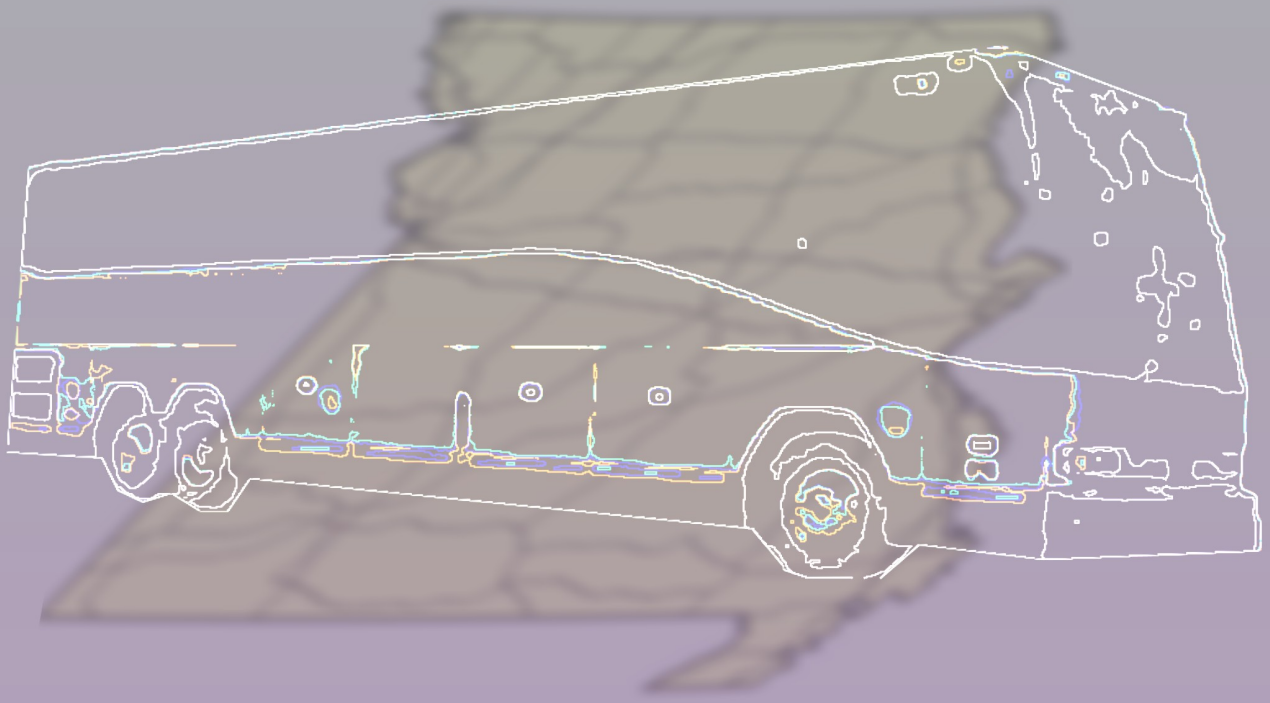
Missouri Intercity Bus Study

Final Report



April 27, 2010

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Executive Summary

Intercity bus service is a unique mode of transportation, able to cover long distances comparable to those of domestic air or rail travel, but using a non-exclusive right-of-way: the public highway system. Over-the-road travel gives intercity buses flexibility unavailable to other modes, allowing them to serve more remote, rural destinations (as the bus companies determine feasible). Consequently, intercity buses have the potential to serve many populations that might not otherwise have long-distance travel options.

The purpose of this study was to examine the state of intercity bus service in Missouri, with a focus on the potential to improve service to rural areas. By partnering with both providers and stakeholders, MoDOT was able to develop a set of solutions uniquely tailored to the state's needs.

Existing System

Intercity bus routes in Missouri cover about 1,200 miles, with a capacity of over 444,000 seat-miles per day. However, as can be seen in the map at right, there are several large geographical "pockets" within the state that are not penetrated by intercity bus service, most notably the north-central, central, and south central areas. In addition, many of the existing scheduled bus stops occur at less-than-convenient times: 32 percent of buses stopping in Missouri do so between 9 p.m. and 6 a.m. This fact is mainly due to Missouri's location near the north-south and east-west center of the United States, meaning that many routes are in some sense "passing through" the state (with schedules often based on endpoints well outside the state).

Existing Routes and Stops in Missouri

Missouri intercity bus service is largely provided through four carriers: Burlington Trailways, Greyhound Lines, Inc., Jefferson Lines, and Megabus. The carriers operate on different business and geographic models, some of which might apply better to expanded rural service than others. However – in general, rural service is very difficult to sustain profitably. In Missouri, 20 percent of the intercity bus stops (the more urban locations) serve 94 percent of the state's intercity bus passengers, meaning that the remaining 80 percent of stops serve 6 percent of the passengers. Low-volume stops can be difficult to sustain if they are not on a heavy-volume through route (for which higher-volume stops can help cover costs).

Ridership Markets

The study included special focus on who is currently riding, and who might potentially ride, intercity buses in Missouri. While anyone wishing to travel long distances can rightfully be considered a potential intercity bus rider, there are several distinct population groups that tend to ride more than the average. Based on surveys, focus groups, and interviews, the study team identified characteristics of several of these groups:

- *Low-Income:* Intercity bus is arguably the most affordable method of traveling long distances, especially for those who do not own an automobile. Concentrations of both low income and below-average auto-ownership populations were noted along the unserved US-63 and US-60 corridors in Missouri, among other "spot" locations.
- *Elderly:* Many travelers in the upper age brackets are transit-dependent and/or require more medical travel than those in lower age brackets. Missouri's elderly are well-dispersed throughout the state, so serving all segments of this population would mean increasing route coverage. In national studies, the elderly have been found to constitute 27 percent of all intercity bus riders.

- *Cultural:* The Hispanic community, which is known to travel by intercity bus at a higher rate than many other ethnic groups, currently constitutes a little over 3 percent of Missouri's population. For various reasons, obtaining information about this group's intercity bus habits and needs in Missouri was difficult. It was found that there are several areas of higher Hispanic concentration within the state that are not currently served by intercity bus.
- *Students:* There are approximately 345,000 students at institutions of higher learning in Missouri. Generally, long-distance student travel to and from college occurs on weekends and holidays to return home, make other social visits, and attend entertainment events. Focus groups conducted during this study indicated that awareness of intercity bus as an option may be low among students, even at colleges near intercity bus stops. Given typical student income ranges, intercity bus could be a more popular mode if more successfully marketed. In national studies, students have been found to constitute 27 percent of all intercity bus riders.
- *Amish:* The Amish generally do not own personal motorized vehicles, but are a tightly-knit community nationwide, with families often traveling long distances for weddings, funerals, and visits. It is estimated that nearly 10,000 Amish live in Missouri. Over half the Missouri Amish surveyed in this study travel by intercity bus at least one to two times per year. Many of Missouri's Amish settlements are in areas remote from intercity bus service.
- *Incarceration Facilities:* About 40 percent of the over 18,000 inmates released annually in Missouri are transported by intercity bus. In addition, Missouri's prisons receive an average of nearly 8 visitors per year per inmate. Some of the state's prisons are served by nearby intercity bus stops, but for others, intercity bus stops are fairly distant. Wardens have expressed a need for closer stops, for release purposes. Anecdotally, not many visitors to Missouri prisons travel by intercity bus, but this visitor group certainly could be a strong market if improved service were available (that reasonably matched visiting hours).
- *Military:* Fort Leonard Wood is the major military installation in Missouri, with a population of about 30,000. The major issue at the existing intercity bus stop near the Fort is capacity: buses are often full by the time they arrive at the Fort on the way to St. Louis (the primary destination of soldiers leaving the Fort). Unlike many of the other populations analyzed in this report, the military population is very concentrated, with very focused (not statewide) intercity bus issues.
- *Persons with Disabilities:* In surveys, this population segment had more experience with certain types of buses than any other group (with the exception of the Amish), but not intercity buses. In addition, many of those surveyed in this group often are driven by someone else on long-distance trips. By continuing to increase awareness, accommodations, and coverage, intercity bus could increase ridership from this group.
- *Medical:* There are 159 hospitals in Missouri (21,700 beds), and 335 rural health clinics. Some hospitals within the state have indicated that many patients are unable to drive themselves to medical facilities, for a variety of reasons. There is consensus that medical travel is an issue for many of Missouri's rural citizens, but it is clear that intercity buses are not often used for this purpose (only two percent of riders surveyed used the bus for medical trips). However, there are certain types of medical trips for which intercity buses will likely never be used. Even so, targeted marketing might make potential users more aware of this option.

Some of the groups toward the bottom of the above list (notably medical travelers and persons with disabilities) are not always frequent intercity bus riders. In Missouri, increased intercity bus frequencies, improved daytime schedules, an increased number of rural stops, and targeted marketing to individuals with disabilities as well as to the medical community, could help attract new ridership from these groups. In general, almost all population groups surveyed indicated a willingness to use intercity bus as a long-

distance transportation mode if stops were closer to origins and destinations, if prices were lowered, and if gas prices rose to make long-distance travel by personal automobile less attractive.

Coordination with Other Modes

The intercity bus mode can benefit from coordination with other transportation modes in the state, most notably local urban and rural transit systems.

- For urbanized systems, this study found that of the six cities served by both urban transit and intercity bus, three have good to excellent integration between the modes; for the other three (Columbia, Springfield, and Kansas City), it is recommended that the intercity bus providers work together with other transportation modes (transit, taxi, passenger rail, scheduled air service) to develop consolidated multimodal hub facilities serving all modes.
- Rural systems present challenges for coordination. Although a majority of Missouri's counties provide rural transit connections to intercity bus stops, formal coordination is difficult due to several factors: intercity bus stop times in Missouri (often late at night), the non-daily nature of typical rural transit systems, the demand-response (unpredictable) characteristics of rural transit demand, and the reservationless operational model of intercity bus industry.

In order for intercity bus to effectively serve urban and rural markets, coordination with local transit is essential. Acting as a feeder service from rural areas to other long-distance modes – aviation and rail – is another viable use for intercity buses, and could be expanded in Missouri.

Needs and Solutions

Through surveys, interviews, and analysis, the study identified a set of needs, based around gaps (geography and time-of-day), user feedback, and provider feedback. Based on these needs, the study team developed a set of principles for intercity bus in Missouri, which led to a set of prioritized recommended solutions.

Prioritized Principles

1. Make effective connections between desired origins and destinations, including connections to modal travel outside Missouri (e.g. national ICB, passenger rail, air service).
2. Increase the total amount of rural intercity passenger service available.
3. Increase awareness of the services available and the ability to obtain schedule information.
4. Increase traveler convenience, comfort and safety.
5. Ensure service expansions are feasible within realistically available funding and administrative capacity.
6. Obtain active support of affected communities.

Prioritized Solutions

1. Improve coordination between transit services, feeder routes and through routes to improve traveler convenience.
2. Subsidize bus purchases (to increase the fleet size and reduce maintenance costs for ICB companies).
3. Improve stops and stations to increase comfort and safety (even if service levels cannot be increased).
4. Create a desired intercity network and allow public and private providers to submit creative bids to serve all or parts of the network.
5. Partner with statewide or nationwide commercial franchises for stops, agents, and marketing.
6. Include advertising needs as part of assistance projects and contracts.
7. Continue to allow competitive grant proposals to increase services to/from ICB service areas (as opposed to other 5311(f) allocation methods).
8. Create brochures with ICB information and contacts to be placed in public information kiosks at rural locations served by ICB; create press releases when new service is introduced.
9. Provide subsidies and usage guarantees to increase total services.

1. Introduction

Study Purpose

The MoDOT Intercity Bus (ICB) Study has the following major goals:

1. Characterize the state of existing intercity bus service in Missouri.
2. Identify potential areas of unserved rural demand.
3. Develop strategies to enhance rural service over the near and longer term.
4. Partner with providers and involve stakeholders in meaningful and appropriate ways.
5. Share the study findings with the larger transportation community in Missouri and nationwide.

The Federal Transit Administration (FTA) defines intercity service as regularly scheduled bus service for the general public which operates with limited stops over fixed routes connecting two or more urban areas not in close proximity, which has the capacity for transporting baggage carried by passengers, and which makes meaningful connections with scheduled intercity bus service to more distant points. Package express service may be included, if it is incidental to passenger transportation.

Study Approach and Process

The study used a two-pronged approach to identifying demand:

- The first focus was *provider-based* (Chapter 2). This meant obtaining operational data from and about the various ICB providers within the state, including schedules, fares, ridership information, and stated needs.
- The second focus was *market-based* (Chapter 3). This meant identifying existing and potential user groups for ICB, and exploring their travel needs and habits through surveys, demographic analysis, interviews, and focus groups.

The study team also examined the economics of ICB (Chapter 4), as well as looking at ICB in the context of the other travel modes provided in Missouri (Chapter 5). Based on all of the information gathered and analyzed, the study team developed a characterization of ICB needs in Missouri (Chapter 6), leading to a set of recommendations (Chapter 7).

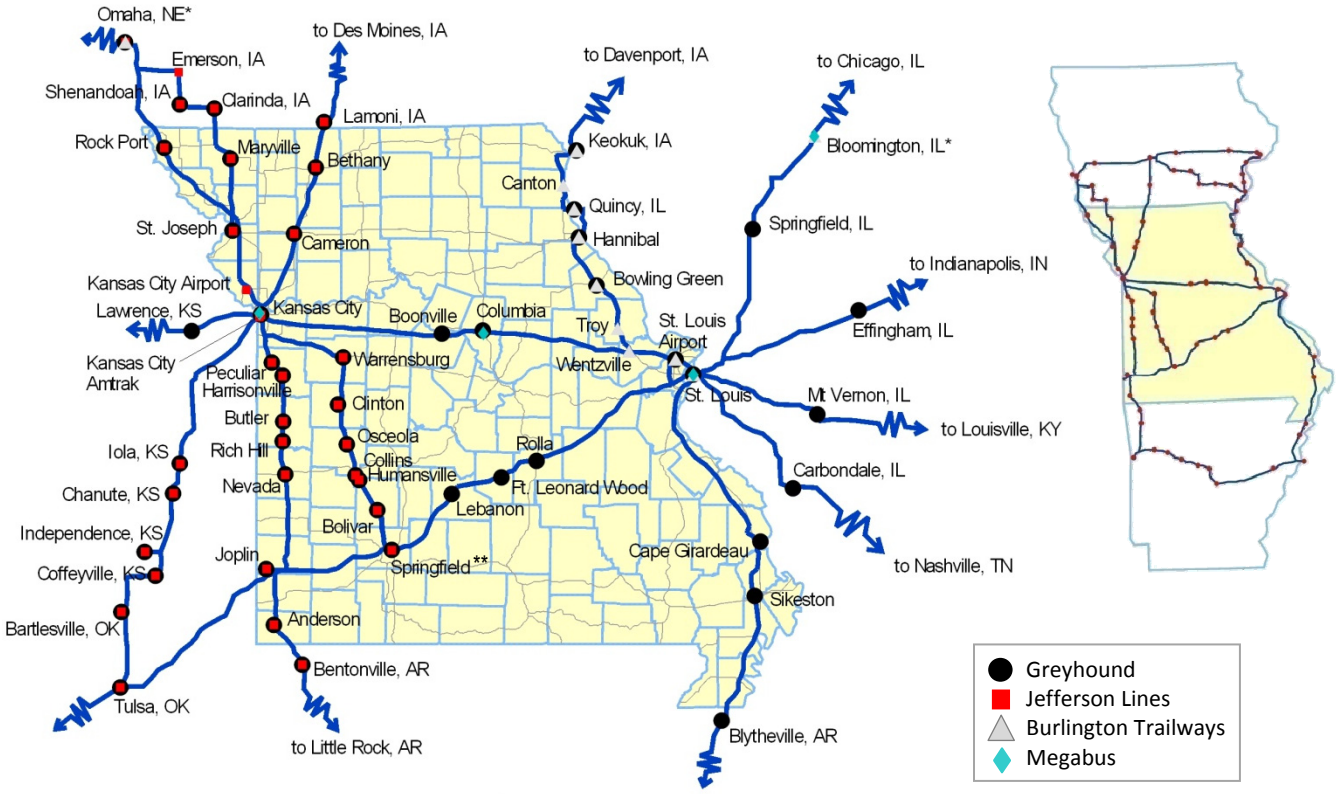
The study team was aided throughout by an Advisory Committee composed of provider representatives, a selection of rural and urban transit providers, and representatives of various market segment populations known to use ICB with higher-than-average frequency.

2. Missouri's Existing Intercity Bus System

Routes and Stops

Figure 2-1 is a map of the current intercity bus routes in Missouri. The intercity bus "system" (as it will be hereinafter called) covers approximately 5 percent of Missouri's highways (1,500 miles). The majority of the service comes from four providers: Greyhound, Jefferson Lines, Burlington Trailways, and Megabus. A few other smaller companies (such as Ozark Shuttle, and some Hispanic-oriented bus lines) provide service that can be classified as intercity bus; these are also briefly described later in this chapter.

Figure 2-1: ICB Routes and Stops In and Near Missouri



**Burlington Trailways stops in Omaha, NE and Bloomington, IL are along East-West routes, not shown on this map.*

***Note: Since development of this graphic, Jefferson Lines has extended service south from Springfield to Branson, MO and Fayetteville, AR.*

The map also shows what happens to each intercity bus route as it leaves the state: where the nearest out-of-state stop is, and how these routes connect to major Midwestern regional destinations. In keeping with this overall study's focus on meeting needs, it is worth noting that this map begins to point toward a geographic gap: North-south travel by intercity bus is only provided at the eastern and western edges of the state, separated by 200 to 300 miles (With the exception of the Warrensburg – Springfield corridor). In contrast, east-west travel is much better served in the center of the state, but not near the northern and southern borders – although east-west intercity routes are provided in Arkansas and Iowa at distances of

60 to 120 miles from their respective state borders with Missouri (as shown in the smaller scale inset map).

The majority of the ICB stops in Missouri (as in most states) are at small local establishments such as diners, convenience markets, or fast food restaurants. Some cities have dedicated terminals or intermodal facilities of varying sizes: Columbia, Kansas City, St. Joseph, and St. Louis are notable.

Table 2-1 summarizes some statistics for the four major carriers based on an analysis of available schedule and route information.

As the table illustrates, Jefferson Lines provides the most route-miles, while Greyhound offers the most vehicle-miles and seat-miles per day (fewer route-miles but more vehicles). It should be noted that Megabus' very high ratio of seat-miles to vehicle miles is due to its use of double-decker, 81-passenger buses in contrast to the other providers' 55-passenger buses.

Table 2-1: Intercity Bus Carrier Statistics within Missouri
(as of September, 2008)

	Stop Locations	Route-Miles	Vehicle-Miles/Day	Seat-Miles/Day
Burlington Trailways	6	161	1,680	92,000
Greyhound Lines, Inc.	11 (plus 20 bus pooling*)	171 (plus 453 bus pooling*)	2,730	150,000
Jefferson Lines	22	629	2,050	113,000
Megabus	3	245	980	79,380
TOTAL	**42**	**1,206**	**7,440**	**434,380**

* See definition of bus pooling on page 9.

Fares

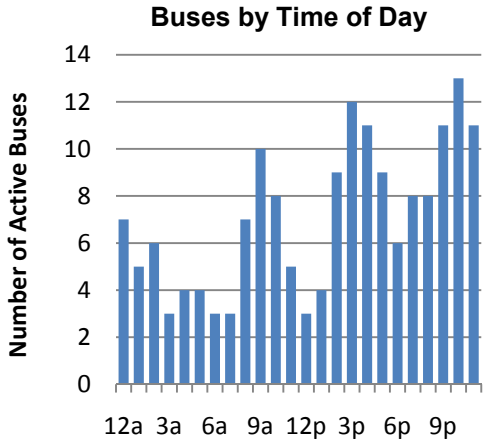
Typical fares for seven Missouri city pairs are included in **Table 2-2**. This table includes examples of round-trip fares for Greyhound, Jefferson Lines, and Burlington Trailways, collected during October of 2009. Megabus is excluded from this matrix because of their unique fare structure (explained in more detail later). For the cities selected, prices range from around $50 for shorter trips (such as Kansas City to Columbia) to almost $200 for longer trips (such as Cape Girardeau to St. Joseph). At the very high end, a ticket between Hannibal and St. Joseph can cost up to almost $230. This is likely due to the indirectness of the current routes between the two cities. A passenger would have to make two transfers (St. Louis and Kansas City) and ride on three different ICB carriers to make this trip. Both Hannibal and St. Joseph are situated along US-36, therefore, it is likely that a new route along this corridor would alleviate some of the cost and a great deal of time for passengers between these two cities.

Table 2-2: Representative ICB Round-Trip Fares (as of October, 2009)

	Kansas City						
St. Louis	$66-88	**St. Louis**					
Springfield	$75-101	$88-103	**Springfield**				
Columbia	$47-63	$48-67	$105-139	**Columbia**			
St. Joseph	$37-43	$115-153	$90-119	$75-99	**St. Joseph**		
Joplin	$82-93	$115-153	$37-55	$115-153	$100-112	**Joplin**	
Cape Girardeau	$136-179	$60-79	$125-165	$99-130	$151-199	$141-185	**Cape Girardeau**
Hannibal	$131-173	$47-63	$99-130	$99-130	$141-227	$141-185	$99-130

Schedules

Figure 2-2 (page 8) illustrates the position and direction of every scheduled intercity bus in Missouri by hour of day. As can be seen in the figure, intercity buses run 24 hours per day in the state of Missouri. Depending on the time of day, as few as 3 or as many as 13 buses are traveling through the state. As can be seen on the graph at the right, the numbers of buses en-route generally increases throughout the day, with the highest 4-hour period occurring between 8 p.m. and 11 p.m.



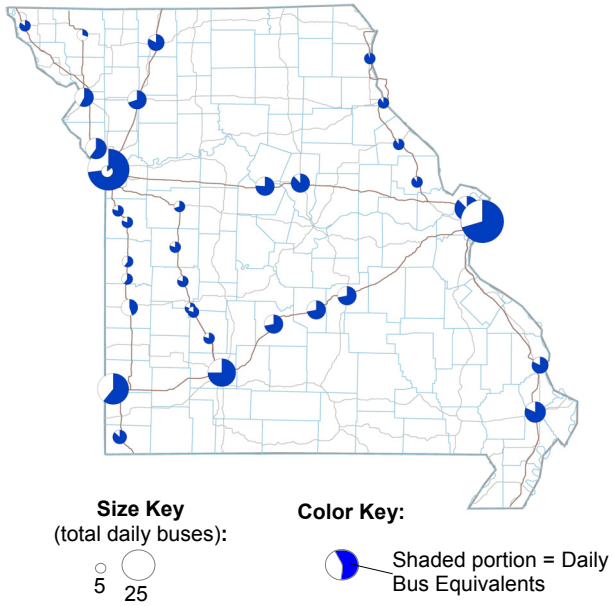
The study team developed a subjective scale to represent the level of service for each stop in Missouri, factoring in the time-of-day. The concept of "Bus Equivalents" (Beq) was used to reflect the fact that a bus that arrives or departs in the middle of the night is of much less value to the typical rider than one that arrives in the middle of the day. The table at right summarizes this rating scale; for example, a bus that arrives between 11 p.m. and 12 a.m. is considered to be the equivalent of 0.3 buses. This scale attempted to take into account the fact that certain times might be better to arrive than depart (for example, late evening) and vice versa.

Bus Equivalents (Beq) by Time of Day

	Beq
12a – 6a	0.1
6a – 9a	0.5
9a – 12p	0.7
12p – 4p	1.0
4p – 7p	0.7
7p – 11p	0.5
11p – 12a	0.3

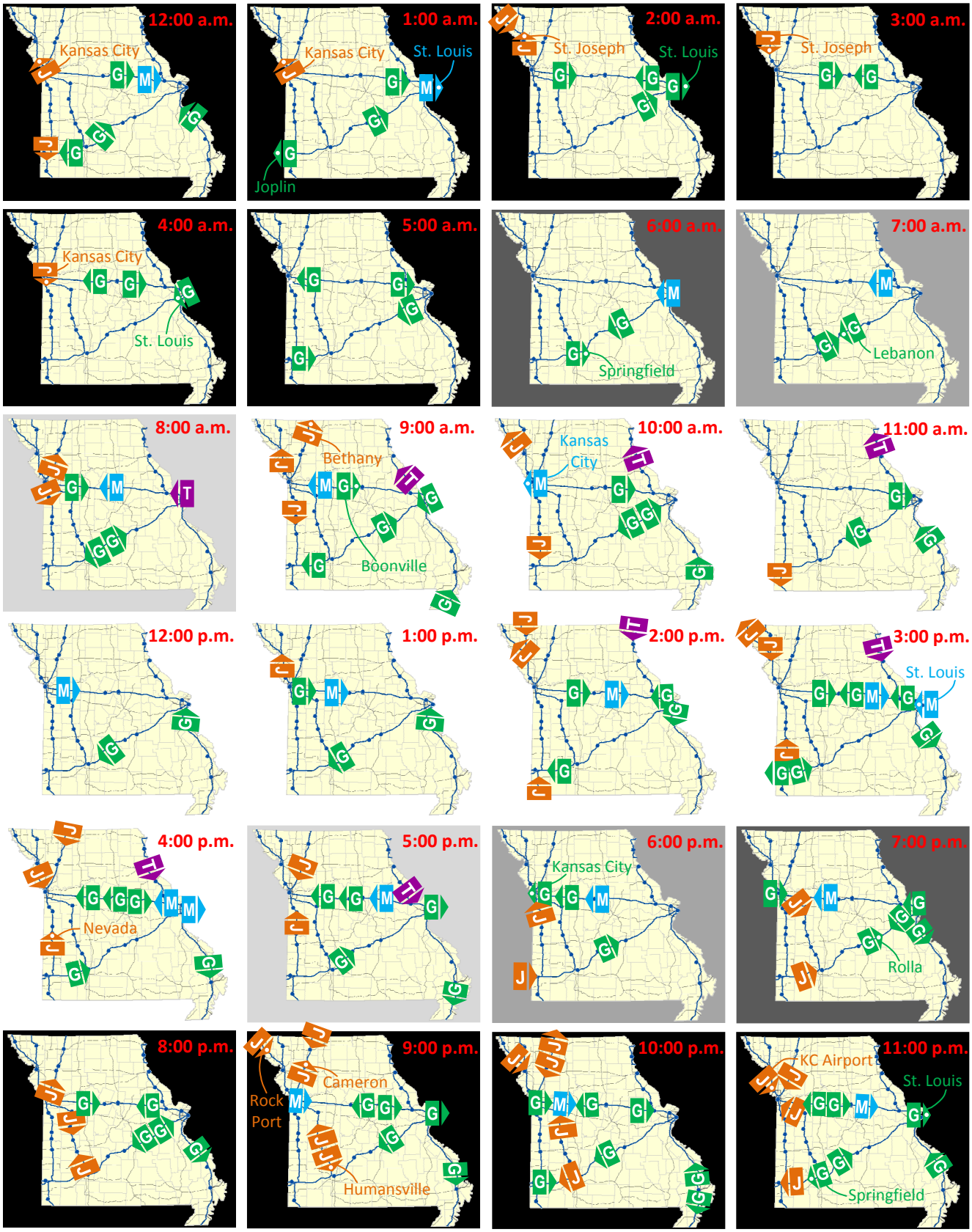
For each stop, the Bus Equivalents for every arrival and departure during the day were summed to arrive at a stop-level bus equivalent. For example, the City of Maryville has two bus stops each day: a northbound stop at 2:35 a.m. (Beq = 0.1) and a southbound stop at 2:35 p.m. (Beq = 1.0). Therefore, the total calculated Beq for Maryville is 1.1 (= 0.1 + 1.0). The map at right illustrates the Beq values for each stop in Missouri. As the map shows, the Kansas City and St. Louis bus terminals have the highest Beq values (13.8 and 12.7, respectively). A second tier of stops is formed by Joplin (5.6), St. Louis Airport (5.3), and Springfield (4.3). The map also shows the potential Beq for each stop if all the buses that arrived at that stop each day had a Beq of 1.0.

"Bus Equivalents" at Existing ICB Stops



The Bus Equivalent concept was used in the study as part of the development of conceptual relationships between ridership and factors such as population. Its use for this purpose is described more fully in Chapter 6.

Figure 2-2: Time-of-Day Bus Locations in Missouri



Note that in scheduling ICB stops, providers are constrained by the routes their vehicles run. For example, one of the Jefferson Lines buses that stops in Kansas City is on an 1100-mile north-south run from Minneapolis (MN) to Dallas (TX), a total trip length of 22 hours and 30 minutes. Providers must schedule based on routes, and for a state such as Missouri, which is near the middle of the U.S. both north-south and east-west, this can result in buses arriving in many cities at less-than-optimum times. This fact begins to point toward the idea that if Missouri desires bus schedules at more reasonable hours, pointed development and assistance for more "localized" Missouri routes are worth examining. This idea is further discussed in Chapter 6.

Providers

This section describes the basic operations of each carrier, both in Missouri and throughout the carrier's system, as appropriate. A few initial definitions will be of help:

Reservationless: Traditionally, the ICB industry has operated on a reservationless system, meaning that a ticket does not guarantee a seat. If a bus is full, some passengers may be denied boarding. The positive side of this system is that although tickets are purchased for a specific date, passengers can travel on alternate days as their plans change. This unique aspect of the ICB mode makes some aspects of service planning difficult. Only one of the large Missouri ICB companies, Megabus (see description later in this section), does *not* use reservationless ticketing.

Interlining: This term generally describes the ability for a passenger to make a trip using multiple providers with a single ticket. Nationwide, Greyhound has developed software (called Gateway) that allows other providers to interline with their national network. In Missouri, two of the providers discussed below interline with Greyhound.

Bus Pooling: Also known as "pooled service", this term generally describes a situation wherein multiple providers operate service cooperatively with a common pool of buses and common ticketing of passengers. In Missouri, this happens with the same two providers that interline with Greyhound. For example, passengers booking travel on Greyhound from Minneapolis to Kansas City will travel on a Jefferson Lines bus.

Each of the major ICB providers is described below.

Burlington Trailways

Burlington Trailways Route System
(redrawn from information provided by BT)

As the system map at right illustrates, Burlington Trailways is primarily an east-west concern, providing service to northeast Colorado, southern Nebraska, Iowa, Illinois, and parts of Indiana. A very small portion of Burlington Trailways service occurs in Missouri, through a connection from Iowa south along the Missouri-Illinois border, with a southern terminus in St. Louis. Burlington Trailways has 6 stops in Missouri in addition to St. Louis: Canton, Hannibal, Bowling Green, Troy, Wentzville, and the St. Louis-Lambert Airport.

Burlington Trailways is headquartered in Burlington, Iowa. The business model for Burlington Trailways is primarily that of an interlining service. The majority of their passengers (approximately 80 percent)

begin or end their trip on other intercity bus carriers (primarily Greyhound), and are only on a Trailways bus for a portion of their trip. Interlining allows Burlington Trailways to be a part of a bigger, cross-country network, without having to run their own cross-country trips. This also allows them to pursue a philosophy of providing better localized, rural service. For example, upon request, Burlington Trailways will make additional unscheduled stops along their existing routes.

Greyhound Lines, Inc.

Greyhound, headquartered in Dallas, Texas, is the largest provider of intercity bus services in North America. As the system map (and Missouri inset) below illustrate, Greyhound routes through Missouri fall on largely east-west transcontinental routes. There are three routes specifically carried by Greyhound (shown in blue), and these routes follow I-70, I-44, and I-55. Each of these routes includes St. Louis. In addition, Greyhound has 10 other stops in Missouri. Along I-70 there are stops in Columbia, Boonville, and Kansas City. Along I-44, there are stops in Rolla, Ft. Leonard Wood, Lebanon, Springfield, and Joplin. Along I-55 there are stops at Cape Girardeau and Sikeston. Routes shown in different colors on the map are run by other bus companies, which have pooled service agreements with Greyhound. In Missouri, these routes (shown in green) are operated by Burlington Trailways on the east side of the state, and by Jefferson Lines on the west side of the state. (Note that the Greyhound map is slightly out-of-date; for more current route and stop information, see **Figure 2-1**.)

Greyhound Route System *(source: www.greyhound.com)*

Missouri Inset

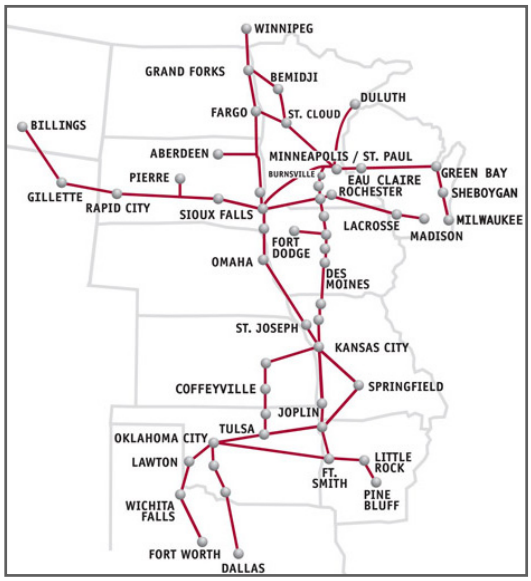
Traditionally, Greyhound has operated on a network model, providing service along major corridors, as well as running small tributary lines feeding into the major corridors. However, along the east coast, Greyhound is beginning to test a new business model that serves major city pairs (New York City to Boston, for example), with few (or no) stops in between, increasing the efficiency of the routes.

Greyhound also uses the Gateway system (as described above) for selling tickets. In some larger terminals, Greyhound has starting using E-Tickets, which allow riders to print their internet-purchased tickets at home, and then directly board a bus rather than having to wait in line at the station (in most locations, tickets purchased online must still be picked up at the bus stop/station).

Jefferson Lines

Jefferson Lines provides primarily north-south service throughout the center of the United States. Jefferson Lines is headquartered in Minneapolis, Minnesota. In addition to Minnesota, Jefferson provides service to 11 other states (as shown in the figure to the right). Within Missouri, Jefferson routes run primarily along the western border of the state. Jefferson has the most bus stops of any provider within the state of Missouri, with 22. From north to south, stops are located at Rock Port, Maryville, Bethany, St. Joseph, Cameron, Kansas City (3 stops in Kansas City – Airport, Union Station, and Greyhound Station), Warrensburg, Peculiar, Harrisonville, Clinton, Butler, Rich Hill, Osceola, Nevada, Collins, Humansville, Bolivar, Springfield, Joplin, and Anderson.

Jefferson Lines Route System
(source: www.jeffersonlines.com)



Megabus

Megabus is the newest of the ICB providers in Missouri. Originating in Europe, Megabus began service in the United States in April of 2006. The Midwestern hub for Megabus is Chicago, so most routes "spoke" out from that location, as can be seen in the figure to the right. There is currently only one Megabus route through Missouri, along I-70, with stops in Kansas City, Columbia, and St. Louis.

Megabus (Midwest) Route System
(Source: www.megabus.com)

Megabus has a unique operating style compared to the other three major ICB providers in Missouri. Megabus exclusively provides point-to-point service with very minimal stops (generally no rural access). There are no bus stations/terminals operated by Megabus. Their stop locations are primarily curbside, although they are generally in close proximity to local transit. In addition, Megabus has no interlining agreements with other intercity bus providers.

Megabus is an internet-based company, and tickets can only be purchased online. The pricing of Megabus tickets is also unique, in that the first 2 to 4 passengers to purchase tickets receive a $1 fare. The next threshold is around $4 to $5 for the next few passengers. After that, prices go up to their "normal" rates; generally within 10 to 15 percent (higher or lower) of other providers' fares. Tickets are purchased for a specific scheduled trip, similar to a plane ticket. This does not allow the rider as much flexibility as do other providers; however, it does ensure that each rider will have a seat.

Ozark Shuttle

Ozark Shuttle operates on a much smaller scale than each of the other providers described above. This provider operates only one fixed-schedule route per day between Farmington, MO and the St. Louis Greyhound Terminal. Farmington is located approximately 75 miles south of St. Louis. Additional stops along this route may occur, if scheduled in advance. Service is provided via a Ford E450 lift-equipped van. This route primarily serves released prisoners and visitors to the Farmington Correctional Center. Elderly residents of Farmington also often use this service.

Ozark Shuttle began operations in 1989, and initially operated 3 routes per day, including trips to Cape Girardeau and the St. Louis Lambert Airport. Despite having a stop at the St. Louis Greyhound Terminal, Ozark Shuttle does not have interlining service with Greyhound (tickets cannot be purchased via the Greyhound website). Tickets can be purchased on the van for a walk-up price of $28 (one-way).

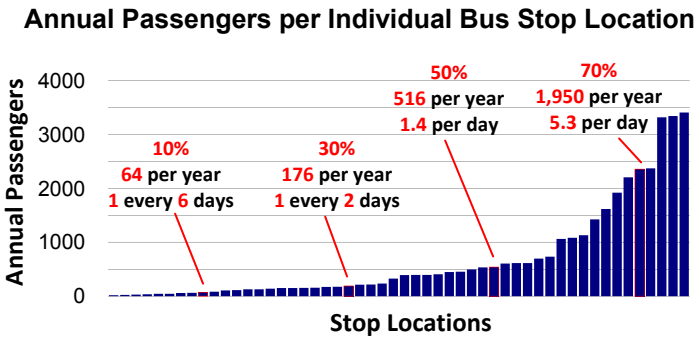
Cultural Carriers

A final set of providers in Missouri has been referred to as "cultural carriers". These bus lines primarily serve the Hispanic community, and operate between Missouri and destinations in the southwest, including Texas and Mexico. Little public information is available regarding these carriers, and (as is detailed later in this report), not much additional information was able to be gleaned during this study regarding their operations. Generally speaking, they handle a specialty travel market and so, in some senses, have some fundamental differences from the "traditional" ICB that is the subject of this study.

Operational Data

This section provides some basic operational statistics on the majority of Missouri's ICB system, to help impart an understanding of some of the general characteristics of the industry as well as the specifics within the state. HDR was able to obtain data from the ICB providers on condition of privacy. Therefore, data shown in this section is presented in ways that do not disclose provider-specific information.

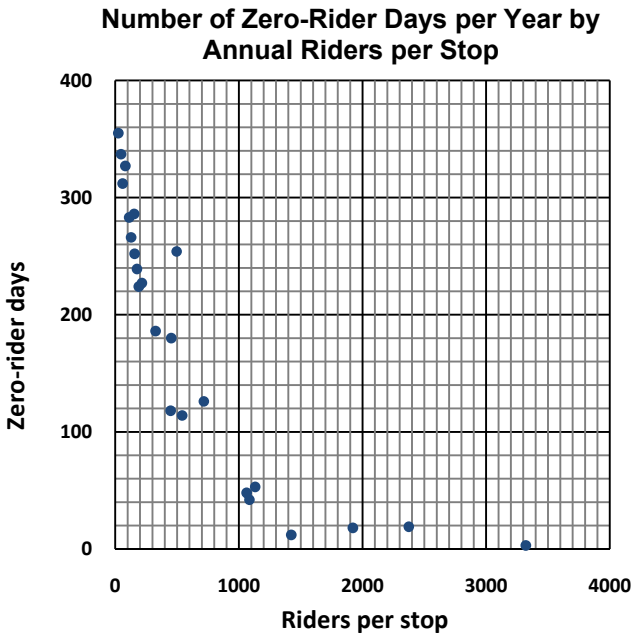
The bus companies provided daily ridership data for each Missouri stop in 2007. The graph at right illustrates, from the least-frequent station to the busiest, the annual passengers boarding and alighting at each stop. Note that the largest metropolitan areas are omitted from the graph, for several reasons: to preserve provider privacy (the identities of the stops would be fairly obvious), to winnow out what are essentially outliers, and to allow easier focus on rural stops.



These ridership figures begin to convey why service to rural areas is so difficult to sustain from a financial standpoint. As the graph and supporting analysis indicates:

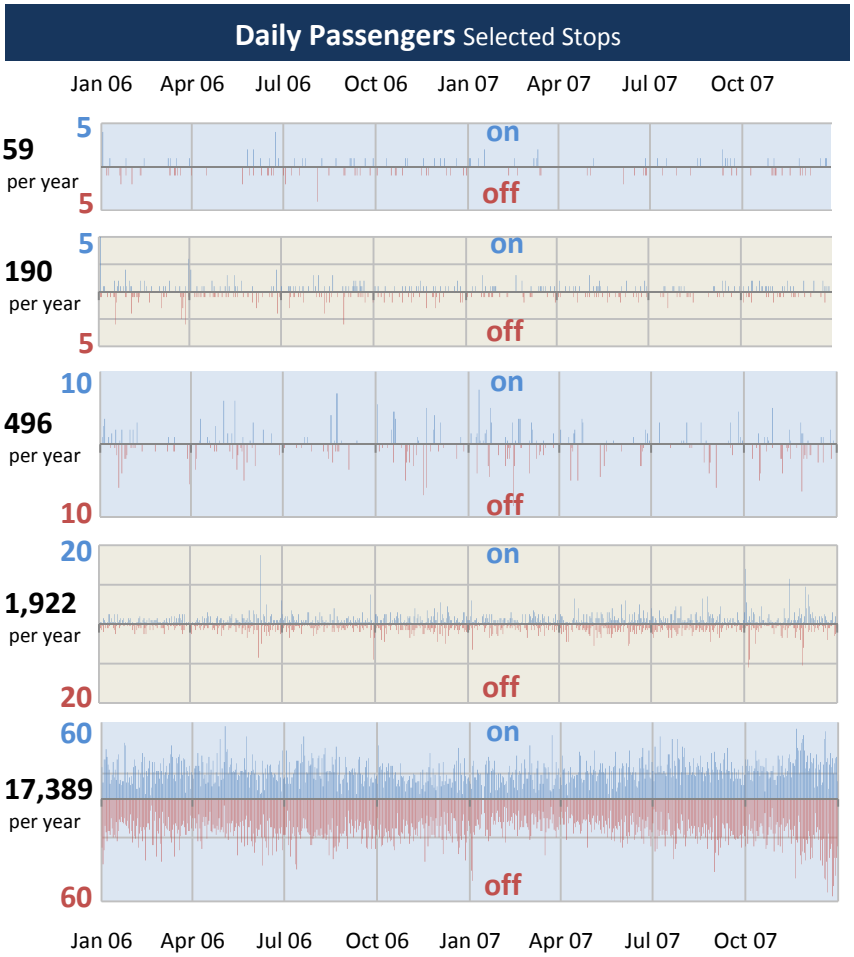
- Half the ICB stops in Missouri serve an average of 1.4 passengers or fewer a day; approximately 40 percent serve less than one passenger a day on average.
- The 13 high-volume stops not shown in the graph serve 94 percent of the annual passengers, meaning 80 percent of Missouri's stops serve 6 percent of the state's passengers.

Another way to consider these data is to examine the number of days per year in which a stop has zero riders, as shown in the graph at right. Many of Missouri's stops experience many zero-rider days, and it is important to note that buses still stop at these locations, even with no scheduled passengers or freight to drop off or pick up.



The analysis in this report generally takes a stop-based viewpoint, but it is important to remember that a route-based viewpoint is also important to ICB planning and operations. However, since this study primarily focuses on rural service, analysis and forecasting at the stop level are its main tools. The "demand pool" or catchment area for a given stop is generally defined by the demographics and employment in the nearby area, and this allowed the study team to look at potential demand in areas currently not served by ICB.

The graphs at right illustrate daily volumes at selected stations in Missouri, roughly corresponding to the 10th, 30th, 50th, 70th, and 90th percentiles shown on the previous page. This allows visualization of the number of zero days per year, and also the clustering of ons/offs on certain days at lower-volume stops.



The graphs at right illustrate monthly totals for the same stops, and generally show some seasonal peaks during the spring and summer months. One noteworthy statistical effect, an increase in ridership in 2008 coinciding with dramatic increases in automobile fuel prices, is visible at the high-volume stop represented by the bottom graph.