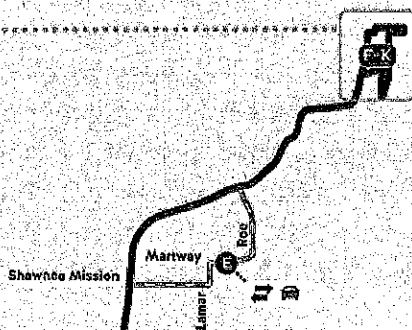
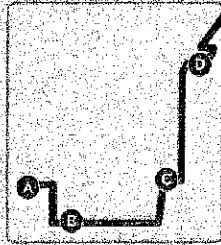
The four express routes that use BoS travel from Park & Ride lots in Johnson County to Downtown Kansas City, Missouri. These routes are as follows, and are shown in **Figure 4**. Combined, these routes carry an average of 540 riders per day. New route numbers that match the regional standard went into effect in January 2017.

- 519 Olathe Express (formerly 661)
- 563 Shawnee Express (formerly 678)
- 569 South OP Express (formerly 673)
- 595 Gardner-OP Express (formerly 670)

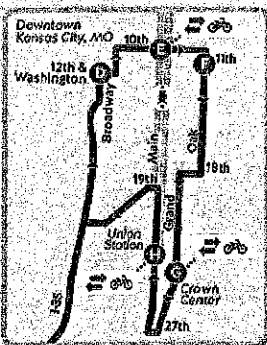
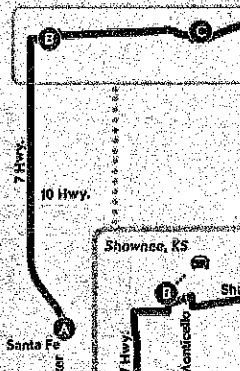
Figure 4: Johnson County Commuter Express Route Maps



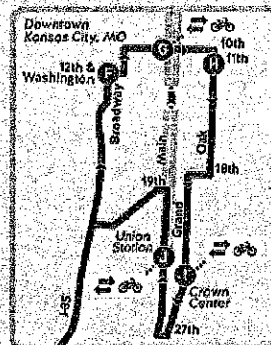
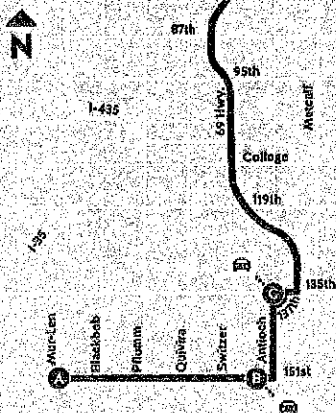
**519**  
Olathe Express



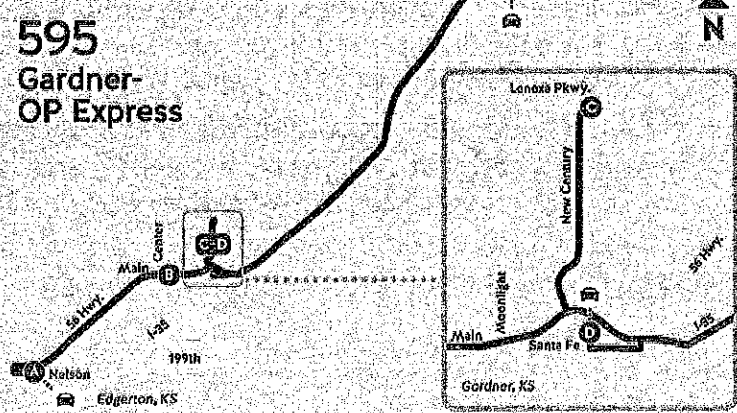
**563**  
Shawnee Express



**569**  
South OP Express



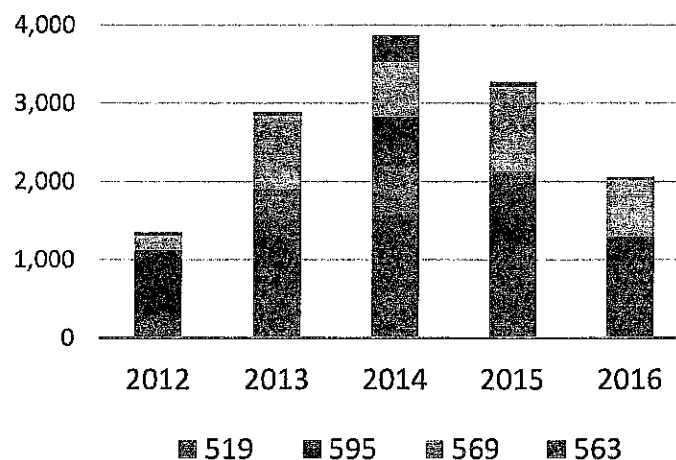
**595**  
Gardner-  
OP Express



## Usage of Shoulders

Use of the shoulders grew throughout the first year (2012) as drivers became more familiar with shoulder operations. 2012 ended with more than 1,300 miles traveled on the shoulder. As shown in **Figure 5**, this number increased substantially in both 2013 and 2014 to reach nearly 3,900 miles travelled in 2014. Miles traveled on the shoulder dropped in 2015 and more noticeably in 2016, with just over 2,000 miles travelled in 2016. This decline is due to a significant amount of construction in the corridor as well as a suspected decline in the attention that bus operators are giving to tracking their shoulder usage. The latter issue is being addressed for future data collection. However, this still represents a 52 percent increase compared to the first year of operations.

**Figure 5: Annual Shoulder Usage by Route (estimated number of miles)**



All four Johnson County downtown express routes continue to use the shoulders on a regular basis. **Table 1** shows the estimated miles travelled by each route. Buses on 519 Olathe Express use the shoulder the most, due to this route using the entire BoS segment and having more trips. 563 Shawnee Express uses shoulder less because the route has fewer trips than the other three routes and only uses I-35 for three of the eight miles where shoulder use is permitted.

BoS operations occur primarily on southbound trips due to more availability of shoulders for use and more favorable conditions. This information is summarized in Table 1. In 2016, southbound trips accounted for 97 percent of all shoulder use, with the two segments between Antioch Road and 67th Street being the most highly utilized. On northbound trips, buses are generally not able to use shoulders between 87th Street and 75th Street due merging traffic from U.S. 69 Highway. Drivers generally prefer to stay to the left through these segments to avoid conflicts with merging traffic. South of 87th Street (to 95th Street), congestion is much less prevalent in both directions. This segment was also impacted in 2016 by construction of a new 95<sup>th</sup> Street interchange.

**Table 1: Shoulder Use by Segment**

Segment	Southbound	Northbound	Total
I-635 to Lamar	127	6	133
Antioch to I-635	232	8	240
Johnson to Antioch	483	4	487
67th to Johnson	519	5	524
75th to 67th	396	10	406
69 Hwy to 75th	219	6	225
87th to 69 Hwy	11	12	23
95th to 87th	9	6	15
<b>Total</b>	<b>1,996</b>	<b>57</b>	<b>2,053</b>
Percent of Total	97.2%	2.8%	

As shown in **Table 2**, all of the top five trips that used shoulders the most in 2016 are southbound trips in the evening. Three of the four express routes are represented in the below table, only 563 Shawnee Express does not have a trip in the top five, as there is less opportunity for this route to use the shoulders.

**Table 2: Shoulder Use by Trip and Segment (Five Highest-Use Trips): 2016**

Run	Dir.	Segments	Highway segment of trip (scheduled timepoints)			
			Start Location & Time		End Location & Time	
569253	S	386	Union Station, KCMO	4:54 PM	137th & Antioch P&R	5:31 PM
569252	S	324	Union Station, KCMO	4:22 PM	137th & Antioch P&R	4:55 PM
595252	S	322	Union Station, KCMO	4:20 PM	Oak Park Mall P&R	4:48 PM
519255	S	301	12th & Grand, KCMO	4:43 PM	Strang Line P&R	5:16 PM
519251	S	154	Union Station, KCMO	3:26 PM	Strang Line P&R	3:55 PM

### Ridership

Until 2015, ridership on the four express routes using Bus on Shoulder had outperformed Johnson County as a whole in each year of Bus on Shoulder service. This trend reversed in 2015 and continued in 2016. In 2016, express ridership declined by 9.2 percent, while ridership on other routes declined by 3.4 percent. Ridership in 2015 has been impacted by a variety of factors, including lower gasoline prices as well as construction on I-35 and in downtown Kansas City affecting on-time performance of some trips throughout the year. Ridership data from all five years of operation are summarized in **Table 3**.



**Table 3: Johnson County Express Ridership Trends: 2011-2016**

Route	2011	2012	2013	2014	2015	2016	'15-'16 % Change	'11-'16 % Change
661 - Olathe Express	68,112	71,064	67,612	61,020	55,824	50,571	-9.4%	-25.8%
670 - Gardner-OP Express	38,556	44,862	43,528	42,613	36,089	30,953	-14.2%	-19.7%
673 - South OP Express	29,733	39,126	41,779	44,808	44,301	42,085	-5.0%	41.5%
678 - Shawnee Express	18,040	17,867	19,003	19,143	15,038	13,689	-9.0%	-24.1%
<b>Express Total</b>	<b>154,441</b>	<b>172,919</b>	<b>171,922</b>	<b>167,584</b>	<b>151,252</b>	<b>137,298</b>	<b>-9.2%</b>	<b>-11.1%</b>
JoCo Other Routes	365,080	389,471	360,239	344,320	325,086	314,029	-3.4%	-14.0%
JoCo Total	519,521	562,390	532,161	511,904	476,338	451,327	-5.3%	-13.1%

### Incident Review

BoS is restricted to defined speeds and conditions and is performed by well-trained bus operators. These features have effectively provided for the safe use of the shoulders. In five years of operation, only two incidents have occurred involving buses travelling on the shoulder:

- In December 2014, a truck pulling a trailer in the adjacent lane drifted into the shoulder into the path of the bus. The bus operator, avoiding a collision with the truck, moved to the right and struck a guardrail, causing some damage to the bus. No injuries and no damage to other vehicles resulted from this incident.
- In January 2015, a bus operator swerved to miss some debris on the shoulder and the right rear panel scraped against a concrete barrier on the outer edge of the shoulder. No injuries and no damage to other vehicles resulted from this incident.

Debris on the shoulders of I-35 is an occasional issue that impacts the ability of a bus to travel safely on the shoulder. Johnson County operations staff coordinates with KDOT whenever a driver reports debris on the shoulder. A "Shoulder Obstruction Report Form" is completed in these cases and submitted to KDOT. Operations staff report that this notification occurred only a few times in 2016. Bus operators report that debris removal has occurred promptly after being reported in each case, enabling the resumption of shoulder travel.

In both 2015 and 2016, various construction or pavement projects occurred on the corridor that caused some disruption to shoulder usage, although this impact was minor due to these projects being primarily north and south of the designated BoS corridor.

### Bus Operator Training

Johnson County bus operators undergo specialized training to prepare for highway travel and Bus-on-Shoulder operations. The introductory training program for BoS provides the new driver with approximately three hours of instruction. The first hour of classroom instruction covers safety policy, authorized procedures for operating a bus on the interstate highway shoulder and review of the BoS permitted areas (95th Street to Lamar on I-35).

BoS road training provides the driver with two hours of experience driving on narrow, black top, county roads that closely simulates the shoulder driving experience. A successful driver will demonstrate their understanding of where the bus is on the roadway, how to safely adjust the bus position (by inches), to successfully navigate the typical shoulder environment, and successfully adjust to the unpredictable actions of motorists in the adjacent lane of traffic.

BoS training using the authorized I-35 shoulders is unlawful without proper Kansas Highway Patrol (KHP) escort. Respecting the time limitations of KHP, driving simulation in low traffic environments is the next best opportunity for training.

**Figure 6: Bus Operator Training on I-35 Shoulder**



### **Customer Comments**

Johnson County occasionally receives customer comments relating to shoulder use. Complaints concerning Bus on Shoulder operations generally are in one of the following three categories:

- Complaints from passengers that bus operators are not using the shoulders when they should be or are not using the shoulders often enough. There were six complaints on this topic in 2016.
- Complaints from automobile drivers that are unaware of the Bus on Shoulder program and call when they see a bus on the shoulder. While there is adequate signage on the corridor, Johnson County generally receives a few invalid complaints each year on this topic. There were two complaints on this topic in 2016.
- Complaints from automobile drivers that bus operators are being reckless, cutting off drivers, and/or should not be on the shoulders. In these cases, Johnson County's contractor works to validate these complaints and coaches bus operators as appropriate. There was one complaint on this topic in 2016.

Johnson County has also received more general comments on social media from passengers who are on a bus that is using the shoulder and that they appreciate the service and the ability of buses to maintain their schedule.

### **Travel Time Savings**

Johnson County does not have sufficiently detailed travel time data—both for the bus and for general traffic speeds—to be able to compare shoulder use to a hypothetical travel time had the shoulder not been used. Past analysis indicates that the average time savings for a sample of buses that used the shoulder for at least two segments was approximately 2.6 minutes per trip. This savings can vary substantially depending on the route, distance, and traffic flow. Generally, the travel time savings for a bus using the shoulder is approximately eight to ten percent per trip. Drivers report that the ability to use shoulders has improved their ability to avoid extremely late trips and to provide more consistent service for customers.

Current legislation does not allow buses to use shoulders in Wyandotte County. This limits the potential for travel time savings as the Wyandotte County segment is the most congested segment of I-35. Additionally, allowing buses to travel 15 miles per hour faster than adjacent traffic would also lead to additional savings (increase from 10 miles per hour).

### **Basic Passenger Infrastructure**

Johnson County's Bus-on-Shoulder service continues to utilize new transit stations that were completed in 2013 at popular Park & Ride locations served by Johnson County express routes. Each facility has a concrete pad with appropriate connections to nearby sidewalks or parking lots, passenger shelters, route information kiosks, benches, and litter receptacles. Some of the locations also include bicycle racks and electronic real-time information signage. A total of six new stations were constructed. However, one location was closed due to the closure and demolition of the Great Mall in Olathe. Current Park & Ride locations with improved stations include:

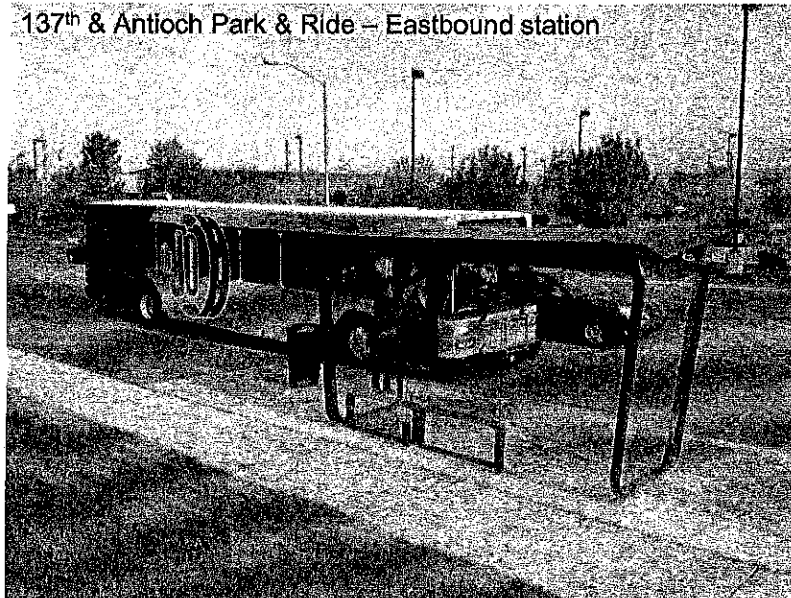
- Strang Line Park & Ride (Heartland Church) – see **Figure 7**
- Sheridan & Kenwood Park & Ride (Mid-America Nazarene University)
- 137<sup>th</sup> & Antioch Park & Ride (Palazzo 16 Theatre) – two stations – see **Figure 7**
- 151<sup>st</sup> & Antioch Park & Ride (Blue Valley Baptist Church)

**Figure 7: Park & Ride Station Photos**

Strang Line Park & Ride



137<sup>th</sup> & Antioch Park & Ride – Eastbound station



### **Future BoS Planning**

Expanding BoS to the segment of I-35 in Wyandotte County is the highest priority, due to existing service and areas of traffic congestion. Additionally, Johnson County already has grant funding available for the improvements that would allow for BoS operations on this segment. Future BoS phases should also be considered south of the existing segment, as far south as 151<sup>st</sup> Street. Shoulders in this portion of the corridor tend to be wider and would likely require fewer modifications. However, fewer buses travel south of 119<sup>th</sup> Street, and the I-435 interchange presents significant challenges. To the north, I-35 in Missouri does not have shoulders wide enough for BoS, but should be a long-term consideration for future improvements.

In addition to I-35, there are other highway segments used by Johnson County buses on which future BoS operations could be considered. These segments include:

- US-69 Highway between I-35 and 135<sup>th</sup> Street.
- K-10 Highway in Johnson and Douglas counties.
- I-435 between K-10 Highway and Quivira Road, potentially extending to other portions of the corridor in the long-term if future I-435 services are provided.

While these segments are a lower priority than extending the service on I-35, the fact that these segments are in Johnson County—and therefore already authorized by legislation—means that implementation on these corridors may be more feasible.

Johnson County, in partnership with the Mid-America Regional Council and the KCATA, is in the process of updating the regional transit plan with a focus on expanding job accessibility. This plan will explore ways to expand job access throughout the region, with a focus on the I-435 corridor on both sides of the state line. Bus on Shoulder will be an important consideration in this corridor, and the Missouri Department of Transportation already intends to factor BoS needs into designing improvements of I-435 between State Line and I-470. No transit service currently exists on this portion of I-435, but traffic counts and the number of existing and future jobs in the corridor indicate demand for transportation alternatives.

### **Conclusion**

JCT has found Bus-on-Shoulder to be a valuable tool for improving the passenger experience and quality of service on Johnson County express bus routes. The fact that only two non-injury incidents have occurred involving BoS is a tribute to the planning process and the training program that supports operations. Johnson County and KCATA have generally received positive feedback from the public and from drivers who conduct the operations, and certain trips at peak travel times use the shoulder nearly every day.

While Johnson County's experience with BoS has been positive, travel time savings is fairly limited due to the relatively short segment where BoS is allowed and the ability to travel only 10 miles per hour faster than mainline traffic. **The proposed (and designed) 3.6-mile segment in Wyandotte County will greatly improve JCT's ability to maintain schedules.** This segment is the most congested and presents the most opportunity for shoulder use. Legislative approval for this segment continues to be a high priority for Johnson County Transit. In addition, while state legislation is being revisited, consideration should be given to increasing the allowable speed differential to 15 miles per hour (as allowed in Minneapolis BoS operations).