

only one incident (non-injury) has occurred involving BoS is a tribute to the planning process and the training program that support BoS operations. JCT has generally received positive feedback from the public and from drivers who conduct the operations. In each three years of operation, bus operators have increased their usage of shoulders.

While JCT'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).

Prior to implementation, JCT facilitated a process to train bus operators to safely drive on the shoulders, with the assistance of the Kansas Highway Patrol.



I-35 Bus on Shoulder Operations Senate Bill 72: Bus on Shoulder Operations in Wyandotte County



Purpose: Johnson County is supporting SB 72, which would amend the operation authority currently authorized to the Kansas Department of Transportation and Johnson County Transit to operate buses on the right hand shoulders of city connecting links and highways in the state highway system in both Johnson and Wyandotte counties.

Background

Johnson County Transit (JCT) was authorized by the Secretary of Transportation to operate bus on shoulder along I-35 in Johnson County in FY 2011. In FY 2011 JCT and our partner agencies, KDOT, the Kansas Highway Patrol and HNTB began the implementation phase and roadway improvements required to begin operations in January 2012.



Bus on Shoulders Operations

Enhanced express bus service in the I-35 Corridor required a means for providing buses an advantage over automobiles. Bus on Shoulder (BoS) operation is used successfully in a number of metro areas. Minneapolis has deployed

over 277 miles of BoS on urban freeways and arterials. This link to Minnesota DOT's web site provides more information: <http://www.dot.state.mn.us/metro/teamtransit>. Increasingly transit agencies and transportation departments are turning to this technique as a way to improve transit service and increase the effectiveness of urban roadways without the large infrastructure investment required of other improvements.

The BoS concept is straightforward. Buses are permitted to use the shoulder in designated sections of the freeway when traffic congestion reduces traffic speeds below a certain level, usually 35 MPH. The designated BoS sections are predetermined based on the physical and operational characteristic of the shoulder and the freeway. Interchange areas are evaluated on a case-by-case basis to determine how buses can best operate through the interchange. BoS operation is only permitted where it can be used safely.

The shoulder remains a shoulder in terms of its functions. If the shoulder is in use by a disabled vehicle or an emergency vehicle the bus cannot use the shoulder and must merge back into the adjacent traffic stream.

The safety of BoS is further enhanced by restrictions on transit operations. The speed differential is limited to ten mph. Thus if traffic is at 30 mph buses can only travel at 40 mph. Buses can pass stopped traffic at ten mph.

Signage, pavement markings and an effective public information campaign, along with bus driver training were also parts of the JCT successful BoS operation.



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Signs

Watch for Buses on Shoulder sign (posted at entrance ramps or cross streets)

Exception sign (posted at "pinch point" on BOS)



Typical Shoulder sign (posted approx every 1 mile) "Begin" or "End" signs may be posted above this sign

No Special Pavement Markings

Benefits of Bus on Shoulder Operations

The benefits of transit include reduced travel time and priority over automobiles, both of which will make transit more attractive to Johnson County Commuters. Perhaps the most important benefit is to improve the reliability and timeliness of transit service. I-35 traffic conditions are unpredictable. An incident can result in delays that not only delay commuters but have compounding effects on bus schedules. Finally, the perception of enhanced bus service is important – a bus passing stopped or delayed traffic on I-35 will have a significant effect on how Johnson Countians view transit service.

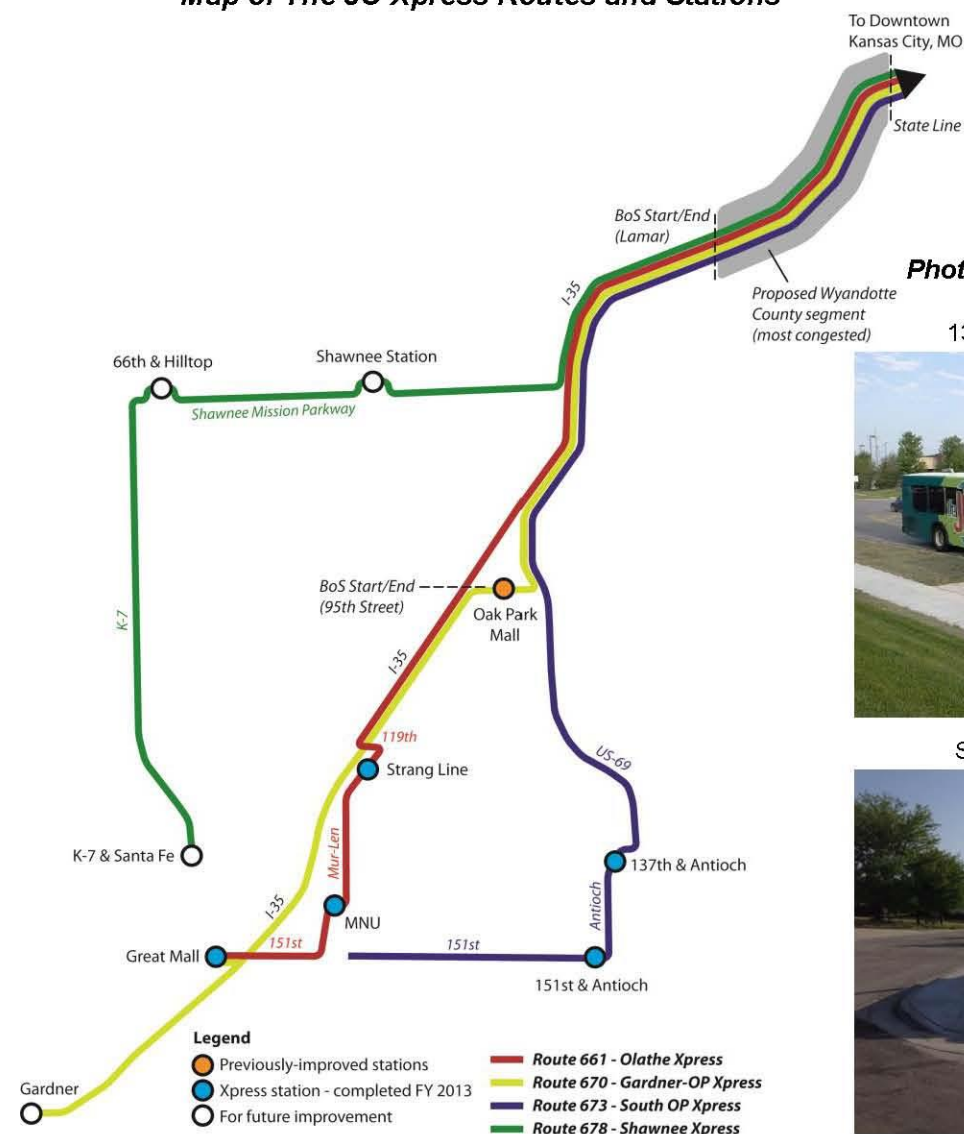


Project Update



Johnson County Transit began Bus on Shoulder (BoS) operations in January 2012 after several years of planning and preparation. Four routes, collectively known as **The JO Xpress**, are able to use the right shoulders of I-35 in Johnson County from approximately 95th Street to Lamar Avenue. These routes travel from Park & Ride lots in Johnson County to Downtown Kansas City, Missouri.

Map of The JO Xpress Routes and Stations



Photos of Park & Ride Stations

137th & Antioch Park & Ride

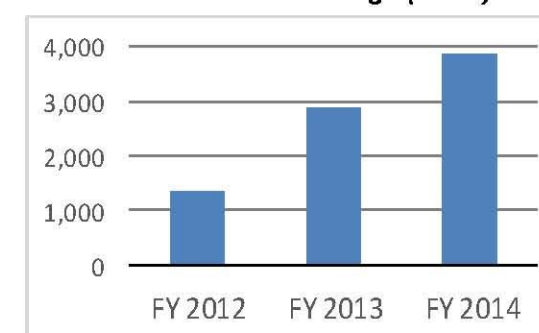


Strang Line Park & Ride



Use of the shoulders grew throughout FY 2012 as drivers became more familiar with shoulder operations. **Xpress** buses traveled an estimated total of 1,348 miles on the shoulders in FY 2012. This number increased to 2,888 miles in FY 2013. Data from FY 2014 show that shoulder usage continues to grow, with an estimated 3,879 miles travelled on the shoulder, a 34 percent increase from the previous year.

Annual Shoulder Usage (miles)



More than 90 percent of shoulder travel occurs on southbound trips. The merger of U.S.-69 and I-35 creates a number of constraints for northbound buses using the shoulder as does our current ability to only operate in portions of Johnson County. However, JCT receives positive feedback from drivers and passengers as buses are better able to maintain schedules when traffic congestion is present.

JCT has found Bus on Shoulder to be a valuable tool for improving the passenger experience and quality of service on **The JO**. The fact that