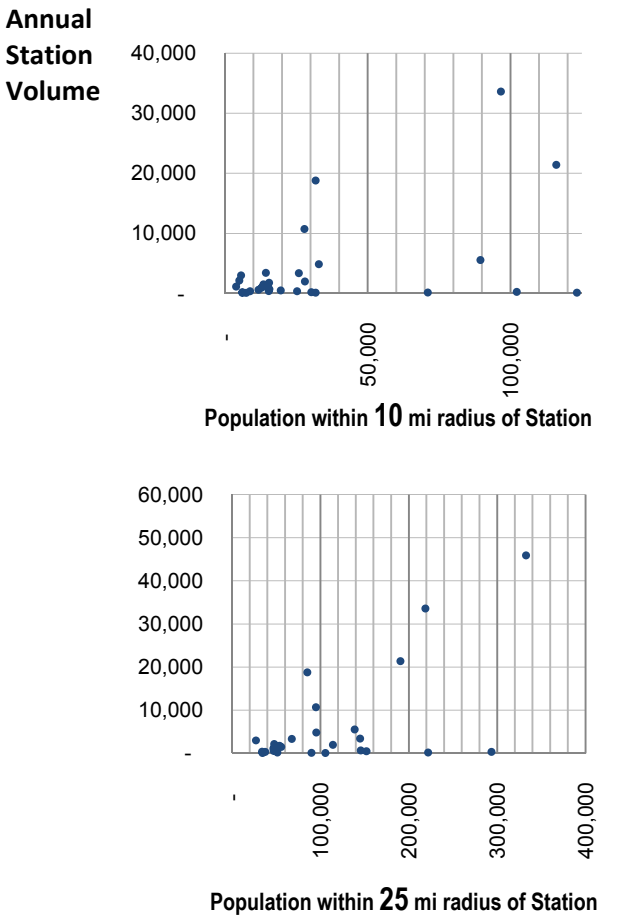
3. Ridership Markets

Who travels by ICB in Missouri? Who doesn't currently but might like to? This section describes the study findings relative to these questions. To answer these questions, the study team conducted surveys, interviews, and focus groups; and also analyzed available demographic and statistical data about various population groups. The results begin to build a picture of the target market for ICB services, and the needs across the state in general.

One of the goals the study was to correlate both anecdotal and statistical data with historical Missouri ICB ridership to aid in the development of ridership forecasts for potential new future stops. As a start, the graphs at right plot annual ridership vs. the population within both 10- and 25-mile radii of each Missouri intercity bus stop (not including the largest metropolitan areas). As can be seen from the graphs, **general population alone is an insufficient variable from which to predict ICB ridership** (although there is a general increasing trend). MoDOT's previous ICB study[1] provided preliminary indications of population groups that might be more inclined to use ICB than would the general population. Examining these population subsets is an important part of understanding existing ICB usage as well as future needs.

Relationship between Ridership and Population



The table at right summarizes data related to these target populations: their total numbers in Missouri (based on 2000 census data), as well as the portion of each located within 10 and 25 miles, respectively, of an ICB stop. These distances are typically considered in studies of intercity bus as "demand sheds" for this travel mode.

Group	Total #	Within 10 miles of an ICB stop	Within 25 miles of an ICB stop
All Missourians	5,595,211	2,746,646 (49%)	4,425,331 (79%)
With Disabilities	973,637	481,174 (49%)	736,543 (76%)
Over 65	755,379	362,364 (48%)	571,586 (76%)
Below Poverty	637,891	342,140 (54%)	470,259 (74%)
College Students	332,581	257,707 (78%)	297,735 (90%)
No Auto	181,064	115,527 (64%)	136,725 (76%)
Hispanic	118,592	75,648 (64%)	102,264 (86%)
Incarcerated	23,607	6,955 (29%)	13,498 (57%)
Hospital Beds	21,692	13,473 (62%)	18,010 (83%)
Amish Districts	69	10 (14%)	45 (65%)

As the table indicates, on average, nearly half of all Missourians live within 10 miles of an ICB stop. Nearly 80 percent live within 25 miles of a stop. These percentages hold fairly true for Missourians with disabilities, those over 65, and those below the

[1] *Impact of Declining Intercity Bus Service in Missouri*, MoDOT Organizational Results Research Report (OR06.013), May 2006

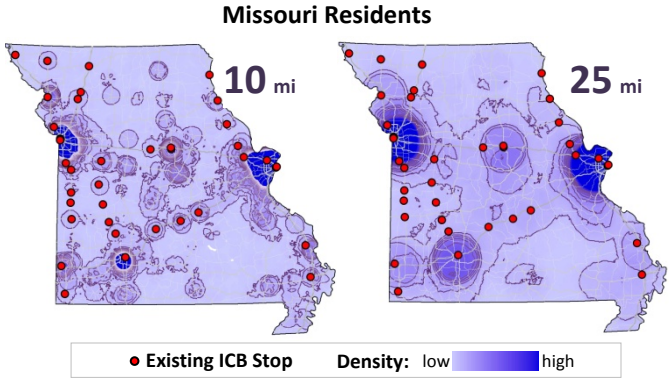
poverty line – all groups considered more frequent typical users of ICB.

As the table also indicates, several other target populations or institutions are clustered more strongly around intercity bus stops than the general population: most notably, colleges (90 percent of Missouri college students are within 25 miles of an intercity bus stop); but also the Hispanic population, as well as hospitals. However, two groups fall well below the general population's proximity to an intercity bus stop: the Amish population, and the state's 20 prisons.

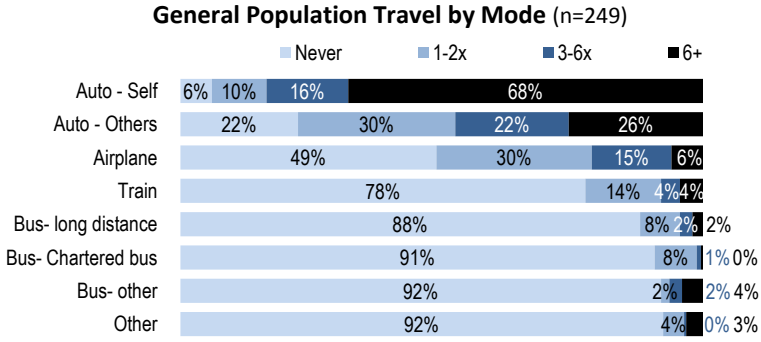
The maps and discussion on the following pages examine each target population's geographic specifics, and also provide some background related to each group relative to intercity bus travel. Most of the maps are grouped in pairs, illustrating concentration of each group within a 10- and 25-mile-radius band, respectively (the darker the color, the higher the concentration). These maps are also overlaid with Missouri's ICB stops, to facilitate visual correlation between these populations and current bus service.

General Population

The maps at right clearly delineate the three major metropolitan areas in Missouri: St. Louis, Kansas City and Springfield. The maps also indicate some of the other major population centers: Columbia, St. Joseph, Cape Girardeau, and Joplin. These and many other population clusters have ICB service nearby, although the maps make clear some areas that do not: most notably Jefferson City – but also Branson, Kirksville, Chillicothe, Marceline, Macon, Moberly, Higginsville, West Plains, Poplar Bluff, Saint Genevieve, Perryville, and the majority of the Bootheel.



In order to gather information for this study, a web survey was created and posted on the MoDOT website. (The survey instrument and more detailed results are included in the Appendix.) Certain target populations were directed to this site in order to complete the survey. However, since the MoDOT site is public, anyone who wanted to could take the survey. A total of 249 surveys were completed by this "general population" group. The graph at right shows respondents' percentage of long distance trips (by mode) within the most recent 12-month period, categorized by frequency. As can be seen, the majority of trips made by these respondents were taken with a personal automobile. ICB ranked as the fifth most common mode of transportation, and approximately 12 percent of respondents had travelled via ICB at least one time in the past 12 months.



When respondents were asked what would make them more likely to ride an ICB in the future (from a predefined list), the most common response was "if gas prices rose to $4/gallon". Another high-ranking response was "if there was a stop closer to my destination (or origin)." The most desired origins and

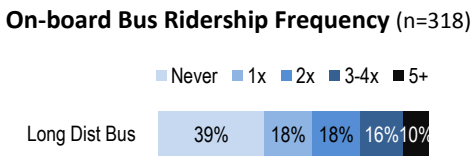
destinations (within Missouri) given by respondents were Columbia, Branson, Fenton, Cape Girardeau, and Chesterfield. Since both Columbia and Cape Girardeau already have intercity bus stops, these responses may indicate that the public is generally not aware of where intercity bus routes/stops are located. Respondents also indicated that "if improvements were made to bus stations/stops and to the buses themselves" they would be more likely to travel via ICB.

ICB Riders

On-board surveys were conducted during the summer of 2009 on all of the major routes traversing Missouri, including Greyhound, Jefferson Lines and Burlington Trailways routes. Passengers on each of the routes were provided incentives to fill out a paper survey while they were riding the bus. There were a combined total of 555 passengers on these routes, and 57 percent completed surveys, for a total of 318 responses.

Demographic data was collected from the respondents. The gender split was almost even, with 49 percent female and 51 percent male. Passenger age was also very evenly spread, with the exception of those under 18 or over 65 (each making up only 4 percent of respondents). The 18-to-25 age group constituted 26 percent of the respondents, and the 26-to-40 and 41-to-65 groups each constituted 33 percent. The average household size for respondents was 2.78 people. When asked about employment, the most common responses were Student (19 percent) and Unemployed (17 percent). Based on that statistic, it is not surprising that the most common responses for household income were fairly low; $25-50k (30 percent) and $0-15k (27 percent). Almost half (49 percent) of respondents were White, followed by Black/African American (34 percent). The Hispanic/Latino group made up only 8 percent of responses; however, it was noted by the on-board survey facilitator that Hispanic males (in addition to parolees and non-Missouri residents) were fairly resistant to taking the survey.

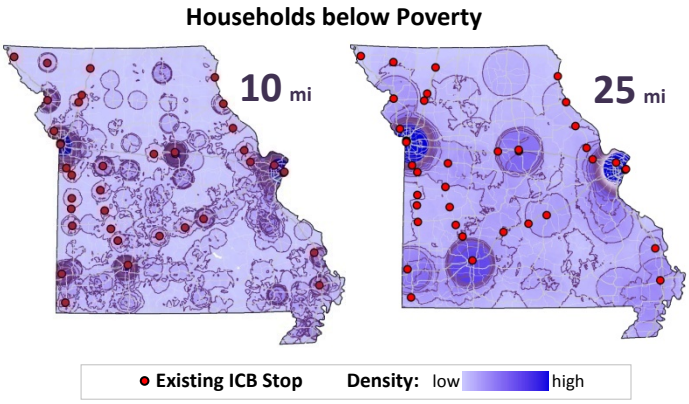
The most often reported trip purpose was "to visit family/friends" (45 percent). "Family/personal business" and "job commute" were also fairly popular with 20 percent and 15 percent of responses, respectively. Passengers were asked to provide a reason why they chose to ride ICB for their current trip (from a pre-defined list). By far the most common response was "cost" (51 percent), which correlates to the responses regarding household income. Other common responses included "no other travel option" (15 percent) and "dislike air travel" (14 percent). This survey did not ask respondents to provide information regarding trips made by other transportation modes, but it did ask how often they had travelled via ICB in the last 12 months. As can be seen in the chart to the right, the majority of respondents were repeat customers, as 61 percent had ridden intercity bus at least one other time in the past year.



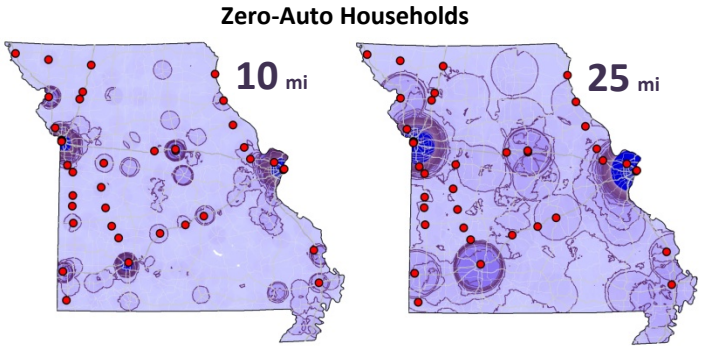
Passengers were also asked to respond as to whether certain service improvements would persuade them to travel via intercity bus more often. Ideas scoring the highest were "improvements to buses" and "improvements to stops and stations," with 77 percent and 76 percent, respectively, stating that they would, or probably would, ride intercity bus more often if these improvements were made. Other improvement options listed were "more buses", "new stop locations", and "buses came at a better time of day". For each of these, at least 60 percent of respondents stated that they would, or probably would, ride ICB more often if the improvements were implemented.

Low-Income

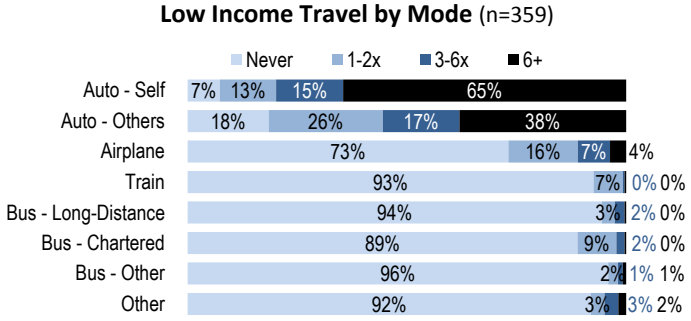
Lower-income individuals are known to be a market for ICB, because often they do not own an automobile or cannot afford to travel long distances by other means. The lower income population distribution in Missouri generally mirrors that of the overall population, but there are some exception areas that are also not well served by intercity bus: Trenton, Mexico, Osage Beach, the US-60 corridor west of Springfield, and the US-63 corridor in Texas County.



The maps at right indicate areas of low auto ownership, often a corollary to low-income areas. The areas do correlate fairly well with the low-income maps above them, with notable unserved corridors including US-63 and US-60, and notable regions including the Bootheel, Jefferson County (I-55 corridor), Sedalia, and Jefferson City.



A paper survey was mailed to the low income population group, rather than using a web survey. The target population included households in three annual income ranges; $0-$15k, $15k - $25k, and $25 - $35k. Surveys were equally distributed to these three groups. In addition, to achieve adequate geographical representation, the surveys were distributed equally among each of MoDOT's 10 districts (500 surveys per district, for a total of 5,000). Of those, a total of 359 responses were received.

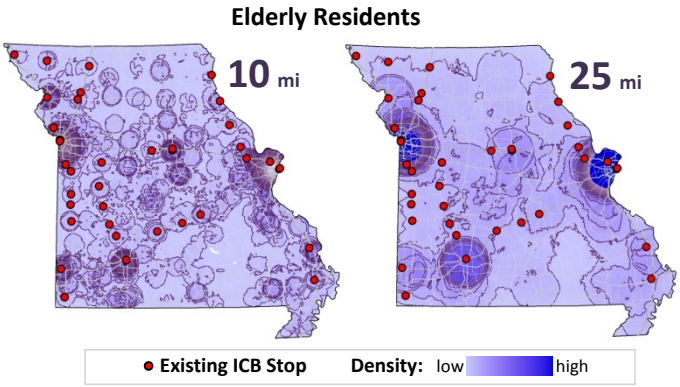


The graph at right shows frequencies of long-distance trips (by mode) within the past 12 months as reported by these respondents. Similar to the general population results, these responses indicate that the most popular mode of transportation is the personal automobile. Only 6 percent of these respondents indicated having travelled via ICB in the past year. The percentage of respondents travelling via airplane or train, were also much less than that of the general population. The percentage of respondents travelling in their own automobile remained about the same as the general population, while the percentage travelling in someone else's auto was slightly higher.

The most common response regarding the potential for increased usage of intercity bus was, again, "if gas prices rose to $4/gallon," followed by "if stop was closer to my origin/destination," and "if ticket prices were lower." The top five origins/destinations listed by this group were Kansas City, St. Louis, Branson, Springfield, and Columbia, all of which are already served by intercity bus, with the exception of Branson.

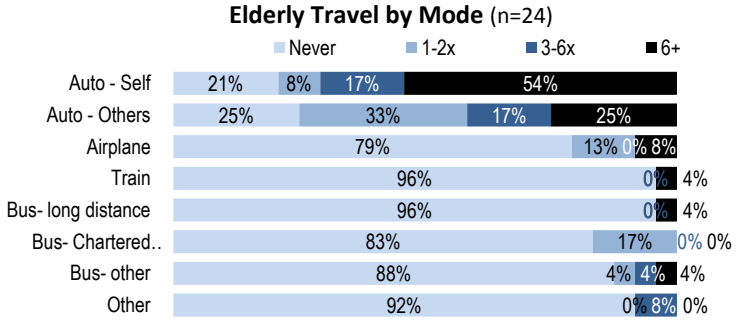
Elderly

The elderly are known to travel by intercity bus, often because they are unable to drive themselves. As the maps at right show, the distribution of elderly residents in Missouri clusters around high population areas, but is also fairly well dispersed throughout the state (more so than the low income population). Corridors with higher elderly populations that are currently not served by ICB include US-36 between Cameron and Hannibal, US-63 north of Columbia, US-65 south of Springfield, and US-60 west of Sikeston. Jefferson City and Osage Beach are also shown as having large elderly populations, with no intercity bus service.



The elderly population was one of the groups directed to take the web survey on the MoDOT website (tracked separately). The survey was advertised and promoted at Senior Centers with the assistance of the Central Missouri Area Agency on Aging (CMAAA). Staff members at these facilities were asked to assist the elderly as they responded to the surveys. Responses were fairly low for this demographic, however, with only 24 completed surveys.

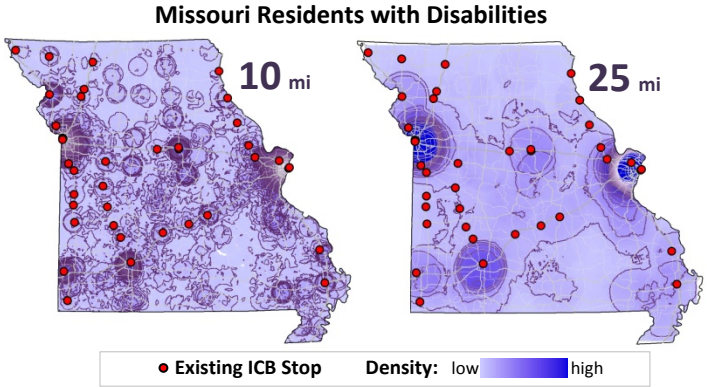
As with all other population groups, travel via personal automobile was the most common transportation mode used in the most recent 12-month period (see chart at right). However, the elderly did have a fairly high percentage of people having never driven themselves 50 or more miles during the previous year (21 percent, compared to only 6 percent of the general population).



The number one priority for respondents to the elderly survey, in terms of improvements that would increase their likelihood of riding ICB, was having stops that closer to the respondent's origin or destination. Other high-ranking responses included "improvements to bus stations/stops", "lowering ticket prices", and "increase in the price of gas." The most popular suggestions for intercity bus stop locations were Branson, Cabool, and Cape Girardeau.

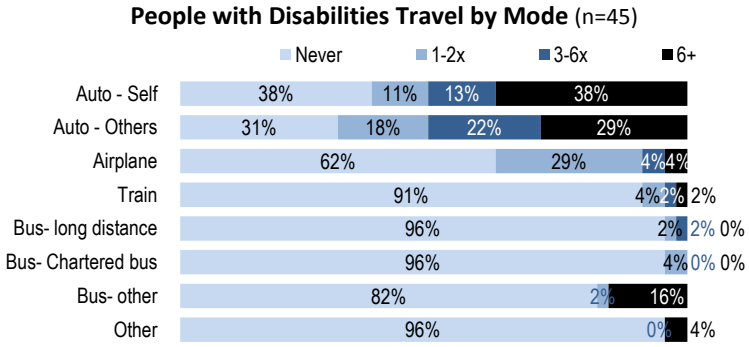
Persons with Disabilities

People living with disabilities are often unable to drive, and for that reason may choose ICB for their long distance travel needs. The distribution of people with disabilities in the state is fairly similar to that of elderly people. This group is also well dispersed, if not even more so than the elderly. The same corridors and cities identified above in the elderly section could also benefit many of Missouri's disabled residents who are currently without access to ICB service.



This population group was also invited to participate in the online MoDOT website survey (tracked separately). Like the elderly population, the survey was promoted at facilities and centers that attract a high volume of people with disabilities. The study Advisory Committee assisted with the promotion of this survey. From this group, a total of 45 survey responses were received.

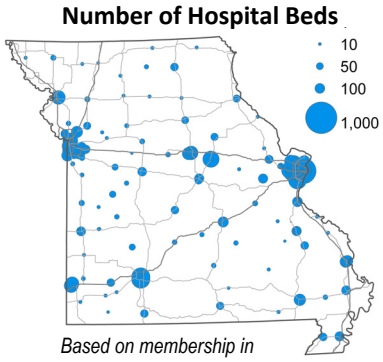
This population group is one of the few surveyed for which driving a personal automobile was not the most common mode of transportation (the only other one being the Amish). However, the most commonly reported mode of transportation still involved a personal vehicle, but driven by someone else. The percentage of respondents using most other modes of transportation is fairly low, including ICB at just 4 percent. This population does, however, have the highest percentage of people that have used a bus other than an intercity or charter bus (18 percent).



Like the elderly, the top improvement that would make the respondents to the disabled population survey more likely to choose ICB was "if bus stops were closer to their origin/destination". An increase in gas prices is the second most commonly stated reason for increasing bus ridership. Surprisingly, improvements that would make the "bus more suitable for the disabled," was only the 6th most popular response. This may indicate that intercity buses are already generally well-equipped to provide service to people with disabilities.

Medical Travel

According to the National Rural Health Association, transportation access to and from medical facilities is a tremendous problem for rural residents. In the state of Missouri there are 159 hospitals (21,700 beds). The locations of these hospitals are shown in the figure to the right. As can be seen in the figure, there are many areas of the state that are a fairly significant distance away from a major hospital. For residents in these areas who do not have access to a personal vehicle, transportation to and from medical facilities can be a major issue. There are 335 rural health clinics in the state that provide service to areas without a hospital, but these clinics often do not have the same extent of services available at major hospitals.



Based on membership in Missouri Hospital Association

Identifying a "medical travel" constituency to send a survey to was difficult. As one outreach measure, a brief survey was faxed to each of the 159 hospitals in the state. From these, 10 responses were received (a 6 percent response rate). A few individual hospitals were also directly contacted by phone. Conversations were also held with representatives from several state agencies that are involved with public health and transportation issues.

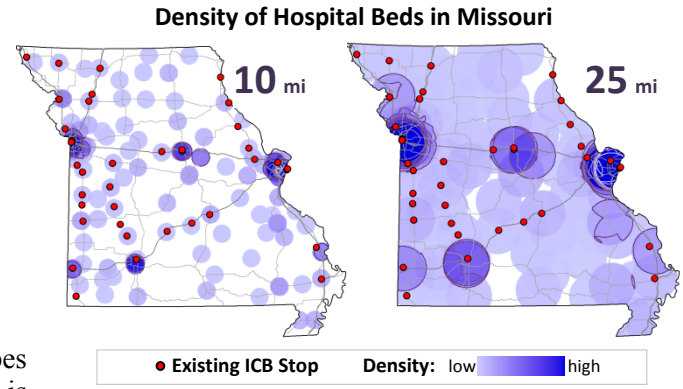
The hospitals responding to the survey varied by size, location, and specialty, and therefore their responses were fairly varied as well. However, a few observations can be made. When asked to estimate

how many patients are unable to drive themselves to their facility, responses ranged from 10 percent to 100 percent. Eliminating these extremes, the average was still around 50 percent. Of those 50 percent, the most common forms of transportation were "riding with someone else in a personal automobile", followed by "rural transportation services such as OATS or SMTS" (see discussion of these rural transit agencies in Chapter 5). None of the respondents indicated that ICB is used as a form of medical transportation at their facilities.

Most of the hospital responses indicate that patients are responsible for their own transportation, although most do have a designated person who can help patients with coordinating their transportation needs. For example, by working with the Social Services Department at the KU Medical Center in Kansas City, patients can obtain a list of local transportation companies. This list describes type of service (taxi, van, air service), and provides contact information, service areas, hours of service, and fares, among other information. Some smaller urban hospitals, such as the Hannibal Regional Hospital, do provide their own transportation service, on a limited basis, for patients that can prove that they have no other means of transportation available to them. Service is restricted to the city limits of Hannibal, and lift-equipped vans are only dispatched if the patient is wheelchair-bound. Otherwise, taxi vouchers are provided. According to the hospital, however, this service is rarely used (2 or 3 patients every other day).

The Missouri Foundation of Health is currently facilitating an Access Grant program, focusing on rural health, which has a transportation component. Since 2006, 17 grants have been awarded in the Primary Care category, a few of which were used to purchase buses or vans for individual hospital use. The future focus of these grants, however, is moving towards making more strategic decisions that provide improvements for the whole system, rather than just funding the purchase of a vehicle for one or two specific locations.

The Non-Emergency Medical Transportation (NEMT) Program provides transportation to Medicaid-eligible persons, to and from Medicaid covered services. This program is operated by the Missouri HealthNet Division (MHD). The MHD contracts with a statewide broker, LogistiCare Solution, LLC, who then contracts with local transportation providers, to provide the actual service. There are currently 111 providers under contract. During FY 2009 (July 2008 – June 2009) a total of 962,139 trips were provided under this program. Of those trips, the total number of unduplicated riders was 191,661. Though this program is available statewide, the top five counties utilizing this program during FY 2009 data were all urban counties; St. Louis County with 11.6 percent of the trips, St. Louis City with 9.9 percent, Jackson County (Kansas City) with 9.5 percent, Greene County (Springfield) with 3.6 percent and Boone County (Columbia) with 3.4 percent. Often the issue with using these transportation services for medical purposes is that rides must be scheduled ahead of time, sometimes up to two weeks in advance. In many situations, medical trips are more immediate in nature (even in non-emergency situations).



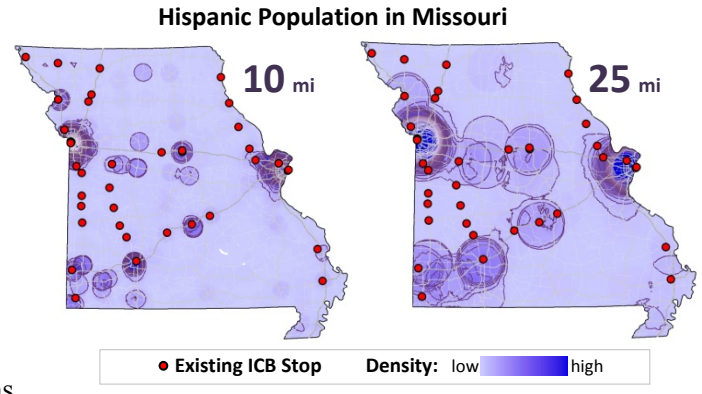
For some types of medical trips, ICB may be another alternative form of transportation. The maps at the right show the density of hospital beds within 10- and 25-mile bands, and their relationship to the state's intercity bus stops. Smaller facilities are scattered throughout the state, with larger facilities concentrated near the larger metropolitan areas. Getting rural residents to these larger hospitals could certainly be a role for ICB. Although schedules may not allow for all types of trips (especially one-day trips), there is flexibility in the fact that tickets can usually still be purchased on the day of travel. In addition to the low frequency of trips, another issue with ICB as a form of medical transportation is that the buses do not stop

directly at the medical facilities, so the patient would have to find another form of transportation to get from the bus station to the hospital.

In Advisory Committee meetings, there was discussion of the use of ICB to travel for specialized treatments, such as dialysis or chemotherapy, that might only be available in distant locations. There was general consensus that weakened patients might not prefer ICB to being chaperoned in a private automobile, with the ability to make stops or detours whenever needed. In some cases, these services have been offered by ICB providers in the past, without much success.

Cultural

The Hispanic population distribution in Missouri does not mirror that of the overall population as closely as some of the other groups under study. As the maps at right show, this population is generally concentrated along the I-44, US-50 and I-70 corridors, in addition to the major metropolitan areas. Areas that stand out in these maps as underserved by intercity bus include Milan, Marshall, Sedalia, Jefferson City, Branson, and Monett (as well as much of southwest Missouri). Many of these areas include large agricultural operations, often with large migrant worker populations.



Obtaining information from the Hispanic population for this study was fairly difficult. The study team developed a survey to be distributed to the community, and provided the survey to community leaders. No responses were received. The study team did have some conversations with leaders in this community, and learned anecdotally the following:

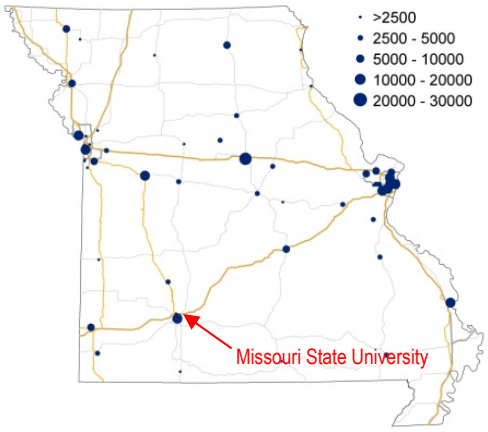
- ICB is indeed an important mode of travel for this population group, whether for employment or social reasons.
- There are some trust issues to be overcome to be able to talk with the Hispanic community on this issue, or at least the portion of the community that could be considered a market for ICB. For example, when the study team conducted on-board surveys, Hispanic males universally refused to participate.
- To truly obtain answers from this community about their long-distance travel needs, a thorough strategy is needed that partners with community leaders who understand the potential benefits of obtaining additional information from the community. It is recommended that MoDOT pursue such a strategy going forward.
- Potential methods of reaching this population include Hispanic radio stations, and Hispanic newspapers.

A second aspect of this community as it relates to ICB is what are known as "cultural carriers". Carriers such as El Conejo often provide connections between U.S. cities and Mexico (or Texas), and cater to the Hispanic community. (El Conejo has a stop in Kansas City.) Traditionally, it is difficult to find information regarding these services, and the study team found this to be true during this study. However, these carriers function more like charter services than like true ICB, since they serve a very specific population segment traveling to a very specific set of destinations. MoDOT's energies are probably better spent improving in-state service and understanding the Hispanic community's travel needs than attempting to integrate these "cultural carriers" into a statewide ICB framework.

Students

There are approximately 75 institutions of higher education in Missouri, accounting for approximately 345,000 students. The map at right illustrates the locations and sizes (enrollment) of these schools, and the table below lists the 23 schools in the state that have enrollments above 5,000 students. (Note that there are several important schools in the state that have enrollments under 5,000 – for example, Missouri's two traditionally African-American colleges, Lincoln University in Jefferson City and Harris Stowe in St. Louis, fall below this threshold.) There are essentially four types of higher education institutions in the state; public, private, technical/professional, and theological. The majority of schools are located within urban areas. The largest schools in the state are predominantly public; 17 of the largest 23 schools listed below are public institutions. In other areas of the country, students are known to use ICB travel primarily during weekends and holidays to return home, to make other social visits, and to attend entertainment events.

Students at Missouri Higher Education Facilities



Due to privacy restrictions at most of the universities in Missouri, conducting a web survey to gather information from this population group proved to be difficult. Only one school, Missouri State University (MSU) in Springfield, agreed to send an e-blast to their students, informing them of the survey on the MoDOT website. A total of 75 students from MSU completed the survey.

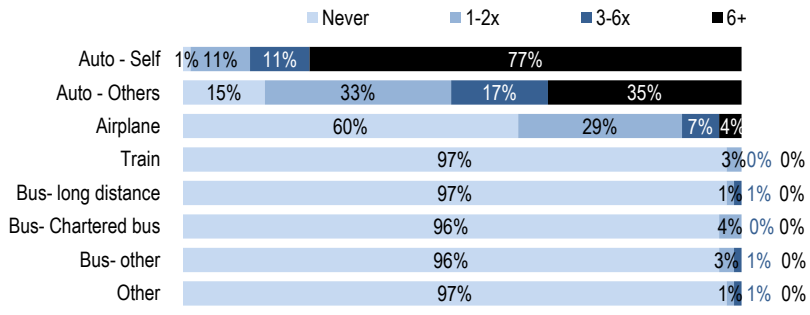
The chart below provides a breakdown of the long-distance trips made by the respondents from MSU in the past 12 months. As with most other population groups, the personal automobile was the most common mode choice. The students also had a high percentage of people making trips in someone else's personal vehicle (85 percent). Aside from the airplane, respondents rarely used any other mode of long-distance transportation, including ICB at just 3 percent. Compared to each of the other population groups responding to the study surveys, this group was the least multi-modal.

Like many of the surveyed population groups, the MSU students responded that the top reason that they would be more likely to ride an intercity bus was "if gas prices rose to $4/gallon". Other common responses were "if improvements were made to the buses" and "if buses ran more frequently". Unlike most other populations, having stops closer to their origin was not a popular answer, likely because ICB service is already available in Springfield.

Higher Education Facilities with >5,000 Students (2005)

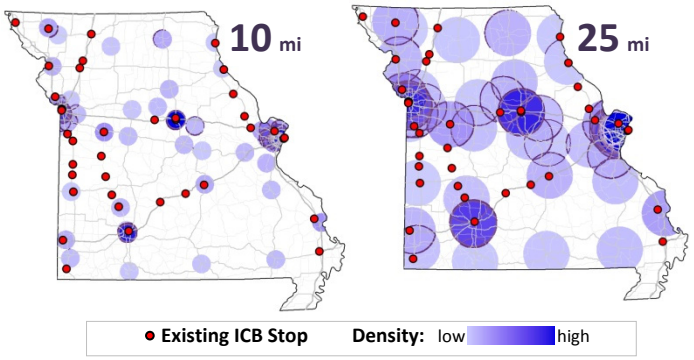
School Name	Location	Enrollment
University of Missouri-Columbia	Columbia	27,930
Missouri State University	Springfield	18,928
Webster University	St. Louis	18,594
University of Missouri-St. Louis	St. Louis	15,548
Saint Louis University	St. Louis	14,966
University of Missouri-Kansas City	Kansas City	14,306
Washington University	St. Louis	13,383
Park University (mostly virtual)	Parkville	13,275
Columbia College	Columbia	11,739
St. Louis Community College at Meramec	St. Louis	11,611
University of Central Missouri	Warrensburg	10,586
Southeast Missouri State University	Cape Girardeau	10,277
Ozarks Technical Community College	Springfield	9,377
Lindenwood University	St. Charles	9,076
St. Louis Community College at Forest Park	St. Louis	7,276
St. Charles Community College	St. Peters	6,870
St. Louis Community College at Florissant V	St. Louis	6,441
Northwest Missouri State University	Maryville	6,355
Truman State University	Kirksville	5,881
Missouri University of Science & Technology	Rolla	5,600
Metropolitan Community College-Longview	Lee's Summit	5,538
Missouri Southern State University	Joplin	5,473
Missouri Western State University	St. Joseph	5,248

Missouri State University Travel by Mode
(n=75)



The maps at right illustrate 10- and 25-mile radii of student population intensity (based on school location, not permanent residence location). As shown, the largest schools, specifically the University of Missouri – Columbia and Missouri State University (as mentioned above), have ICB service available within the same city. There are some areas on the map, however, that stand out as being unserved by ICB, specifically Truman State University in Kirksville, but also some other cities with smaller schools such as Jefferson City, Fulton, Moberly, Poplar Bluff, and Sedalia.

Student Population in Missouri (Higher Education)

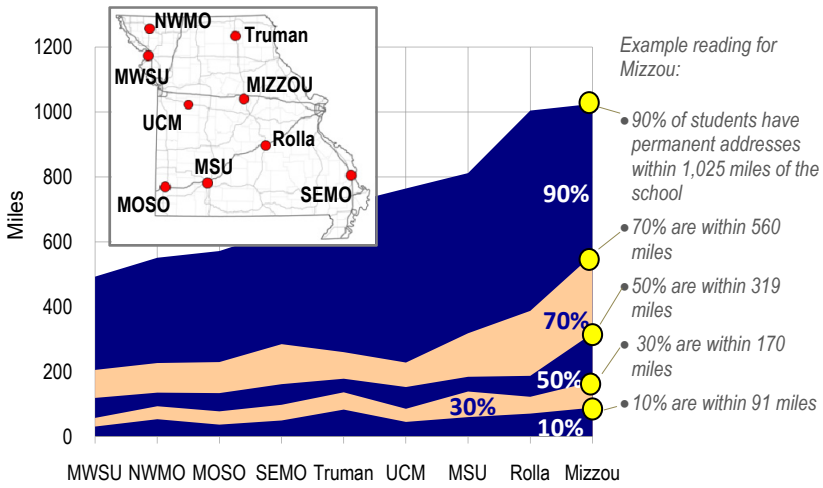


In an attempt to obtain information from students in some of the other areas of the state, focus group meetings were held at two different universities: the Missouri University of Science &Technology (MS&T) in Rolla, and Truman State University in Kirksville. Rolla currently has an ICB stop and Kirksville does not, so these locations were chosen in order to get a perspective from both students that have access to ICB and students that do not. The primary message received from both groups of students was that there is a general lack of awareness about ICB. Interestingly, students at Truman State had more experience with bus travel than the students in Rolla who have much better access.

A discussion of potential improvements to ICB service revealed that the following would make the students more likely to ride: 1) Lower cost (i.e. if a bus ticket cost less than the cost of gas for a particular trip), 2) Increased convenience, 3) Decreased door-to-door travel time, and 4) Improved buses and on-board amenities (specifically Wi-Fi internet service and electrical outlets).

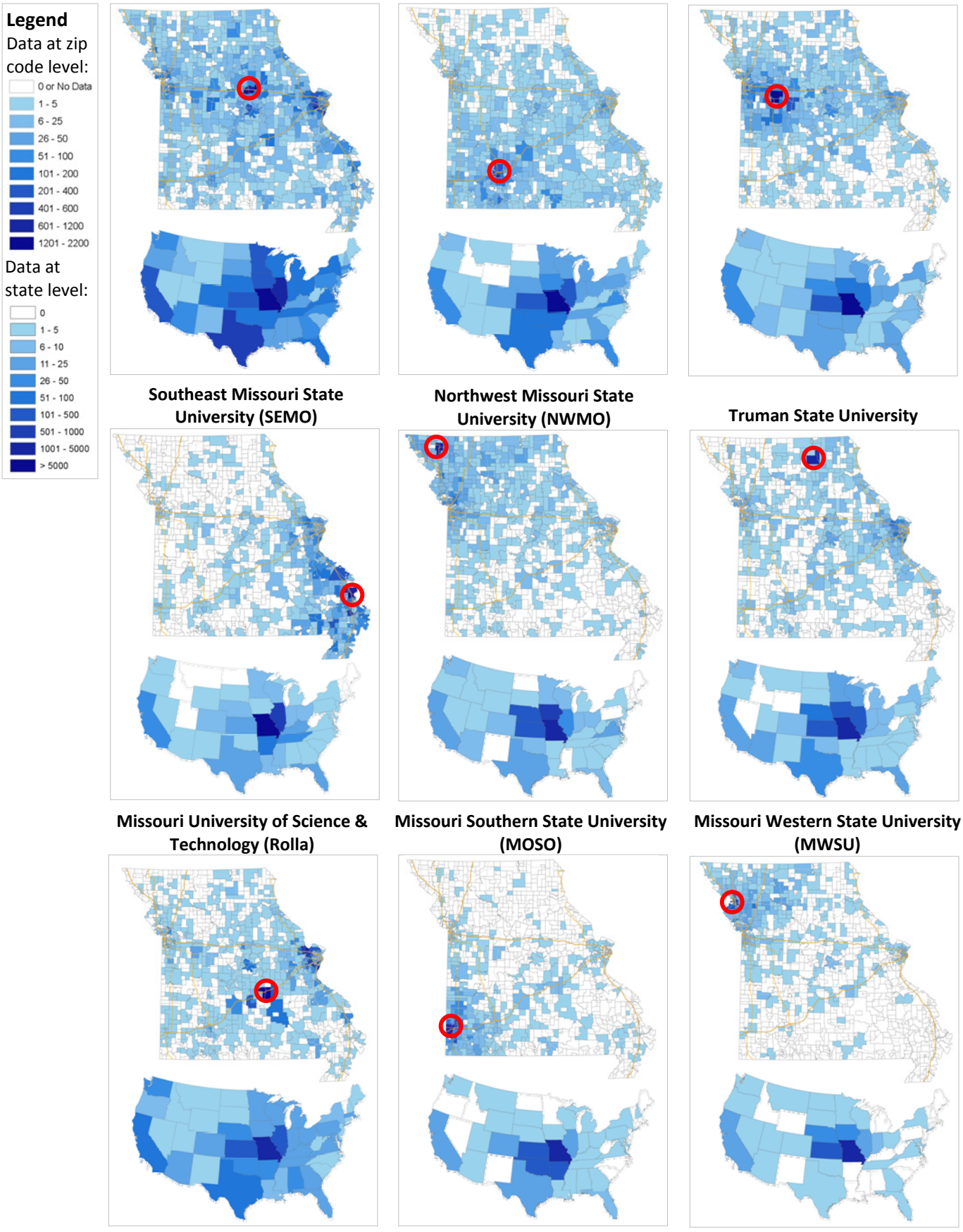
Since one of the main reasons for student travel is to visit home, zip codes for student's permanent addresses at nine of Missouri's state universities were obtained. This data was used to analyze distances travelled, as well as potential routes travelled by university students. As noted in the graph to the right, the majority of students attend a university that is fairly close to their home. This is especially true for smaller schools like Missouri Western State University (MWSU) in St. Joseph, where 70 percent of students are from within 200 miles of campus. Even at the largest school in the state, the University of Missouri – Columbia (Mizzou), almost 50 percent of students are from within 200 miles of campus. Despite its smaller size, the Missouri University of Science & Technology (Rolla) has a wider distribution of students, similar to that of larger schools like Mizzou. This is likely due to its specialized curriculum, and its nationally recognized status in the fields of engineering, math, and sciences.

Percent of Students by Distance between Permanent Home Address and University Location



The maps on the following page illustrate the density of students from each of the zip codes in Missouri, as well as from each state in the country, for each of the nine universities discussed above.

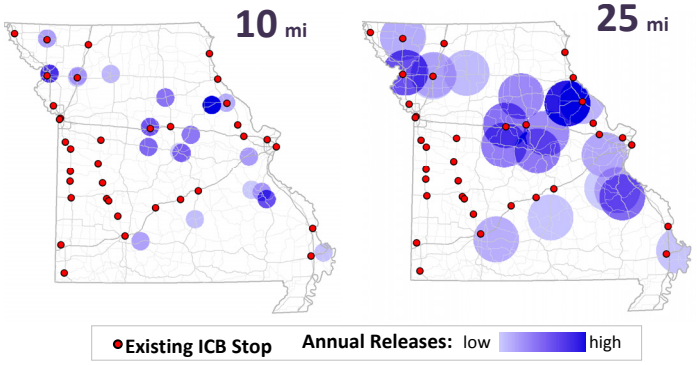
Missouri University Students by Home Zip Code



Incarceration Facilities

There are 20 state correctional facilities in Missouri. The maps at right illustrate the locations and of each of these 20 facilities. The maps also illustrate the proximity of Missouri's incarceration facilities to existing ICB stops. About half of the facilities are located fairly near ICB stops; of the remaining facilities, several cluster in the Farmington-Potosi area south of St. Louis, two are north of I-70 (Chillicothe and Moberly), and one is in Licking.

Missouri State Correctional Facilities (Annual Released Prisoners)

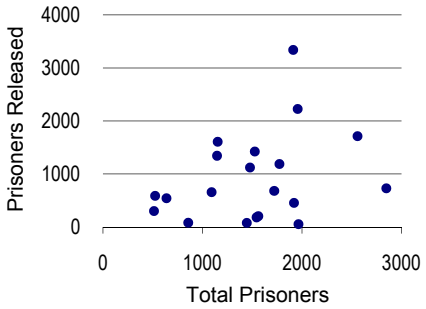


There are actually two target populations represented by these facilities: released prisoners, and visitors. Data was obtained from the Missouri Department of Corrections, and communication with the wardens at each facility, to aid in further understanding the travel needs of these two groups, especially as they relate to ICB. A survey was sent to the wardens, and responses were received for 17 of the 20 facilities.

Released Prisoners

The 20 Missouri DOC facilities have a total capacity of approximately 30,800 inmates. This capacity was approximately 93 percent used in 2008. These facilities released a total of 18,533 prisoners in 2008 equating to 1,544 per month. The graph at right shows the total prisoners released per facility vs. the 2008 inmate population of that facility. As can be seen, in general larger prisons release more inmates, but there is not a strong correlation to be observed. The level of security and type of facility obviously play roles in the release rates.

Number of Released Prisoners vs. Total Prison Population



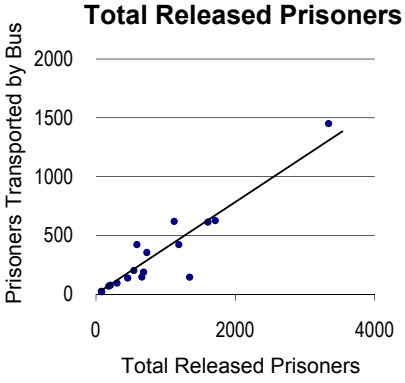
The wardens were asked about the mode of travel used for released prisoners. As the table at right indicates, private vehicles are the most prominent mode, but buses make up a significant portion of the mode share (40 percent). As the graph below the table indicates, bus ridership as a function of total released prisoners forms a fairly predictable correlation. Anecdotally, the study team found that facilities located more remotely from ICB stops have more difficulty transporting released individuals. Respondents expressed a need for services closer to the facilities. It should be acknowledged that the transport of prisoners by ICB is not without some controversy, but carriers indicate very few problems.

Transportation Mode – Released Prisoners

private vehicle	48.8%
bus	40.2%
warrant/detainer pick-up	7.4%
train	3.3%
airport	0.3%

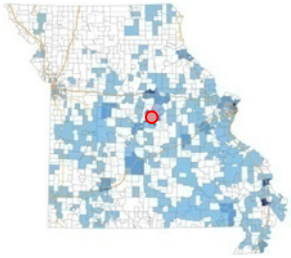
The Department of Corrections is responsible for ensuring that prisoners have the resources necessary to travel to the county of the original offense. In many cases, this means purchasing an ICB ticket for the released prisoner. The maps on the following page illustrate the location of each prison along with (for prisoners released in the 12-month period preceding the survey) the locations of original offense (to which the prisoner would theoretically be traveling upon release). Each map is also annotated with the prison's total population and the total number of prisoners released (where these statistics are known).

Number of Prisoners Transported by Bus vs. Total Released Prisoners

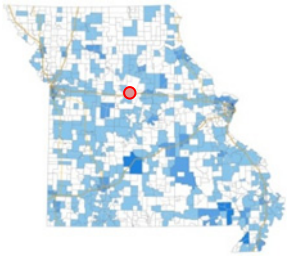


Missouri Prisons – Released Prisoners by Zip Code of Offense (see text)

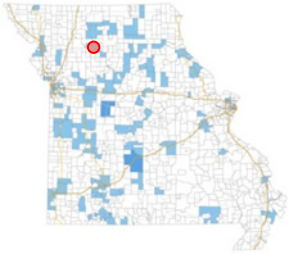
Algoa CC (ACC)
Jefferson City
1526 Total, 1423 Released



Boonville CC (BCC)
Boonville
1153 Total, 1529 Released

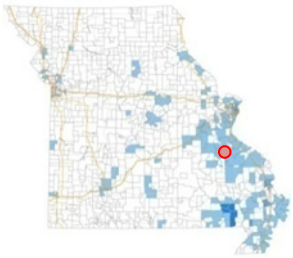


Chillicothe CC (CCC)
Chillicothe
513 Total, 292 Released

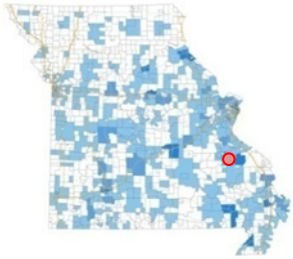


Crossroads CC (CRCC)
Cameron
1446 Total, 70 Released

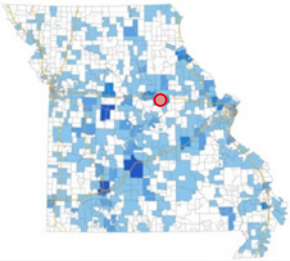
Eastern RDC (ERDCC)
Bonne Terre
2847 Total, 683 Released



Farmington CC (FCC)
Farmington
2557 Total, 1514 Released

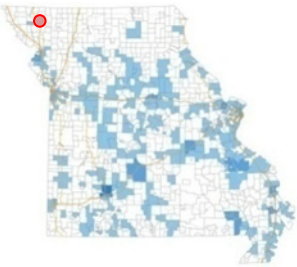


Fulton RDC (FRDC)
Fulton
1477 Total, 1625 Released



Jefferson City CC (JCCC)
Jefferson City
1964 Total, 56 Released

Maryville Treatment Center (MTC) Maryville
525 Total, 562 Released



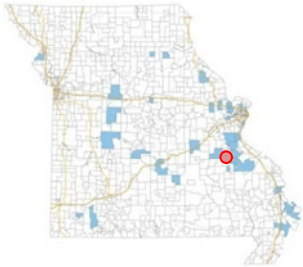
MO Eastern CC (MECC)
Pacific
1091 Total, 623 Released

Moberly CC (MCC)
Moberly
1774 Total, 1130 Released

Northeast CC (NECC)
Bowling Green
1919 Total, 438 Released

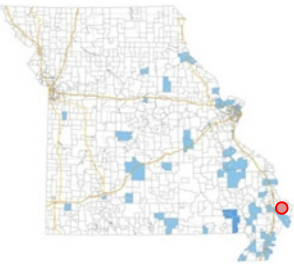
Ozark CC (OCC)
Fordland
639 Total, 540 Released

Potosi CC (PCC)
Mineral Point
857 Total, 82 Released

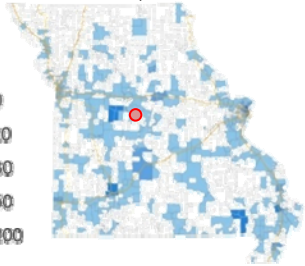


South Central CC (SCCC)
Licking
1561 Total, 187 Released

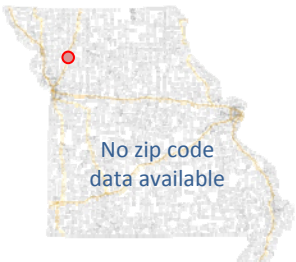
Southeast CC (SECC)
Charleston
1543 Total, 166 Released



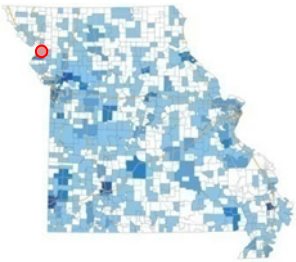
Tipton CC (TCC)
Tipton
1543 Total, 1246 Released



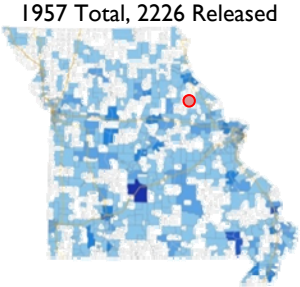
Western MO CC (WMCC)
Cameron
1721 Total, 631 Released

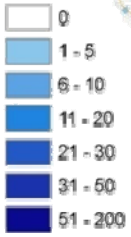


Western RDC (WRDCC)
St. Joseph
1561 Total, 3054 Released



Women's Eastern RDC (WERDCC) Vandalia
1957 Total, 2226 Released

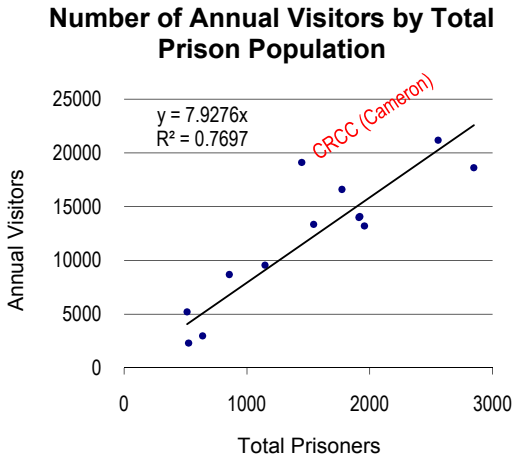




Note: CC denotes Correctional Center, RDC denotes Reception, Diagnostic, and Correctional Center.

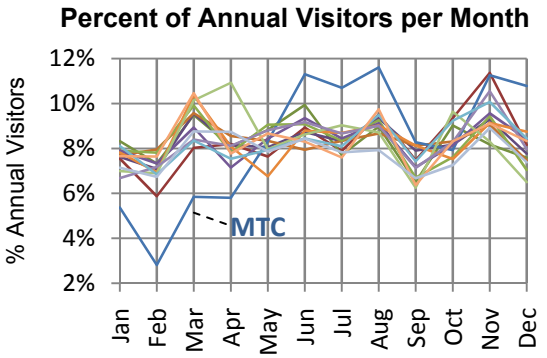
Visitors

Many of the wardens also provided information on the number of annual visitors at each facility. As the graph at right shows, the annual number of visitors is a generally predictable function of the prison population – a visitor/prisoner ratio of roughly 7.9.



All but two of Missouri's prisons have visiting hours four days per week; Thursday, Friday, Saturday, and Sunday. The Maryville Treatment Center and the Ozark Correctional Center only have visiting hours on Saturdays and Sundays. Visiting hours vary between facilities but are generally from 9 a.m. to 2 p.m. on Thursdays, 3 p.m. to 8 p.m. on Fridays, and 9 a.m. to 8 p.m. on weekends.

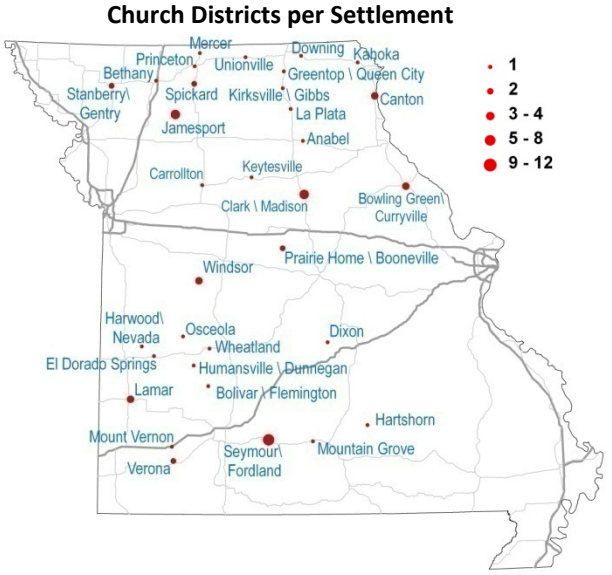
The wardens also provided monthly breakdowns of visitors, as shown in the graph(s) at right. With the exception of the Maryville Treatment Center (MTC), the majority of the facilities experience fairly similar visitor trends, with a high number of visitors in March and November (likely coinciding with holidays), and a lower number of visitors in February and September. The visitor trends at MTC may be due in part to the unique nature of the facility itself. It is a minimum security prison for offenders with alcohol or substance abuse problems. The treatment center provides both six-month and one-year programs.

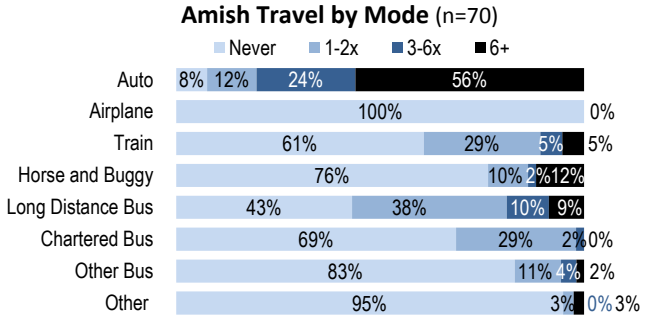


The wardens were asked about the modes of transportation used by visitors. In general, visitors reportedly travel by personal vehicle. A small percentage of visitors are assumed to travel by taxi. In most cases, there are not any public transportation options serving these facilities. On an occasional basis, a church or religious organization may charter a bus to bring visitors to one of the prisons.

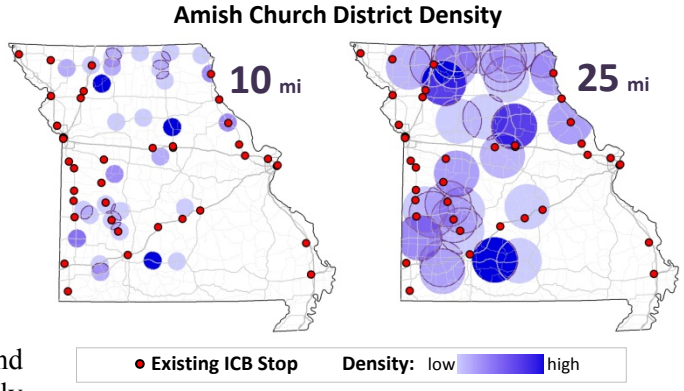
Amish

There were an estimated 9,900 Amish living in Missouri in 2008[2]. Their primary settlements are shown in the figure to the right[3]. Due to the Amish way of life (which includes not owning personal automobiles) and consequent reliance on public transportation to travel long distances, the Amish were considered a target population for this study, despite their relatively small numbers in Missouri.





In order to gather information from Missouri's Amish communities, an ad was placed in *The Budget,* a weekly newspaper that is widely read by Amish and Mennonite people throughout the country. By responding to the ad, Amish residents of Missouri could obtain copies of a survey by mail along with a pre-paid envelope in which to return their responses. A total of 70 surveys were returned. More than half of respondents (57 percent) had travelled via ICB at least once in the previous 12 months, which is the highest utilization rate of any of the study populations. In addition, 77 percent of respondents stated that ICB service was "very important" or "essential" to their community. The Amish survey did include the automobile as a transportation mode choice, though it was assumed that any automobile trips would have been in a vehicle driven by someone else (non-Amish). Like the disabled population, the automobile driven by others was the mode most often used by Amish respondents for long distance trips in the past year.



The figures at right show the density of Amish church districts in 10- and 25-mile bands, and their relationship to existing ICB stops in the state. Despite the popularity of ICB among the Amish, in the north-central and northeastern parts of the state, where the Amish population is quite high, there are very few ICB stops. In fact, over half of the survey respondents stated that their communities are currently not well served (or not served at all) by ICB. Almost 40 percent of respondents must travel between 25 and 50 miles to get to an intercity bus stop, while only 11 percent have a stop within 10 miles of their home. When asked "what changes to current service would make you more likely to ride an intercity bus," the most common response was "lower bus ticket prices" followed by "having a stop closer to my destination" and "having a stop closer to my home".

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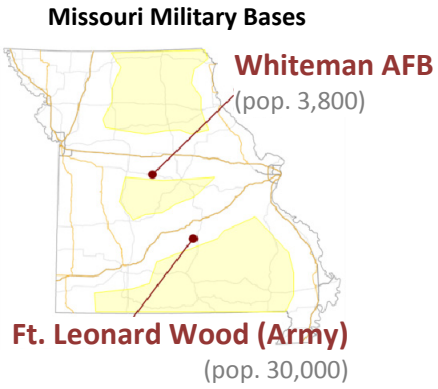
[2] "Amish Population Change 2007-2008." Young Center for Anabaptist and Pietist Studies, Elizabethtown College. http://www2.etown.edu/amishstudies/PDF/Statistics/Population_Change_2007_2008.pdf.

[3] *Family Life* (Amish periodical), August/September 2008 edition, page 21 (settlement directory by David Luthy)

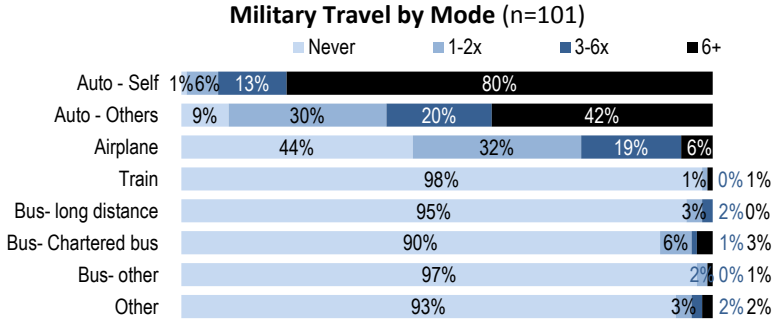
Military

There are two major military bases in the state of Missouri: Whiteman Air Force Base, near Warrensburg, and Fort Leonard Wood (FLW) Army Base, near St. Robert. Due to their comparative sizes and facility types, for the purpose of gaining information for this study, FLW was the main point of concentration. FLW has a significant amount of training activities, and new trainees arrive and depart the base with great frequency. Several people on the FLW base, as well as the station manager at the St. Robert Greyhound station, were interviewed.



According to the Greyhound station manager, about 90 percent of customers who use the St. Robert ICB stop are from Ft. Leonard Wood. Of those, the primary destination (an estimated 70 percent of passengers) is the St. Louis airport. Personal travel off-base occurs on a daily basis, although around holidays the number of travelers increases dramatically.

A common issue encountered by soldiers traveling via ICB is the lack of available seating on buses. As discussed previously, Greyhound (and most other intercity bus carriers) run reservationless systems, in that they sell tickets that allow people to travel whenever they want, rather than on a specific day. Based on internet ticket sales, extra buses may be deployed for certain routes and schedules, but because tickets are also sold at the stations and on the buses right up until departure, there are sometimes more passengers than seats available. The St. Robert stop is located midway between Springfield and St. Louis; often, buses are full by the time they arrive in St. Robert, and many people, despite having tickets, are not able to board. According to local sources, this happens up to twice a week. Since most travelers are attempting to catch a flight in St. Louis, waiting for a later bus is usually not an option.



Through conversations held with transportation and public affairs personnel at Fort Leonard Wood, soldiers were encouraged to respond to the online survey, via the MoDOT website. A total of 101 survey responses were received. It should be noted that not all these responses were from trainees, those most likely to travel long distances. As was true for most study populations, the most common mode of long-distance travel for Fort Leonard Wood respondents over the past 12 months was the personal automobile. This group also had one of the highest responses, when compared to the other study populations, in regards to riding in someone else's automobile (91 percent). Other than airplane, other modes of transportation were not often used, including ICB, with only 5 percent of respondents having used that mode in the past year. According to the survey responses, the factors affecting the likelihood of riding intercity bus in the future include "if gas prices rose to $4/gallon", "if improvements were made to the buses", and "if buses came more frequently."

4. The Economics of Intercity Bus

The purpose of this chapter is to describe the ICB industry from an economic perspective in order to assist the state of Missouri in developing effective partnerships that improve rural intercity transportation. The chapter is concerned exclusively with that portion of the industry providing scheduled services.

Overview

The 2005 Motorcoach Census found that there were 684 companies providing scheduled ICB services in North America. These companies have fleets ranging in size from fewer than 10 buses to more than 1,250 buses. The largest 39 companies operate more than 100 vehicles each. Intercity buses travelled 656 million vehicle-miles while serving nearly 55,000 points in the U.S. and Canada, including terminals, stations and stops. Greyhound, the largest single carrier nationally, carried 25 million passengers more than 5.8 billion passenger-miles in 2007.[4]

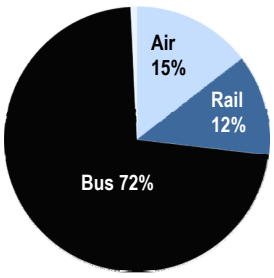
[5] Between 2006 and 2008, as fuel prices rose and the economy stalled, ICB ridership grew nationally by more than 15 percent.[6]

Scheduled intercity services are part of a larger ICB industry that also includes charter, sightseeing, commuter and other services. Most ICB companies offer a combination of services that nearly always includes charter services and often includes package express services between the points they serve. Scheduled services account for about one quarter of the bus miles (27.4 percent)[7] for the industry as a whole.

These larger carriers tend to dominate scheduled services due to their ability to provide networks, routes and schedules.

Scheduled ICB service is an absolutely critical element of the passenger service network of the United States. As shown in **Figure 4-1**, ICB serves 72 percent of the 4,388 terminals, airports and stations with scheduled service.[8] No other mode of transportation matches the ICB mode's ability to provide scheduled services to smaller cities and rural areas.

Figure 4-1: Schedules Intercity Service Points Served



Source: Bureau of Transportation Statistics (BTS). "Scheduled Intercity Transportation:

The remainder of this paper reviews the economics of ICB from three perspectives:

- The Customer (both passenger and freight)
- The Bus Company
- The Community and State

[4] American Bus Association, Motor Coach Census 2005 and Greyhound Facts and Figures at http://www.greyhound.com/home/en/about/factsandfigures.aspx.

[5] American Bus Association, "Motor Coach Facts", 2008.
[6] Chaddick Institute for Metropolitan Development, 2008 Update on Intercity Bus Service: Summary of Annual Change, 2008. That study estimated that ridership increased by 9.8% between 2007 and 2008 and 8.1% between 2006 and 2007.

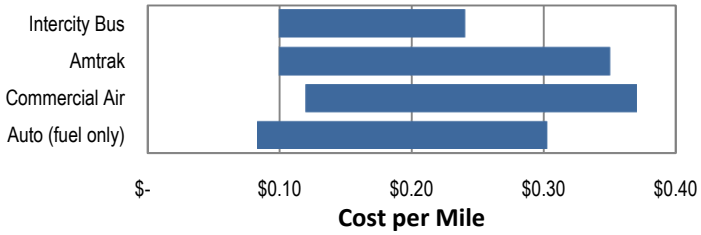
[7] Nathan Associates, "2006 Annual Report: Impacts of the Motorcoach Industry on Society and the Economy", January 2007.
[8] U.S.DOT, BTS, "Scheduled Intercity Transportation:", 2005.

Customer Perspective

Scheduled Passenger Services

For most intercity trips, the bus is the lowest-cost alternative in terms of direct out-of-pocket costs. The typical ICB ticket costs between 10 cents and 14 cents per mile. These typical fares are compared to the cost of other modes in **Figure 4-2**. Airline fares start at 12 cents per mile for steeply discounted tickets and can run as high as 25 cents per mile. On Amtrak, ticket prices might run between 10 cents and 25 cents per mile depending on destinations and level of service. The cost of taking a personal car will typically run between 8 and 30 cents per mile[9] just for fuel.

Figure 4-2: Typical Ticket Cost Ranges per Mile



Source: Mark Ford and Associates, based on typical ticket prices for trips originating or terminating in Missouri.

Ticket prices are just one among several economic factors that are taken into account when planning a trip. Other factors include the cost of getting to and from the station, additional costs during the trip for lodging or meals, the value of time, and the value placed on comfort and convenience. Each of these factors is discussed below.

Terminal Access – The cost and time required to get to terminals can be a significant part of mode choice decision. For distances under 200 miles, buses, trains and cars usually require less total time than air travel because of airport check-in requirements and travel distances from the trip origin to the airport. Since buses serve many more points than air or Amtrak, bus service is often quicker and less expensive to access, especially if the traveler does not need to use a private car to get to the station. Still, in individual situations it may be difficult to get to bus stations. Particularly for shorter trips under 50 or 60 miles, it may be less expensive to just use a private automobile rather than traveling to and from a bus station at either end of a bus trip or matching bus schedules to personal needs.

En Route Travel Costs – For long trips, costs for meals, lodging and other items must also be considered. This is an area where the bus may be inexpensive for long trips if the passenger is willing to sleep on the bus and carry food or eat very inexpensively. However, for trips over 500 miles, there is a distinct trade-off between comfort and cost compared to Amtrak or air travel. These factors explain, in part, why scheduled bus service is so much more attractive to lower income travelers and students than to business or vacation travelers.

Value of Time – Another factor in the traveler's decision is the value of time, which is often more important than out-of-pocket costs of travel. For trips over 200 miles, air travel is usually the fastest means of travel where it exists. Under 200 miles, the private automobile is usually the fastest. When time considerations include the ability to meet specific schedules, the frequency and reliability of service also impact time requirements and affect the mode choice decision. For travelers with a high value of time[10], air may be the preferred mode for some trips shorter than 200 miles. For travelers

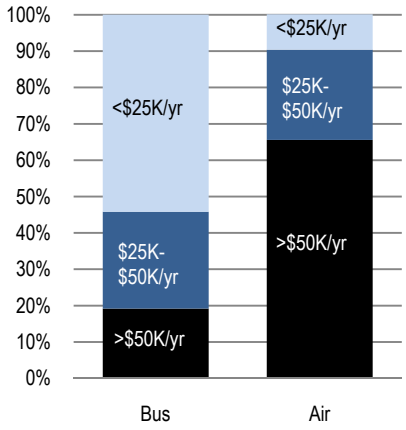
[9] At the low end is a car getting 30 miles per gallon and purchasing fuel for $2.50 per gallon. At the high end is a car getting 16 mpg and purchasing fuel at $3.50 per gallon.

[10] In determining the value of time for travel, a general rule of thumb uses ½ the hourly wage for commuting and personal travel and the full cost to the employer of work travel (mainly wages and wage related overhead). Thus, high-end business and professional travelers might exceed a value of $200 per hour, making speed the overriding consideration in mode selection. On the other hand, a student or low-income individual on a personal trip might

with a low value of time or without time constraints, the bus may still be the most economical form of travel even at distances over 1,000 miles.

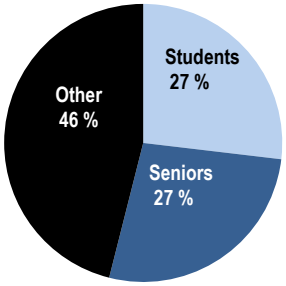
Comfort and Safety – While not strictly an economic decision, personal comfort is also very important to many passengers who are willing to pay more for services they consider more comfortable or safer. In the past, buses have generally been regarded as less comfortable than trains, airplanes or automobiles and bus terminals have generally been regarded as less comfortable than airports or train stations. In addition, because typical bus travelers tend to fall in a lower income stratum than train or air travelers (see **Figure 4-3**), some potential bus users may feel uncomfortable or insecure on buses and in bus terminals. Bus companies have done a great deal in recent years to improve the quality of buses and terminals to attract higher-income and business travelers. But many potential travelers are unaware of the improvements. Regarding safety, buses are safer than commercial air travel on a passenger-mile basis[11]. This is another factor of which the public may not be aware.

Figure 4-3: Percent of Passengers by Income Level Air and Bus (1995)



When all of these factors are combined, it is clear why lower-income and transit-dependent travelers constitute the largest segment of the intercity scheduled passenger market. The 2005 Motorcoach Census by the American Bus Association determined that students and the elderly accounted for 54% of riders (see **Figure 4-4**). For many of these riders, and for those in rural areas, the choice is usually not between one mode and other, but whether or not to take the trip at all.

Figure 4-4: Intercity Passengers (2004)



Source: American Bus Association (ABA), "Motorcoach Census 2005.

In summary, from the passenger perspective, scheduled bus service is the least expensive mode of intercity travel in terms of out-of-pocket costs. When time and convenience are considered, ICB has the advantage of more terminals and destinations and in many markets, often with more frequent schedules. Still, in terms of time savings, it is difficult for ICB to compete with air travel at long distances and with private autos at shorter distances. In terms of comfort and security, modern buses can be as comfortable as commercial air and many Amtrak services. The result is that ICB is the most economical and convenient mode of choice for short and medium-distance trips for many travelers; yet, it is still regarded by many as the mode of choice for lower-income, elderly and student travelers with more flexible schedules and lower values of time.

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value their time at less than $5 per hour, thus greatly reducing the importance of speed in their choice of travel mode.

[11] Nathan Associates, "2006 Annual Report: Impacts of the Motorcoach Industry on Society and the Economy", January 2007, citing the Bureau of Transportation Statistics (BTS) at http://www.transtats.bts.gov. See BTS Table 132 for highway bus miles, Table 21 for highway bus occupant fatalities, Table 22 for high bus occupant injuries, Table 29 for U.S. air carrier fatalities and injuries.

Package Express

The three companies providing most of Missouri's scheduled ICB service also provide package express services. Services are strictly between stations (i.e. no door-to-door pick-up and delivery). However, delivery can be very fast and usually at lower rates than other parcel services. Providers also have the advantage of being able to carry bulky and heavy shipments (up to 100 pounds and able to fit into the bus baggage compartment). For certain types of commodities, ICB package express plays an important role. Greyhound, for instance, notes success in package express handling for medical/biotech, food products, printed material and service parts/parts distribution. It has been noted anecdotally that eBay purchases are often sent by ICB.

Over the past 20 years, the volume of package express shipments by ICB has declined as a result of competition from package express companies such as FedEx and UPS. Package express service to rural areas has also declined due to reductions in routes, schedules and stations.

Table 4-1: Package Express Service by ICB

Company	Number of States Served	Service Points in Missouri
Greyhound	48	20
Jefferson	12	21
Burlington Trailways	4	2

Source: Company web sites, accessed April 22, 2009

In the future, the creation of special service arrangements, coupled with the increased use of technology to track and coordinate shipments, may allow Greyhound to increase its market share through its extensive national network. For companies in rural areas, major improvements in package express services or volumes are unlikely. Package express is discussed further below under "Sources of Revenue".

Bus Company Perspective

From the perspective of the ICB company, making a profit is a matter of generating sufficient revenue to cover costs and earn a fair return. Revenue depends on the ability to attract passengers on specific routes and services. Bus companies providing scheduled services are often caught in a revenue-cost squeeze in which costs are rising, and stiff competition with other modes of transportation make it difficult to increase revenue. Quality of service is what attracts customers but the revenue-cost squeeze makes if difficult to invest in the needed equipment and route schedules.[12]

Operating Costs

The cost of operating an intercity bus is now estimated at $3.50 to $4.00 per mile. This is the fully allocated cost that includes fuel, maintenance, capital cost of equipment, stations and agent commissions, driver wages, insurance and overhead. For certain routes and services, it may be sufficient for the bus company to cover only variable costs, which tend to run at about 70 percent of fully allocated costs. Thus, if the company can recover $2.50 to $3.00 per mile, the route or service will make a contribution to overhead and fixed costs. However, for the system as a whole, returns of $3.50 to $4.00 per mile are still required to earn a return on investments and stay in business.

The various cost factors required to provide ICB operations may have significant impacts on the way in which a company organizes its operations:

Driver Wages -- Driver wages are the largest single cost for ICB. Labor is a significant factor in bus operations not only because of the direct cost of wages, but the need for training, per diem costs when

[12] Much of the perspective and some of the data on which this chapter is based were obtained through meetings and follow-up conversations with the four major carriers serving Missouri: Greyhound, Jefferson Lines, Burlington Trailways, and Megabus.

drivers are away from home, limitations on hours of service set for safety reasons, and retention/hiring. The cost of labor has two very significant impacts on the economics of bus operations. First, because driver wages and many other costs do not vary significantly with the size of the bus, more seats and higher load ratios increase productivity and reduce costs per passenger. For this reason, larger buses are usually preferred – and any policies that reduce the number of seats available, or the number that can be filled, reduce profitability. Second, because drivers are paid by the hour, higher speeds and less frequent stops reduce costs per mile. The result is that the same bus operating as a "local service" with many stops and carrying the same number of passengers will be less profitable.

Stations and Agents – The second largest expense for many bus companies is the cost of providing stations and paying agents. This can be as much as 20 to 25 percent of a company's operating costs. For this reason, some companies have tried to find ways to consolidate terminals or avoid stations altogether. Some states and metropolitan areas have provided stations and terminals as a way of assisting ICB companies as well as encouraging better coordination of passenger transportation.

Fleet Maintenance – Maintenance is typically the third largest single cost item for ICB companies behind driver wages and stations. These costs can vary tremendously between carriers depending on the age of the fleet. At a minimum, they will probably account for 10 percent of operating costs.

Amortization and Depreciation – Another significant cost factor is the amortized cost of buses. Large intercity motor coaches now cost an average of $450,000 apiece. If a bus puts on a million miles in its service life, this amounts to $0.45 per mile, not counting financing costs. Faced with declining revenue and increases in other costs, companies may put off purchase or lease of new equipment. The result is that a company may show very low amortization and depreciation simply because it has not purchased new buses in several years. This has two negative impacts. First, the quality of the passenger's experience diminishes because the buses are older and lack some of the amenities of newer equipment. Second, as buses age, maintenance costs increase.

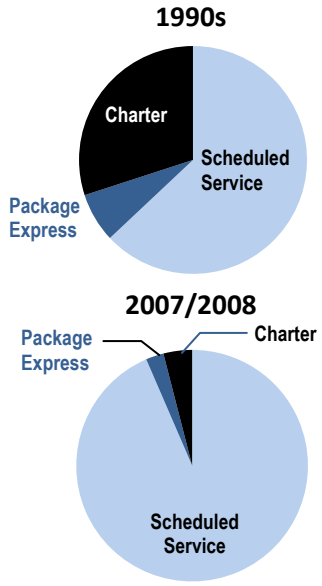
Fuel Costs – Recent fluctuations in diesel fuel costs have had a significant impact on ICB operations. The typical intercity bus gets about 6 miles per gallon. As diesel prices vary between $2.50 and $4.00 per gallon, fuel costs alone contribute between $0.42 and $0.67 per mile to operating costs. Some companies are able to reduce these costs through contract purchases or other arrangements. Because fuel costs per passenger are still less than those for automobiles, increasing fuel prices contribute to increased demand for bus travel as more passengers choose that option over automobiles. However, fuel is still a significant cost and may result in the need to increase ticket prices as rising fuel prices increase the cost of operation.

Safety and Insurance – Every ICB company interviewed for this paper described safety as their top priority in bus operations. Insurance and safety program costs, while not typically as high as wages, stations or maintenance, are completely unavoidable. One company noted that the cost of safety programs and insurance was their fourth largest expense item, accounting for about 10 percent of operating costs.

Sources of Revenue

Figure 4-5 shows major revenue sources for typical scheduled service providers and how they have changed over the past ten years. These sources include fare revenue, charter and package express, although charter and package express have declined significantly in the past ten years.

Figure 4-5: Scheduled Service Provider Typical Distribution of Revenue



Source: Mark Ford and Associates, based on interviews and confidential sources for carriers operating in Missouri.

Scheduled service fare revenue – As noted earlier, ICB tickets typically generate revenues of 10 to 14 cents per mile. With per-mile bus operating costs of $3.50 to $4.00, buses must be kept 50 to 75 percent full just to cover costs. In some markets, a combination of lower ticket prices or load factors may be acceptable if companies can cover variable costs by earning $2.50 to $3.00 per mile. However, these routes and services must be balanced by others with higher load factors or higher per-mile ticket prices. At one time, operating feeder routes at less than full cost recovery was a strategy for boosting returns on longer-distance routes. Today, the feeders and long-distance routes are often operated by different companies, rendering this strategy ineffective.

Charter revenue – In the past, the ICB companies that dominated the market for scheduled services also earned significant revenue from charter and package express. Ten years ago, many intercity carriers also operated a significant amount of charter service. Charter operations are those in which a bus is hired by an individual or group for a specific trip or length of time. These can be profitable because the bus company is paid regardless of numbers of passengers. Prior to deregulation of the industry, operation of scheduled service was usually a precondition of obtaining a permit to operate more profitable charter service. Today, most of this business has been lost to specialized charter companies, and less than 5 percent of revenues for companies operating scheduled service come from charter operations. This reduces the ability to cover overhead, maintenance facilities and other costs.

Package express – Another source of revenue that has declined significantly is package express. Prior to the growth of ubiquitous package express companies such as Federal Express and UPS, intercity buses often carried time-sensitive cargoes such as newspapers, auto parts and cut flowers. Revenues from package express often added significant value to specific routes and helped hold down passenger ticket costs. Today, this business has shrunk to about 2.5 percent of ICB revenue.

Revenue from charter and package express once helped cover overhead and reduce the fully-allocated cost of scheduled service. In recent years, the ability of intercity scheduled services to earn revenue from sources other than ticketed passengers has been declining. While the motorcoach industry as a whole has become quite diversified with growth of charter companies, tourism/sight-seeing, commuter services, and airport express services, the diversification has tended to result in specialized companies in these different markets.

Many of these changes can be traced back to deregulation of the 1980s. Prior to deregulation, obtaining a certificate to offer charter services required that companies provide rural service as well. This effectively subsidized rural services and provided a network ideal for package express. Since deregulation, the cost and revenue squeeze has had important consequences for the industry as a whole. While there are many more small carriers providing charter and specialized services, scheduled services are increasingly

concentrated in fewer and fewer companies as the industry consolidates. The *2005 Motorcoach Census*[13] found that bus companies operating more than 100 buses account for 52 percent of ICB miles, while companies with fewer than 25 buses provide less than 12 percent of service. In addition, new service models are emerging which are increasing efficiency and reducing availability of ICB service. These are described in the following section.

New Industry Service Models

Some of the intercity scheduled service providers have responded to these passenger demand and cost trends by concentrating services in higher-volume corridors and reducing the number of stops to reduce travel times. Greyhound, for instance, now concentrates on service "pipelines" on major corridors, limiting the number of stops and depending on feeder routes and other regional carriers to "feed" the pipeline. Whereas Greyhound served 25,000 points in 1970, today it serves approximately 5,000 points. This is still many more points than Amtrak or the airlines, but nevertheless represents a significant decline, especially in rural areas.

Faster service with fewer stops has improved industry competitiveness vis-à-vis the airlines and Amtrak and has reduced costs on a per-passenger-mile basis. This has often left regional carriers like Burlington Trailways and Jefferson Lines to serve more rural points and to provide feeder services to Greyhound through interline agreements.

Megabus has introduced point-to-point services in major markets, a strategy that is even more specialized than Greyhound. They connect major cities with very large double-decked 95-passenger buses without intermediate stops and without interline agreements with other carriers. Using an online reservation system, and no station infrastructure, they avoid agent costs and guarantee seats for specific travel times. This has resulted in a different passenger mix as they have been able to attract more affluent riders, more business riders and more people under 40.

While service pipelines and point-to-point service models are improving the profitability of major carriers, they create special problems for travelers from smaller cities and for other carriers serving the intermediate points. These smaller carriers are squeezed on both the cost and the revenue side. As explained earlier, more stops equates to increased per-passenger-mile costs. But the improved service provided by the point-to-point carriers also attracts "through" passengers who formerly would have used the smaller carriers, thus eliminating one of their more profitable customer groups.

Through interline agreements, regional carriers still retain the long-distance travelers with origins or destinations in the smaller cities. However, since the costs of the interline tickets are usually dictated by Greyhound, and since the division of revenue is strictly on a per-mile basis, the revenue contribution of these passengers is sometimes below cost. As noted previously, revenue per passenger mile is typically 10 to 14 cents per mile. One carrier reported that their share of interline revenue for some tickets was as low as 2 cents per passenger mile. A carrier that filled its buses with interline passengers at these rates would still lose money.

In addition, for interline service to be meaningful, the feeder and long-distance lines must have meaningful connections. Connections have been made easier in some areas thanks to consolidated terminals that create cleaner and safer places in which large long-distance carriers, feeder services and local transit services can meet. On the other hand, schedules are often difficult to match because the major carriers must plan services based on scheduling needs of large urban centers where most of their passengers originate and terminate.

[13] Nathan Associates, Motorcoach Census, 2005, American Bus Association, 2006, p8.

The Public Perspective: Economic Benefits of Intercity Bus Service

The ICB industry supports the Missouri economy, and that of the entire United States, in several important ways.

Personal Access to Jobs and Services -- The access provided by ICB is significant to the functioning of the entire economy. ICB is often the only way for lower-income workers to move from community to community. For small communities, ICB service may be the only affordable means of travel for job seekers or students traveling to the community and the only means of accessing medical or other services in nearby communities or metropolitan areas. When a community becomes isolated for lack of affordable transportation, the economic prospects of the community will also be diminished.

Table 4-2, taken from a study by the US Bureau of Transportation Statistics, shows that in 2005 ICB provided access to 1.9 million residents of rural Missouri. In this study, a place was considered to have access to ICB service if there was a station or scheduled stop within 10 miles. For airports, a place was considered to have access if it was within 75 miles of a hub airport or 25 miles from another commercial service airport. Access to rail was considered to require an Amtrak station within 25 miles. For nearly 500,000 residents, ICB was the only form of intercity transportation available because they were too far from an airport or train station, but did have a bus station or stop. ICB enhances the mobility of people who live in rural areas and the ability of business and industry to locate and grow in rural areas.

Table 4-2 : Scheduled Intercity Transportation and Rural Population

	Missouri		United States	
	Number	Percent	Number	Percent
Total Rural Residents	2,231,672	100%	82,378,450	100%
Access to at Least One Mode	1,977,241	89%	76,486,109	93%
Rail				
Have Access	733,333	33%	34,562,909	42%
Rail is only Access	23,786	1%	348,958	<1%
Air				
Have Access	1,344,171	60%	58,083,141	71%
Air is only access	61,357	3%	2,590,457	3%
Intercity bus				
Have access	1,956,313	88%	73,643,367	89%
Bus is only Access	494,091	22%	13,488,469	16%

Source: BTS, "Scheduled Intercity Transportation: Rural Service areas in the US", June 2005

Economic impact of industry investment and expenditures -- The ICB industry is itself a significant industry that increases income and creates jobs throughout the economy. A 2006 study distributed by the American Bus Association found:

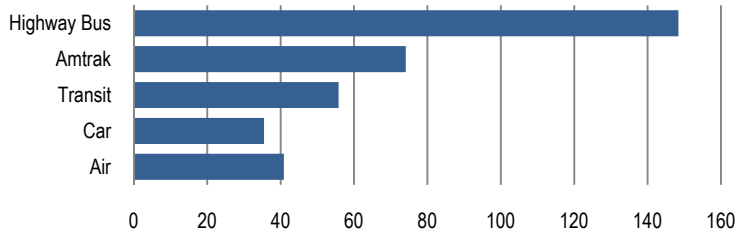
> *"Traveler and tourist demand for services provided by the motorcoach industry generates $44.2 billion of annual sales directly and indirectly throughout the U.S. economy. Motorcoach travelers and tourists spend $4.9 billion on motorcoach industry transportation services and another $20.8 billion on goods and services of other industries. Direct spending of motorcoach travelers and tourists generates an additional $16.4 billion of indirect sales. Moreover, the motorcoach industry invests in motorcoaches each year, spending that generates another $2.1 billion of sales by motorcoach manufacturers and their supply chain industries. The total impact of traveler and tourist demand for services provided by the motorcoach industry generates 758,000 jobs.[14]"*

This analysis did not distinguish between scheduled services, charters and other types of ICB service.

[14] Nathan Associates, 2006 Annual Report: Impacts of the Motorcoach Industry on Society and the Economy, January 2007.

Fuel efficiency – A third contribution of the ICB industry to the economy is through the fuel-efficient alternative it provides for personal travel. When fuel prices rise, this efficiency becomes more important to the economy as well as the environment. As **Figure 4-6** illustrates, ICB transportation far exceeds other modes in passenger miles per gallon of fuel, achieving nearly 150 passenger miles per gallon of fuel.

Figure 4-6: Passenger Miles per Gallon



Source: Nathan Associates, 2006 Annual Report: Impacts of the Motorcoach Industry on Society and the Economy, January 2007.

Conclusions

The ICB industry experienced resurgence in 2008 as a result of rising fuel prices and new service models. As fuel costs increased in mid 2008, ICB ridership increased. By late 2008, fuel prices had begun to fall and a severe economic recession took hold. It will be important to see how much of the new ridership is retained, how much goes back to auto travel, and how much the ICB industry is affected by general declines in travel due to the recession.

Some of the largest ICB companies are experimenting with new service models emphasizing major corridors and point-to-point service. While these new models are attracting more riders in major markets, they tend to de-emphasize rural service. Regional carriers have an important role in providing rural and connecting services. Their effectiveness in serving rural areas may depend on their own cost structures and on interline services in partnership with the larger carriers.

In spite of recent growth, the industry is still caught in a revenue-cost squeeze that limits expansion of services and leaves many rural areas without service. The industry in general would benefit from state and federal measures that reduce the cost of capital through bus purchase programs and public investments in terminals and stations. In addition, local transit services should consider intercity connections in planning of stations and services.

However, these measures would be unlikely to significantly affect rural service unless public assistance efforts are more targeted. This is because new service models that emphasize point-to-point service and major routes do not improve the economics of rural services. The new service models result in elimination of many rural stops and often make remaining services less profitable.

Within the current economic environment in which ICB operates, attempts by the state to improve availability of rural ICB service must consider several factors:

- *Financial viability of the bus companies*
  - Federal grants, including FTA Section 5311 operational assistance, often cover only half of operating costs. In many cases, this is not enough to cover just the variable costs. If state

subsidies are used, they must be designed to make the service at least "break even" for the ICB company.

  - Bus purchases have been used as a way to increase the fleet size and reduce maintenance costs for intercity bus companies. This type of assistance can help bus companies, but in return, the state must get guarantees that the equipment will result in improved, or at least sustained, rural service.
  - Guarantees of seat purchases may help provide a way to support specific routes.
  - The general public is largely unaware of ICB's package express capabilities. While package express has declined in importance as an ICB revenue source, assistance with promoting/marketing these services could improve the profitability of certain routes.
  - In some situations, state and local agencies may be able to support stations and agents in a way that supports bus service while reducing the cost to the carrier.

- *Convenience, comfort and safety of the traveler*
  - Improvements to stops and stations may be able to improve comfort and safety, even if the service level cannot be increased.
  - Several ICB routes serve stops in rural communities at inconvenient times very late at night or very early in the morning. Added daytime service to stops on existing routes would provide realistic mobility options at times of the day when people are more likely to travel.
  - Spatial gaps in service are evident from mapping the ICB routes and indicate large corridors and areas of the state where no rural ICB services now exist. Persons currently living in those areas must travel far to access ICB service.
  - Improved coordination between local/regional transit services, intercity feeder routes and national through routes may be able to improve convenience to the traveler. On the other hand, if new feeder routes cannot be scheduled at times that are convenient to the traveler, they may not be used.
- *Amount of rural intercity passenger service available*
  - Subsidies and usage guarantees are two ways of increasing total services.
  - In some cases, rural transit agencies may be able to operate what are essentially intercity routes.
- *Awareness of the services and availability of schedule information*
  - Marketing grants administered by the state and awarded to ICB companies can create greater awareness and interest by informing current market segments about existing ICB services.
  - Web sites of transportation partners, informational phone services, as well as distribution of schedules and brochures at centers of community activity, can increase awareness of services and assist the intercity traveler by providing up to date information.
- *Funding availability*

In conclusion, efforts to improve rural intercity services will likely require a flexible combination of solutions tailored to specific situations and the use of additional state and/or local funding to augment existing federal transit programs.

5. Competing/Coordinating Travel Modes

The purpose of this section is to place ICB within the larger context of Missouri's overall transportation system, in terms of coverage, usage, and other relevant aspects. The other travel modes in Missouri can operate in a complementary fashion with ICB, and so it is important to examine those linkages to increase efficiency. The long-distance travel modes can also operate in competition with ICB (for example, both passenger rail and aviation also connect Kansas City and St. Louis); therefore, understanding the role of ICB in relation to these other modes can reveal important interrelationships. The remainder of this section addresses each of the modes in turn.

Highways

Missouri has a network of over 32,000 miles of highways (including Interstates as well as US and MO routes), in addition to a large number of miles of local roads. This is the same network used by ICB (approximately 5 percent of those miles – roughly 1,500 miles[15]), so improvements to this network can influence the timely performance and safety of ICB.

In 2007, the total number of Vehicle-Miles Travelled (VMT) in the state of Missouri was 69,151,000,000[16]. In comparison, VMT for ICB in 2008 was approximately 2,716,000 (about 0.004 percent of the statewide total). However, a more fair comparison involves passenger-carrying potential. Using a vehicle occupancy figure from the census (1.073065 passengers per vehicle[17]), the 2007 statewide figure equates to 74,203,000,000 person-miles; but if all intercity buses were running full, they could have carried 162,060,000 person-miles, or about 0.2 percent of the state total – still a very small portion. This figure indicates there may be a large potential pool of travelers that could be induced to switch to ICB – although it is acknowledged that most personal vehicle travel is not of a long-distance nature that could be captured by ICB.

The personal vehicle will remain the dominant travel mode for the foreseeable future, but for those who are transit-dependent, or have difficulty affording longer trips on other modes, ICB will remain a viable alternative. Since ICB generally uses the best-maintained facilities in the state (freeways and state highways) for its trips, improvements to this network can only benefit ICB. ICB uses local roads for short distances to access stop locations, and these may not always be as well-maintained or provide adequate capacity.

Passenger Rail (Amtrak)

One of the most notable non-automobile competitors for long-distance travel is passenger rail, which often offers more amenities and higher speeds than ICB, with comparable fares. For example, the cost of the train between Kansas City and St. Louis is $52 round-trip, which is actually less than the cost of the intercity bus ($66). The fares from Kansas City to other destinations within Missouri are generally relative to their distance; for example, the cost to Warrensburg is $24, the cost to Jefferson City is $42, and the cost to Hermann is $50 (all fares listed are round-trip)[18].

[15] Based on data contained in Missouri TIGER (GIS) files
[16] http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/29_MO/2008/29_MO_2008.htm
[17] http://www.nctr.usf.edu/clearinghouse/censusavo.htm
[18] Source: Amtrak website 10/26/09.

There are four Amtrak routes that serve the state of Missouri, as described below:

- **Missouri River Runner –** This route spans from Kansas City to St. Louis, with eight stops in between, serving destinations mostly along the US-50 corridor. These stops are located in Independence, Lee's Summit, Warrensburg, Sedalia, Jefferson City, Hermann, Washington, and Kirkwood.
- **Southwest Chief –** This route extends from Chicago to Los Angeles, with Missouri stops in La Plata and Kansas City.
- **Texas Eagle –** This route runs from Chicago to San Antonio, with two stops in Missouri, in Poplar Bluff and St. Louis.
- **Illinois Service (The Lincoln Service) –** This route runs from Chicago to St. Louis with several stops in Illinois. St. Louis is the only Missouri stop along the route.

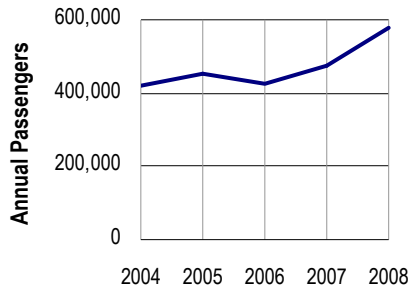
The busiest train station in Missouri is in St. Louis. The St. Louis station carried over 270,000 passengers (boardings plus alightings) in 2008. The station serving the fewest number of passengers in 2008 was Poplar Bluff. As can be noted in **Table 5-1**, all Missouri stations experienced an increase in the number of passengers between 2007 and 2008. The most notable increase was in Hermann, where passenger counts increased by almost 70 percent. Since 2004, the total passengers in Missouri has been generally increasing, the only exception being in 2006 when a slight decline occurred, as seen in **Figure 5-1.**

Table 5-1: 2008 Amtrak Ridership and Growth in Missouri

Amtrak Station	Passengers (2008)	Diff from 2007
St. Louis	271,997	+23.9%
Kansas City	130,459	+11.4%
Jefferson City	45,032	+18.0%
Kirkwood	43,359	+33.9%
Lee's Summit	22,359	+37.6%
Warrensburg	12,314	+21.8%
Washington	12,071	+41.4%
Hermann	10,816	+69.9%
La Plata	10,544	+3.0%
Sedalia	9,643	+20.4%
Independence	7,261	+32.8%
Poplar Bluff	4,631	+20.5%

Source: Amtrak Fact Sheets

Figure 5-1: Annual Amtrak Ridership in Missouri (2004-2008)



Only three of the cities in Missouri that have Amtrak stations are also served by ICB: Kansas City, St. Louis and Warrensburg. Connections between Amtrak and ICB are fairly good in all three. St. Louis has recently completed the construction of a new multi-modal facility (The Gateway Multimodal Transportation Center, at 430 South 15th Street). This facility is the City's hub for both Amtrak and intercity bus, and is served by local transit as well. In Kansas City, there is one ICB route (Jefferson Lines route 803 with service between Kansas City and Dallas) that stops directly at the local Amtrak Station (Union Station). Kansas City's Greyhound terminal is about 2 miles from Union Station. In Warrensburg, the ICB and Amtrak stations are both at the same location: the Chamber of Commerce building.

Because the Kansas City-to-St. Louis route is the only Missouri route served by both Amtrak and ICB, this is the only route for which the two modes are competing. Between Kansas City and St. Louis, the travel time is greater for Amtrak (5 hr, 40 min) than it is for ICB (4 hr, 25 min). The discrepancy, in large part, is due to the number of stops each mode makes between the two cities. The intercity bus only stops two times (in Boonville and Columbia), whereas Amtrak stops eight times (stations listed above – see Missouri River Runner).

In looking at ICB service gaps (see Chapter 6), one could conclude that U.S. 50 would be a viable route for ICB. This is certainly not outside the realm of possibility, but the fact that Amtrak runs along this route is an important factor to consider. A more viable strategy might be for ICB to cover the gaps in north-south service in the state, but to provide quality connections to Amtrak where crossing the U.S. 50 corridor. In fact, ICB providing feeder service to Amtrak is a general concept that may be worth exploring in Missouri. These ideas are discussed more fully in subsequent chapters.

According to one source, in July 2008, two of Missouri's Amtrak routes (Texas Eagle and Illinois Service) reportedly had some of the worst on-time performances of any Amtrak routes (0 percent and 30.6 percent respectively). Delays along these routes, however, do not tend to occur in Missouri, but rather in Illinois and Texas. Though the delays are not caused in Missouri, Missouri passengers still experience the delays. According to the latest on-time performance records, however, those Missouri routes have improved on-time performance in the past year, with all routes at 80 percent or above for March 2009 and at 75 percent or above for the 12-month period between April 2008 and March 2009 (see **Table 5-2**).

Table 5-2: Missouri Amtrak Routes On-Time Performance

	On Time Performance		Cause of Delay (Mar '09)		
Route Name	Mar '09	prev 12 mos	Train Interference	Passenger	Track & Signals
Missouri River Runner	80.6%	79.1%	37.1%	23.7%	21.4%
Southwest Chief	88.5%	87.2%	31.0%	24.1%	15.8%
Texas Eagle	80.6%	75.0%	30.6%	28.6%	28.4%
Illinois Service (all routes)	80.4%	76.3%	52.1%	na	32.8%

http://www.amtrak.com/servlet/ContentServer?pagename=Amtrak/Page/OTP_Route_List&cid=1202243059386

No such similar table exists for ICB, but that industry certainly has its share of on-time performance issues as well.

Aviation

There are currently eight cities in Missouri with airports that provide commercial service: Kansas City, St. Louis, Columbia, Joplin, Springfield-Branson, Cape Girardeau, Waynesville (Ft. Leonard Wood), and Kirksville. Kansas City and St. Louis have International airports, providing service to locations across the country. The remaining six airports are regional, and generally provide service to Kansas City, St. Louis, or both. The only exception is Columbia, which does not provide service to any Missouri cities, but – as of this writing – has a regular route to Memphis, TN.

In 2006, the number of enplanements (passengers boarding) at Missouri airports ranged from approximately 2,000 in Kirksville, to over 7 million in St. Louis. See **Table 5-3** for enplanements at all Missouri commercial service airports.

Table 5-3: Missouri Commercial Airport Enplanements (2006)

Airport	2006 Enplanements	FAA Category
St. Louis-Lambert International	7,037,400	Commercial Service – Primary
Kansas City International	5,466,672	Commercial Service – Primary
Springfield-Branson National	428,249	Commercial Service – Primary
Columbia Regional	15,809	Commercial Service - Primary
Joplin Regional	11,498	Commercial Service – Primary
Cape Girardeau Regional	8,196	Commercial Service – Non-Primary
Waynesville Regional	7,690	Commercial Service – Non-Primary
Kirksville Regional	1,878	General Aviation only in 2006 – has comml. now

Source: Wikipedia

With the exception of Kirksville, each of the Missouri cities that have commercial service airports are also served by ICB. In St. Louis and Kansas City, there are only a limited number of ICB routes that have

direct service to the airports, and in the remaining cities, there is no ICB service to the airports at all. In these cities, making connections between the two modes is fairly difficult. Distances between the airports and the intercity bus stop locations range from just under 6 miles in Joplin to 15 miles in Columbia. See **Table 5-4** for a complete listing of station proximity.

Table 5-4: Station Proximity – Airport vs. Intercity Bus Stop

Airport	Distance from Intercity Bus stop
Columbia Regional	13.5 mi (Greyhound), 15.1 mi (MegaBus)
Joplin Regional	5.8 mi
Kansas City International	20.6 mi (Grey/Jeff), 18.5 mi (MegaBus), some routes go directly to airport
Springfield-Branson National	12.6 mi
St. Louis-Lambert International	18.0 mi (Grey/Burl),18.7 mi (MegaBus), some routes go directly to airport
Cape Girardeau Regional	7.9 mi
Waynesville Regional	7.1 mi
Kirksville Regional	No intercity bus service to Kirksville

It must be asked: how important is connectivity between ICB and airports? Certainly for the two international airports (Kansas City, St. Louis), it should be considered very important. Passengers traveling to these airports are often coming from long distances, and therefore connections from more rural areas via ICB make sense. Interestingly, the ICB stop at St. Louis-Lambert International carries some of the highest on/off volumes of all Missouri's ICB stops, while the stop at Kansas City International carries some of the lowest volumes. There are several factors contributing to the low volumes in Kansas City:

- Jefferson Lines is the only carrier that has scheduled stops at Kansas City International. Only select routes between the Kansas City Greyhound terminal and St. Joseph, or other points north, (501 and 706a northbound, and 502 southbound) will stop at the airport. Passengers may disembark, but cannot board (begin their trip) at this location.
- Kansas City International is in a remote corner of the metropolitan area, and is not well-served by transit connections. In contrast, St. Louis-Lambert international is in an urban area much closer to the heart of its metropolitan area, and is well-served by light rail as well as bus transit.
- St. Louis-Lambert International is much more accessible from several major interstates. Kansas City International is remote from the two most important interstates serving Kansas City – I-70 and I-35.

For the remaining, more regional airports, the effort of establishing a direct ICB connection probably does not make as much sense. Passengers are generally not travelling from long distances to these airports, and the cities in question are arguably better served by ICB connections closer to the heart of the city than the airport. The lone exception is the Fort Leonard Wood airport, which is on-base while the ICB stop was moved off-base in the wake of the terrorist attacks on the U.S. of September 11, 2001.

In terms of commercial aviation as a "competing" mode for ICB, seven city pairs in Missouri fall into this category. These city pairs are listed in **Table 5-5**, comparing travel times. In all cases, travel by air is much faster than travel by bus. Unlike the ICB trips, the air trips are all non-stop. The biggest discrepancy in travel times is between Waynesville/St. Robert and Kansas City. It takes less than an hour to fly between these cities, but it can take over 10 hours by bus, due to a 3-4 hour layover and route transfer.

Table 5-5: Travel Time – Air Travel vs. Intercity Bus Travel (h:mm)

Missouri City Pair	Travel time via….	
	Airplane	Intercity Bus
Joplin – Kansas City	0:50	2:45 – 5:10
Kansas City – St. Louis	1:00	4:25
Springfield – St. Louis	0:55	3:15 - 4 :15
Cape Girardeau – St. Louis	0:45	2 :05
Waynesville/St. Robert – St. Louis	0:45	2:25
Waynesville/St. Robert – Kansas City	0:50	8:20 - 10:50
Kirksville – St. Louis	1:00	None available

Where ICB generally "wins" these competitions is in the area of price, so travelers who are willing to sacrifice time savings for monetary savings would be more likely to use ICB service for these trips. For example, the cost to travel between Kansas City and Joplin ranges from $180 for a non-refundable airline ticket to just under $400 for a refundable ticket, as opposed to around $90 for a bus ticket. Travel between St. Louis and Kansas City runs about $100 round trip, as opposed to $66 via ICB. Costs from Great Lakes airlines and Southwest airlines websites 10/26/09.

Urban Transit

Seven cities in Missouri have local urban transit systems: St. Louis, Kansas City, Columbia, Springfield, Joplin, St. Joseph, and Jefferson City. Six of these seven cities also have ICB service (Jefferson City is not along an ICB route). While spatial connections between these two types of bus service are fairly good (as described below), the time of day that the ICB bus arrives may not always be compatible with the hour of service offered by the urban transit system.

- **St. Louis** – As mentioned previously, the St. Louis Greyhound bus terminal has recently relocated to the Gateway Multimodal Transportation Center. There are MetroBus and MetroLink (light rail) stops at this location. Megabus also stops near Union Station.
- **Kansas City** – The Kansas City Greyhound terminal (which serves both Greyhound and Jefferson Lines) is situated along several Kansas City Area Transit Authority (KCATA) routes, including the 12th Street (12), Troost (25), 9th Street (109), and Woodland/Brooklyn (110) routes. Megabus stops in Kansas City at the 3rd & Grand KCATA MetroCenter. The MetroCenter is a major park-and-ride location, which is served by four different local bus routes, including the MAX (Bus Rapid Transit). However, as Kansas City continues to strive to develop Union Station as a multi-modal hub, it might make sense to consider consolidating ICB operations to this location, for true intermodal connectivity.
- **Columbia** – The Greyhound station is located along the "101 N Orange" transit line. However, the station is not specifically listed as a transit stop. The closest scheduled stop is located at Providence Road and Leslie Lane, which is approximately 1 mile from the Greyhound station. Megabus stops in Columbia at Wabash Station, the main transit hub in Columbia. All bus lines are routed through Wabash Station. Although the Greyhound terminal in Columbia is a stand-alone building that clearly represents a past investment, it may not be sited in the best place for true multi-modal integration. Together with the other alternative modes in Columbia, ICB providers should work to determine a suitable location for a true multimodal hub (whether at Wabash Station or some other location). This is the kind of consolidation that might not occur without state encouragement and investment.

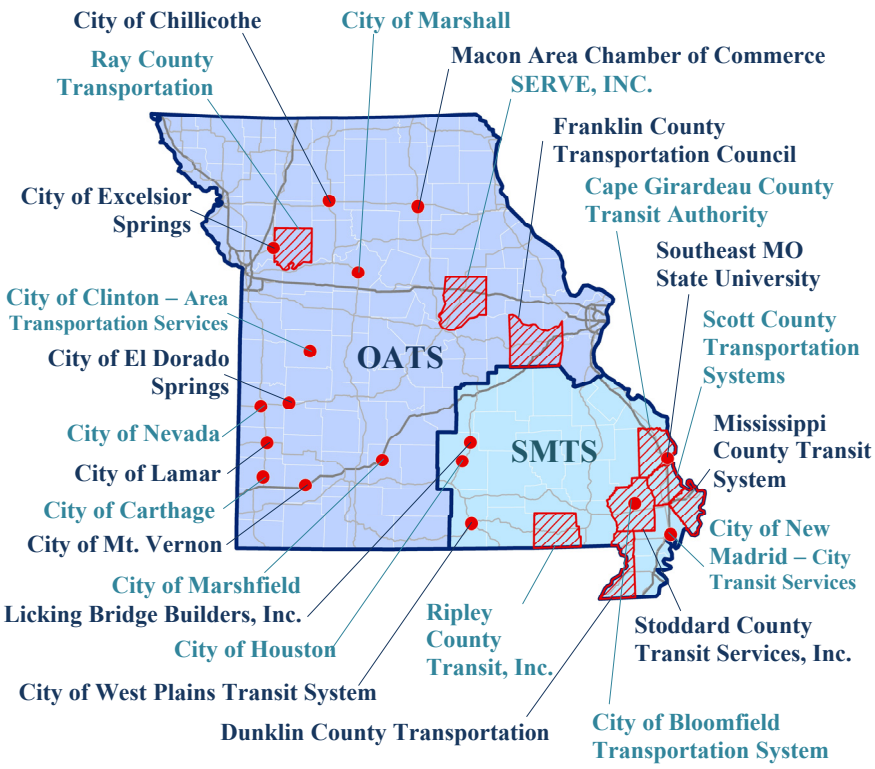
- **Springfield –** The Springfield Greyhound station is located along the "Line 15 – E. Kearney" transit route (which offers only weekday service). As in Columbia, however, the Greyhound station is not specified in the schedule as a transit stop. The closest scheduled stop is at Kearney Street and Glenstone Avenue, which is approximately three-quarters of a mile from the Greyhound bus terminal. As with the Columbia situation, the Greyhound terminal in Springfield is a stand-alone building that clearly represents a past investment, but it may not be sited in the best place for true multi-modal integration. Together with the other alternative modes in Springfield, ICB providers should work to determine a suitable location for a true multimodal hub (whether at the Park Central West transit center – closer to the center of town – or some other location). Again, this is the kind of consolidation that might not occur without state encouragement and investment.
- **Joplin –** The ICB stop location is within two blocks of a major transfer location within the city's transit system (Sunshine Lamp Trolley). This constitutes fairly good modal integration.
- **St. Joseph –** The St. Joseph transit system has a transfer station at 6th & Angelique, through which all city transit lines are routed. The St. Joseph ICB bus stop is at that transfer station, an example of perfect integration of these modes.

In summary, working to better integrate modes in Columbia, Springfield, and Kansas City with ICB would create true intermodal connectivity. St. Joseph is a good model for this type of geographic integration.

Rural Transit

There are 28 rural transit providers in Missouri, ranging in size from the city level to the multi-county level (see map at right). The two largest providers are OATS and SMTS, both of which function as umbrella agencies (with service areas as shown in the map), coordinating and providing service to the majority of the state. SMTS provides service to 20 counties in the Southeast corner of the state. OATS covers the majority of the remaining portions of the state, and is divided into seven regions; Northwest, West, Southwest, Northeast, East, Midwest, and Mid-Missouri.

Rural Transit Providers in Missouri



Summary statistics were obtained from OATS and SMTS. As shown in **Table 5-6**, the majority of rural transit trips provided by these organizations are made for employment purposes. Medical trips are the next most popular trip type. Most trips served by these providers are fairly short. The average trip length for SMTS is 17.5 miles. For OATS, 55 percent of trips stay within the town of origin and an additional 29

percent stay within the county of origin. Like urban transit, rural transit is often used by repeat customers. Though the OATS annual ridership is over 1.3 million trips, the number of people served was actually 31,305, or an average of 42 annual trips per person.

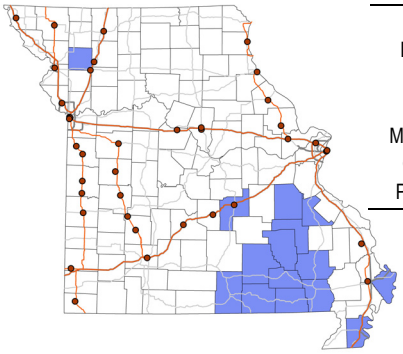
With the trip lengths typically served by rural transit, it is not often a "competing" mode with ICB, but it absolutely functions as a coordinating mode. For serving long-distance travel needs by rural citizens, a rural transit connection to an ICB stop is a very effective method. And in fact, most of the state's counties have rural transit connections to an ICB stop, as indicated in the map at right.

Table 5-6 : OATS and SMTS Rural Transit Statistics

	OATS	SMTS*	Total
# of Counties Served	87	20	107
% w/ ICB access	98%	40%	87%
Total Annual Ridership	1,303,262	264,642	1,567,904
Total Passenger Miles	13,331,728	4,631,238	17,962,966
Employment Trips	44%	43%	
Medical Trips	20%	40%	
Nutrition Trips	14%	17%	
Essential Shopping Trips	11%	na	
Other Trips	11%	na	

**SMTS does not track trip purpose for private pay (fare) trips. Percentages provided are based on 92,873 trips.*

Counties with No Transit Connection to ICB



Butler	Phelps
De Kalb	Reynolds
Howell	Ripley
Iron	Shannon
Mississippi	St. Francois
Oregon	Washington
Pemiscot	

- For eight of the 20 counties within their service area, SMTS provides a connection to one of the following intercity bus stops; Sikeston, Cape Girardeau, Rolla, or St. Louis. The frequency of service varies from 5 times a week (Bollinger County to Cape Girardeau) to twice a month (Madison County to Cape Girardeau).

- OATS provides some form of service to 31 of the remaining Missouri intercity bus stops (including St. Louis). The majority of towns and/or counties within the OATS area have rural transit service to one or more intercity bus stops on a somewhat regular basis. The frequency varies from daily service to monthly service. There are a total of 4 county/city pairs containing an intercity bus stop, for which OATS provides daily (Monday through Friday) service. These are Cass County/ Harrisonville, Clay County/Kansas City, Platte County/Kansas City, St. Louis County/St. Louis. The majority of county/city pair routes operate on a monthly or bi-monthly basis.

- The majority of the other rural transit providers do not operate fixed-route schedules. However, many are able to make connections to ICB stops through their demand-responsive or private pay services. The Cape Girardeau County Transit Authority is the only rural provider with regularly scheduled service to an ICB stop (21 daily transit trips). This is due to the fact that the ICB stop is located at the transit authority headquarters.

It is clear from looking at these maps that most of the southeast portion of the state is quite distant from an ICB route. This makes providing service to existing ICB stops (along I-44 and I-55) an intercity journey in and of itself. Establishing (or re-establishing) ICB service through this area, perhaps along the US-60 and Route 67 corridors, would fill these gaps and result in a more seamless system with the ability to coordinate with local rural service.

Coordination difficulties between rural transit and ICB generally lie not with geography, but with *schedule*. There are at least three major issues in coordinating these two modes to maximize benefits to the traveling public:

- *Time of Day*: As discussed in Chapter 3, many intercity buses stop in Missouri late at night. Often the business housing the bus stop (usually a gas station or restaurant) is not open, creating both a convenience and a safety issue for waiting passengers. If an intercity bus is running late, passengers may end up waiting a long time. For many elderly or disabled passengers, standing outside in the dark for long periods of time, is not an attractive option.
- *Frequency of Service*: ICB generally runs every day of every week. Rural transit generally does not. The willingness of ICB carriers to interline with rural transit tends to be low when rural drop-offs/pick-ups are once a week, twice a month, or any other frequency less than daily. In addition, there is concern from rural transit providers regarding the mechanics of collecting interline fares and also the loss of control over the user's entire trip experience.
- *Method of Scheduling:* As mentioned previously, the ICB industry is based on a "reservationless" scheduling model. In contrast, the vast majority of rural public transit trips are demand-responsive, scheduled a day or more in advance for a specific travel date and time. It would be inefficient at best for a rural transit vehicle to routinely arrive at an ICB stop with uncertainty as to whether an ICB rider would be transferring. In addition, the phenomenon of overfull buses that result from reservationless scheduling can further confound coordination.

Many rural providers in the state are already providing a form of ICB: they cross county lines, they travel longer distances, and they have regular schedules (although not always daily). There has been interest expressed in receiving federal or state ICB funding for these services, and in cases where such a service might act as a feeder to the statewide or national ICB network, this idea certainly has merit.

6. ICB Needs in Missouri

This chapter summarizes the areas of need in MoDOT's ICB system, as identified in the previous chapters based on the analysis conducted in this study.

Geographic and Time-of-Day Gaps

Chapters 2 and 3 highlighted two fundamental issues related to existing ICB service in Missouri:

(1) There are three major areas of the state that have gaps in coverage: north central (I-70 to the north state line), south central (I-70 to I-44), and southeast central (south of I-44 to the southern state line).

(2) Many locations that already have ICB service are served late at night, rendering the service less effective than it could be for locals wanting to travel to or from these locations.

Chapter 3 showed that ICB ridership is not a direct function of population, and also indicated that certain identified special population groups tend to use ICB more than the general population. It is also important to note that ridership does not necessarily equate to demand. For example, for an ICB stop that is only served at 2:00 a.m., the ridership might increase substantially if service were changed to stop at 2:00 p.m. – indicating that actual demand was higher than the 2:00 a.m. ridership. The same could be true of locations where intermodal connections are poorly coordinated, where awareness of the service is low, etc.

For the purposes of this analysis, the study team developed an initial correlation between certain demographic variables and anticipated demand/ridership – on a *stop* (not *route*) basis. The correlation was based on a set of assumptions:

- *Bus factors:* Certain service or operational parameters make ICB more or less attractive to riders. For this study, three such parameters were included in the correlation:
  - "Bus Equivalents" (Beq), as defined in Chapter 2 – a 0.0-through-1.0 scale based on how convenient the scheduled bus arrival/departure time is for the typical rider.
  - Proximity to the next nearest ICB stop(s). Intuitively, demand for a given station would be reduced by the presence of another station within some radial distance.
  - Proximity to the nearest major ICB **transfer** stop. Intuitively, stops that are junctions between east-west and north-south routes could also draw demand from stops in within a certain radius – because some travelers using these stops would be traveling long distances, and would be more willing to drive to the stations (or arrive via some other mode) as opposed to taking a "short" trip on ICB orthogonal to their intended route.
- *Demographic Factors:* Generally speaking, ICB ridership is an increasing function of the population in the area surrounding the stop. However, if certain segments of the population are present in higher proportions than average, demand for ICB would be expected to be higher than average. For the purposes of this study, these segments include low-income, elderly, disabled, and Hispanic. Data for all of these segments can be derived from census statistics fairly readily.

- *Destination Factors:* These factors relate to special populations (non-census) and destinations. If these elements are present in high enough volumes, they can increase the demand for ICB. For the purposes of this study, these elements initially included incarceration facilities (by inmate population), Amish communities (by church district), hospitals (by bed count), colleges (by number of students), and military installations (by population).

Simply expressed, the study team postulated the following formulation:

Ridership = (bus factors) x (area population x population factors + destination factors)

Based on the annual ridership per stop, and the data collection described in Chapters 2 and 3, the study team developed a set of regression coefficients to match demand in the areas currently served, and to forecast it in the areas not currently served. (Appendix B contains more details on the regression formula and coefficients).

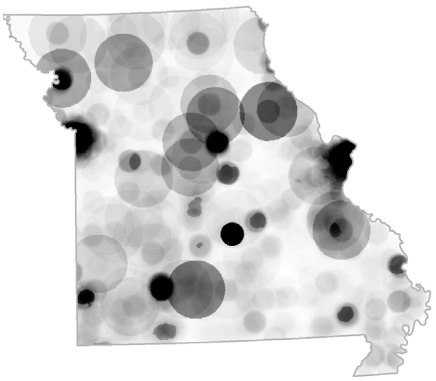
The maps at right illustrate the results of the correlation. Darker areas indicate heavier ICB demand. It should be noted that some of the Demographic and Destination Factors were split into two bands: the amount within 10 miles, and the amount within 10 to 25 miles. This explains some of the "donut" shapes appearing on the maps.

The upper map shows the "raw" demand, based on the forecasting equations except the factors relating to the proximity of other stops. In other words, the upper map highlights areas one might consider for bus stops if the state were a "clean slate" and had no existing stops.

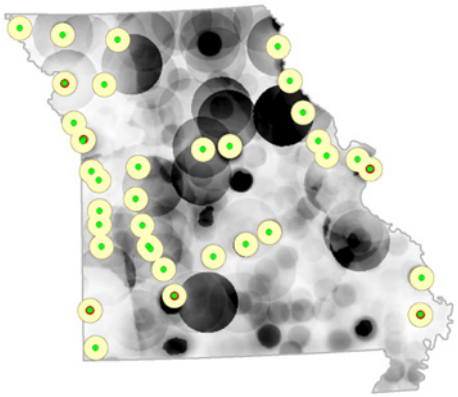
The lower map accounts for the fact that there are already numerous existing ICB stop locations throughout Missouri, and therefore illustrates areas of projected high unmet demand. As the lower map indicates, several unserved areas emerge from the analysis: the US-63 corridor (Kirksville, Macon, Moberly), the US-50 corridor (Jefferson City, Sedalia), the Osage Beach area, the US-67 corridor south of St. Louis, and the US-60 corridor east of Springfield.

ICB Demand in Missouri

Raw Demand
(Ignoring Existing Stops)



Areas of Potentially Unserved Demand
(Factoring In Existing Stops)



**Note: the color scales in the two maps are different because they have different maximums.*

User-Expressed Needs

As mentioned throughout Chapter 3, a number of user surveys were administered during the study. Figures 6-1a, b, and c on the following pages graphically summarize many of the results of these surveys. Some key findings are summarized below:

- For most of the population groups surveyed, only 3 to 6 percent had ridden an intercity bus in the last year. However, 12 percent of the general public (as surveyed on MoDOT's Web site) had ridden at least once, and 57 percent of the Amish had ridden at least once. Of actual on-board riders surveyed, 61 percent had ridden an intercity bus before.
- Long-distance trips are most often made for social or recreational reasons. However, nearly half of the respondents to the low-income survey indicated that they made long-distance trips for medical and shopping purposes. Nearly half of the Amish respondents also indicated that they made long-distance trips for medical reasons. For the Amish, some family-related figures were astonishing: nearly 91 percent said they had taken long-distance trips for funerals, 91 percent for weddings, and 61 percent for family reunions – all within the last 12 months.
- Respondents nearly universally emphasized a higher likelihood of riding ICB if stops were closer to their origins or destinations. They also indicated the potential to switch to ICB if the costs of alternatives increased (specifically, if gas prices rose to $4/gallon). Of the on-board respondents, 51 percent cited cost as their primary reason for riding ICB. On a related note, half of the on-board respondents reported annual household incomes below $25,000.
- Awareness among the general public and low-income groups seemed surprisingly high (when asked about the location of the nearest ICB stop).
- Only 4 percent of the on-board respondents were over 65 years of age, which runs counter to nationwide statistics.

Based on the survey findings, several user needs can be inferred:

- There is a need for additional ICB stops in locations where target population groups are densely centered. This may be particularly applicable to the Amish, who already use ICB fairly frequently despite their distance from (and unique challenges in getting to) existing ICB stops. More generally, there is a need for more widespread ICB coverage in Missouri to provide mobility options for all users.
- Affordable (low-cost) long-distance mobility is seen as a need: many survey respondents cite low costs as the primary reason for choosing ICB as their long-distance travel mode.
- Marketing is needed to attract new ICB riders and increase awareness. Based on the fact that ICB tends to have a high percentage of repeat riders (according to the on-board surveys), once these new riders have an ICB experience, they may be more likely to choose this mode again for future trips. Better-targeted advertising is needed to encourage the use of ICB among certain population groups, specifically the elderly.

Figure 6-1: MoDOT Intercity Bus Study | Population Surveys | Trip-Making Characteristics, Part I

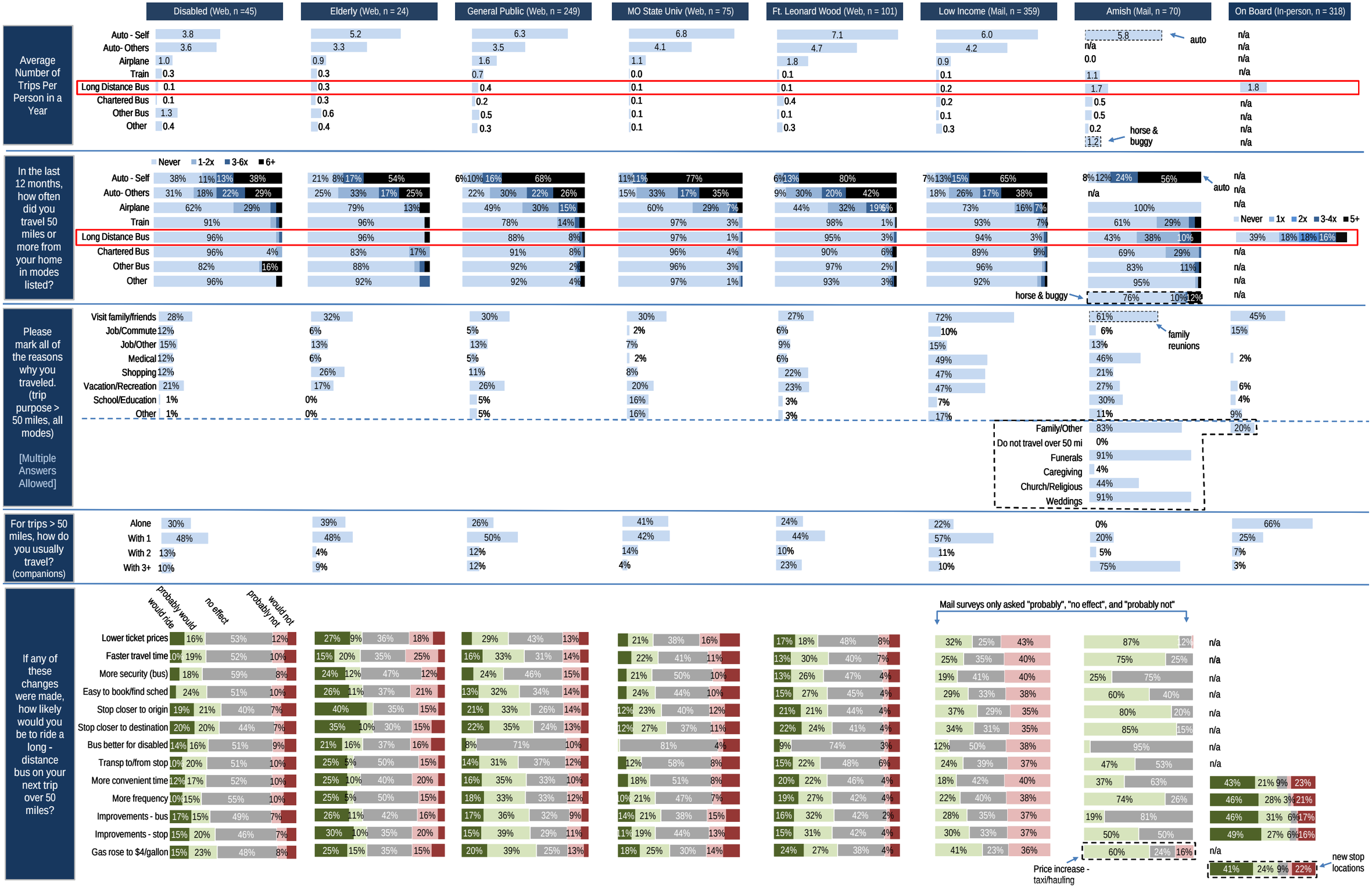


Figure 6-2: MoDOT Intercity Bus Study | Population Surveys | Trip-Making Characteristics, Part 2

If you have ridden a long-distance bus, why did you chose the long-distance bus over other options? [Multiple answers allowed]

	Disabled (Web)	Elderly (Web)	General Public (Web)	MO State Univ (Web)	Ft. Leonard Wood (Web)	Low Income (Mail)	On Board (In-person)
	n = 2	n = 2	n = 34	n = 19	n = 6	n = 119	n = 318
Cost	0%	0%	47%	5%	67%	27%	51%
Safety	0%	0%	0%	16%	0%	5%	11%
No other options	0%	0%	18%	5%	17%	14%	15%
Travel w/company	50%	0%	9%	0%	0%	19%	3%
Easy to access	50%	0%	0%	11%	0%	8%	6%
Green	0%	0%	0%	32%	0%	4%	6%
Relaxed pace	0%	50%	24%	0%	17%	9%	6%
Other	0%	50%	3%	32%	0%	13%	5%
Like riding bus							12%
Do not like to fly							14%
No car or cannot drive							13%
Do not like to drive long distances							7%
Convenience							13%
No one to drive me							8%

If you have not ridden a long-distance bus in the last 12 months, select the reasons why. [Multiple answers allowed]

	n = 46	n = 19	n = 276	n = 621	n = 230	n = 608	
No need	2%	5%	0%	1%	1%	7%	n/a
Cost too high	2%	5%	5%	4%	4%	3%	n/a
Travel time too long	15%	16%	17%	14%	15%	7%	n/a
Destination not served	11%	11%	11%	14%	9%	11%	n/a
Arrival/depart time n/a	15%	16%	14%	17%	10%	7%	n/a
Safety concerns	4%	0%	7%	6%	9%	4%	n/a
Comfort concerns	13%	11%	11%	8%	14%	5%	n/a
Desired services absent	4%	0%	6%	7%	7%	0%	n/a
Car more convenient	33%	37%	29%	29%	30%	38%	n/a
Convenience						15%	n/a
Never thought of it						3%	n/a
Not applicable							n/a

Do you know the closest station to you?

	n = 19	n = 9	n = 96	n = 218	n = 73	n = 359	
Yes	63%	33%	76%	44%	33%	62%	n/a
No	32%	33%	19%	43%	59%	38%	n/a
I'm Not Sure	5%	33%	5%	12%	8%	n/a	n/a

Do you know approx. cost to travel to your usual destinations ?

	n = 19	n = 8	n = 96	n = 217	n = 73	n = 359	
Yes	16%	0%	21%	11%	11%	6%	n/a
No	68%	88%	68%	82%	81%	84%	n/a
I'm Not Sure	16%	13%	11%	7%	8%	9%	n/a

Figure 6-3: MoDOT Intercity Bus Study | Population Surveys | Demographics

		Disabled (Web, n =45)	Elderly (Web, n = 24)	General Public (Web, n = 249)	MO State Univ (Web, n = 75)	Ft. Leonard Wood (Web, n = 101)	Low Income (Mail, n = 359)	Amish (Mail, n = 70)	On Board (In-person, n = 318)
What is your gender?	Female	71%	83%	40%	61%	57%	66%	22%	49%
	Male	29%	17%	60%	39%	43%	34%	70%	51%
Number of people in your household.	1	23%	36%	14%	18%	12%	34%	4%	22%
	2	35%	41%	48%	21%	33%	46%	12%	30%
	3	23%	9%	19%	25%	23%	9%	12%	17%
	4	12%	5%	12%	26%	12%	6%	12%	14%
	5	0%	9%	4%	11%	9%	5%	61%	9%
	6	5%	0%	3%	0%	7%			7%
	7	0%	0%	0%	0%	4%			
	8	2%	0%	0%	0%	1%			
What is your household income?	Less than $15,000	18%	19%	3%	23%	0%	15%	n/a	27%
	$15,000 to $24,999	8%	33%	5%	19%	2%	22%	n/a	23%
	$25,000 to $34,999	10%	14%	10%	7%	1%	18%	n/a	30%
	$35,000 to $49,999	20%	14%	17%	13%	27%	20%	n/a	
	$50,000 to $74,999	23%	10%	26%	13%	22%	24%	n/a	11%
	$75,000 and over	23%	10%	39%	26%	47%		n/a	9%
How old are you?	Under 18	0%	0%	0%	0%	0%	0%	0%	4%
	18 to 25	7%	0%	5%	77%	1%	2%	16%	26%
	26 to 40	39%	0%	23%	15%	25%	10%	32%	33%
	41 to 65	55%	58%	54%	8%	73%	34%	46%	33%
	Over 65	0%	42%	18%	0%	1%	53%	6%	4%
Do you own/have access to a car for a long trip?	Yes	84%	79%	97%	100%	100%	97%	n/a	
	No	16%	21%	3%	0%	0%	3%	n/a	
Do you have a condition/ disability that prevents you from driving?	Yes	31%	33%	3%	1%	2%	8%	n/a	
	No	69%	67%	97%	99%	98%	92%	n/a	

5 or more

5 or more

6 or more

$25,000 to $50,000

$50,000 and over

Provider-Expressed Needs

Information presented in Chapter 4, along with interviews with Missouri's ICB providers, indicate that there are many needs on the carrier side:

- New economic/funding models are needed to make rural ICB service a financially sustainable option. Historically, package express, strong through-passenger service, and charter operations have helped ICB carriers "subsidize" rural low-volume stops (or even routes). With the near disappearance of package express as an ICB function, and the advent of more express-type ICB services and independent charter companies sparked by deregulation, these "subsidy" sources have been dramatically reduced – making it much more difficult for carriers to provide rural service.
- ICB providers may need assistance in weathering the transitions of an unstable marketplace. Rising fuel costs are a boon and a bane to the ICB industry – they tend to increase ridership as travelers try to shift to a more economical mode, but they dramatically increase operating costs.
- FTA's "Buy America" requirements substantially limit the choices ICB carriers can currently make in bus purchases. Options need to be expanded, either by finding ways to have more U.S. manufacturers meet the requirements, or by changes in the requirements themselves.
- Some ICB companies may not be able to expand into new markets due to operating authority constraints. Such constraints need to be re-examined to determine if modifications would benefit the traveling public, especially rural travelers.
- ICB providers need assistance in securing sites for rural stops. Many rural areas want ICB stops, but it is often hard to find a local business willing to serve as a ticket agent. In addition, rural communities have changed – there are fewer locally owned businesses than there were in the past.
- To better serve rural locations, ICB companies and rural transit operators need modified operational models and improved coordination to meet mutual goals. Coordination with local transit tends to be difficult, because ICB is typically a 24/7 operation and local transit systems are not operating late at night, or even daily in the case of rural transit systems.
- Even coordination within the ICB industry – namely, interlining – can be difficult when very long-distance routes are connecting with more regional routes, because on-time performance of the very long routes is less reliable. Again, new operational models may be needed for rural areas, such as feeder buses or shorter in-state routes.
- The industry may need assistance to better address the needs of non-English-speaking travelers. With the higher propensity of the Hispanic population to use ICB, costs for bilingual elements (agents, information, ethnic target market branding, etc.) are an issue.
- Further investment is needed to enhance ICB terminals for comfort, convenience, and personal safety. Improved terminals can help counteract preconceived negative perceptions or security concerns.
- There is a need for improved technology and monitoring throughout the ICB system. In general, ICB providers' ability to track passengers on their networks is substantially less evolved than that of commercial airlines. Even more generally, it has been difficult (mostly for cost reasons) for the ICB industry to upgrade technology in all areas.
- To better serve ICB providers in Missouri, additional bus maintenance facilities are desired within the state.
- There is growing opinion that the industry needs to move to date-certain ticketing. Traditional "reservationless" travel can cause planning difficulties and overflowing buses.
- If smaller companies are to be part of the solution for serving rural areas, then assistance may be needed in "leveling the playing field" to allow them to do so effectively. For example, competition at intermodal facilities may sometimes keep smaller ICB companies out of those terminals.
- Finding a local match for federal ICB funding is sometimes difficult. There is a need for alternative sources of non-federal matching funds.

7. Principles, Solutions and Recommendations

This chapter outlines the development of a set of recommended solutions to address the needs identified throughout this document (many summarized in Chapter 6). Due to the unique nature of the ICB mode as a generally privately funded long-distance over-the-road travel option, potential solutions range from private to public. This document largely focuses on state-driven solutions, because these are the areas in which MoDOT has influence.

Principles for ICB in Missouri

To generate effective solutions, it was considered beneficial to first develop a coherent set of guiding principles for ICB in Missouri. The Advisory Committee assisted in the development and prioritization of a set of principles that were used to evaluate solutions. A number of principles were discussed, but the six that rose to the top are listed at right. Three of the top four priorities have to do with level or quality of service: making connections (filling in spatial and temporal gaps in Missouri's ICB network), increasing the overall amount of service, and improving the passenger experience. Awareness is listed third, and is essential for increasing ridership and ensuring that the public is aware of all travel options.

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.

Potential Solutions

The study team and the Advisory Committee explored a set of potential solutions for the issues surrounding ICB travel in Missouri. **Table 7-1** lists the solutions that were considered. Each of these solutions may be beneficial for ICB in Missouri, but it was the study team's task to prioritize and help narrow the list, so that a reasonable amount of achievable objectives could arise from this study.

Table 7-1: Potential ICB Solutions for Missouri

Capital Funding

- Subsidize bus purchases (to increase the fleet size and reduce maintenance costs for ICB companies)
- Purchase intercity coaches and lease to private carriers as part of service agreement packages
- Improve stops and stations to increase comfort and safety (even if service level cannot be increased)
- MoDOT: Allow intercity capital projects to compete for Federal STP funds.

Operational Funding

- Guarantee seat purchases or express freight shipments as a way to support specific routes
- Provide subsidies and usage guarantees to increase total services
- State/local agencies: support stations and agents in a way that supports bus service while reducing the cost to the carrier
- Use the value of the capital in the connecting unsubsidized intercity services as "in-kind" match for operating assistance for rural ICB projects
- Legislate a state-funded ICB program to match FTA Section 5311(f) funds in order to increase ICB service in Missouri

Information/Marketing

- MoDOT: provide phone number where people can talk to a real person with schedule information at their fingertips
- Distribute schedules at community centers to increase awareness and provide up-to-date information
- Create an online trip planner and link to MoDOT Travel Information Page
- Create ICB web page and link to MoDOT Travel Information Page
- Include ICB in Missouri's 511 or 211 systems
- Create brochures with ICB info and contacts to be placed in public information kiosks at rural locations served by ICB
- Include advertising needs as part of assistance projects and contracts
- When new service is introduced, make a press release for the local area including schedule and informational phone numbers /Web sites
- Consider the user groups when developing bus schedules to ensure rider safety, convenience, and the existence of connecting links
- To help customers, provide an itinerary from home to bus stop(s) to ICB, Rail or Airport to destination and return trip.
- ICB passenger Random rewards/lottery program with points based CO_2 savings.
- MoDOT take the lead for statewide ICB marketing efforts to create awareness of traditional & ethnic carrier ICB services.

Business / Institutional / Service Models

- Create a desired intercity network and allow public and private providers to submit creative bids to serve all or parts of the network
- Continue to allow 5311(f) recipients to make competitive grant proposals to increase ICB services to/from their districts.
- Create local cooperation agreements with 5311 providers & cities to require advertising and provision of feeder services when subsidies are provided for intercity travel
- Negotiate package express agreements with shippers in communities with subsidized ICB service
- 5311 providers with points in their districts served by private ICB become agents to sell intercity tickets
- Improve coordination between transit services, feeder routes and through routes to improve traveler convenience
- Form "super districts": combinations of 5311 and urban providers to provide intercity services between points within different districts
- Upgrade key MoDOT park-and-ride lots as multimodal hubs including ICB (and potentially automated ticketing)
- Consider Amtrak Throughway as an element of Missouri ICB
- Partner with statewide or nationwide commercial franchises (McDonald's, Wal-Mart, TA Centers) for stops, agents, and marketing
- In certain cases, allow transit agencies to operate what are essentially intercity routes
- Enhance rural public transit-ICB connections by moving ICB carriers to date certain and time certain ticketing
- Add ICB routes to fill spatial gaps along the following corridors: US 36, US 63, and US 60.
- Add more customer convenient daytime service on ICB routes that mostly stop at night.
- Enhance security by having uniformed and plainclothes police and/or state troopers riding the ICB routes.

Prioritization of Solutions

After much discussion with the Advisory Committee, the study team narrowed and prioritized the solutions into a final list. Each of the prioritized solutions is discussed in more detail below and on the following pages.

1 Improve coordination between transit services, feeder routes and through routes to improve traveler convenience.

One of the primary motivators for this solution was the concept that ICB cannot (and should not) serve every population or employment center in the state. But connections to ICB from ICB-unserved areas, using other travel modes, can fill the geographic gaps to move closer to the goal of a seamless statewide transit network. MoDOT can have a key role in this endeavor:

- It is recommended that MoDOT establish and facilitate an ongoing, regularly scheduled dialogue between the providers of ICB, rural transit, urban transit, and feeder routes (as these last are established; see Solution #4). This dialogue would be focused around traveler convenience and improving connections. Topics to be addressed include:
  - Physical consolidation of disparate transportation hubs within the same city or region into a single intermodal hub (e.g., Columbia and Springfield, where major transit hubs and ICB stops are nowhere near each other).
  - Coordination of schedules to minimize passenger transfer delays
  - Interlining, or some reasonable facsimile thereof

Coordination should certainly be extended to other modes. Amtrak is the most important example in the state. The ICB stations in Kansas City and St. Louis are generally well-coordinated with Amtrak. Most of Amtrak's other stations within the state are along the US-50 corridor, which currently has no ICB service beyond Warrensburg. However, the station in Jefferson City on the Missouri River Runner (Kansas City to St. Louis) line is an extremely logical stop on the U.S. 63 route recommended under Solution #4 below. In addition, the station in La Plata on the Southwest Chief (Kansas City to Chicago) line is also a logical stop candidate along the recommended U.S. 63 route.

Chapter 5 also contains other specific ideas about interfaces with urban and rural transit systems.

2 Subsidize bus purchases (to increase the fleet size and reduce maintenance costs for ICB companies)

MoDOT is already actively involved in this area, and the purpose of this solution is to encourage continuation of these subsidies and target them toward the needs identified in this study.

- It is recommended that MoDOT establish (or re-establish) a set of bus-purchase criteria that evaluates ICB providers' requests against the goals of this study. These criteria may also be applied to feeder services and rural transit services, to the extent that they help fulfill MoDOT's ICB goals.

3 Improve stops and stations to increase comfort and safety (even if service level cannot be increased)

Very few of Missouri's ICB stops are dedicated terminals/depots, with ICB-dedicated inside shelter. Only 11 of the 36 stops are at terminals or multi-modal facilities (airports, trains stations, transit centers) – the rest are at businesses where serving as an ICB stop is a secondary function at best. Passengers and providers have indicated the importance of safe, comfortable stops/stations – so this solution is a marketing solution as much as anything.

- It is recommended that MoDOT develop a hierarchy of stop types (much like the state's airport classification system), and define a minimum level of amenities to be provided at each. Amenities could range from simple to more elaborate, and could include:
  - Dedicated indoor heated waiting areas
  - Heated outdoor shelters (perhaps similar to those in the Economy Parking Lot at Kansas City International Airport)
  - Restrooms
  - Vending machines or food service
  - Access to ticketing, whether automated or staffed
  - Presence of staff in general
  - Security provisions
  - Consideration of bus arrival and departure times with regard to stop operations and availability of amenities at all needed times of day.

A potential stop hierarchy might consist of: Major Transfer Stop, Basic Transfer Stop, High-Volume Non-Transfer Stop, and Low-Volume Stop – with defining criteria to be developed.

This recommendation will require coordination between MoDOT and existing stop locations, and also increased discussion with ICB providers. The goal is that ICB stops would meet minimum standards, and the state may have a role in assisting with funding improvements to existing stops, or assisting with negotiations between ICB providers and existing/new stop providers. This recommendation also allows the possibility for MoDOT to establish stops at key locations – for example, at existing Park-and-Ride facilities across the state – in building toward the desired intercity network.

4 Create a desired intercity network and allow public and private providers to submit creative bids to serve all or parts of the network

Several of the other solutions in this list presume the first half of this solution (a desired network) as an underlying framework. A desired ICB network has the following basic components:

- Routes to be served
- Stops to be served
- General frequency requirements
- Time-of-day specifications for reasonable service windows (and minimized transfer delays)
- Stop/station type (see Solution #3)

Figure 7-1: Recommended ICB network (routes/corridors and potential stops)

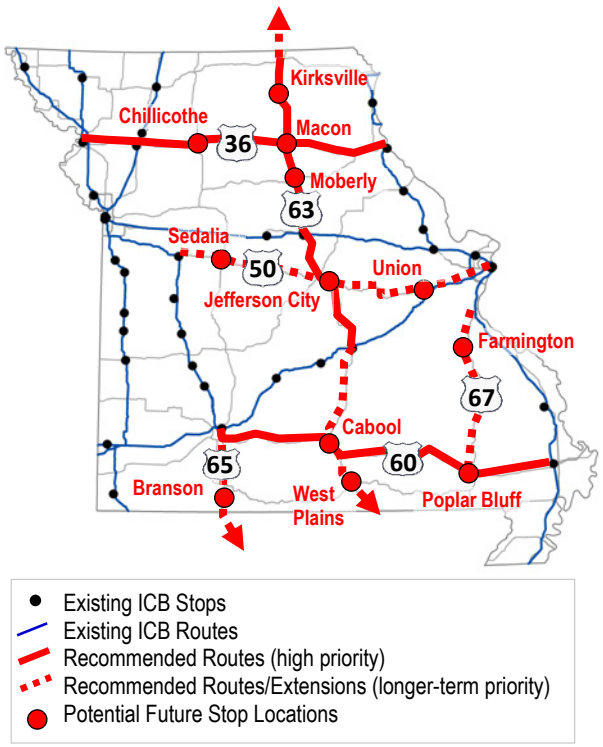


Figure 7-1 indicates a recommendation for the first two items on the list (routes and stops). To fill the major gaps identified in this study, the following new routes are recommended:

- **US-63**, from Kirksville to Rolla via La Plata (Amtrak), Columbia and Jefferson City. This route addresses a significant north-south gap in the center of the state. It is envisioned that the route could eventually be extended north into Iowa, connecting to Des Moines perhaps via Route 63/163. This would obviously require coordination with IaDOT, and might occur in later phases. Coordination with stop times for the existing I-44 route that stops in Rolla would maximize the effectiveness of this route by facilitating transfers at its south end. Ultimately, this route could also be extended south to Little Rock, Arkansas. However, such a corridor would traverse rough terrain, making such a connection difficult at best.

- **US-36**, from St. Joseph to Hannibal via Cameron, Chillicothe and Macon. This route would address a significant east-west gap in the northern portion of the state. It would also begin to establish a true ICB network in Missouri, creating new transfer opportunities (see below) to north-south destinations.

- **US-60**, from Springfield to Sikeston. This route has the lowest ridership potential of the suggested routes, and might benefit by having a western endpoint at Joplin. It would serve a very isolated portion of the state, and bring a transportation option to many who have none.

With these three additional routes in place, every Missourian would be within at least 43 miles of an ICB route (as opposed to the current situation, in which the maximum distance is 95 miles). Distances to stops would often be farther than the 43-mile distance to the route, but this network allows for the kind of coverage that can begin to address the needs of Missouri's rural residents.

In the longer term, three other corridors should be considered:

- **US-50**, from Warrensburg through Jefferson City to St. Louis. This route would need to be coordinated with existing service from Kansas City to Warrensburg, and with future service along US-63. In many ways, this is a difficult route, mainly because it would directly compete with Amtrak.
- **US-67,** from St. Louis to Poplar Bluff. This route was once served by ICB, and could be a viable candidate in the future.
- **US-65,** from Springfield through Branson to Little Rock, Arkansas. Branson was a highly requested stop in many of the surveys conducted for this project.

With these three additional routes in place, the maximum distance for any Missourian to an ICB route would decrease to 38 miles.

Although logical stop locations have been indicated on this initial map, optimal stop locations would need to be identified through discussions between the state and the providers. The other components listed above (frequency, time-of-day, stop type) should be developed based on expected demand and other factors discussed throughout this study. But initially, it can be seen that new (or enhanced) transfer points would likely be created in St. Joseph, Cameron, Macon, Columbia, Rolla, Springfield, Sikeston, and Hannibal. This would be an opportunity to apply the stop amenity/service requirements developed as part of Solution #3 above. It would also create some new interlining possibilities and challenges for the providers.

It should be noted that the route development could also include the aforementioned development of key existing (or new) park-and-ride lots to become multi-modal transfer points. Missouri's ICB providers have expressed a willingness to explore this concept with MoDOT, and it is recommended that such an investigation be conducted.

Based on the ICB economic data presented in Chapter 4, and assumptions about frequency, ridership, ticket prices, and additional costs, the study team developed preliminary estimates of potential operating costs and revenue for the routes illustrated in Figure 7-1. If the buses were running full, each route would operate at a profit, but prudently conservative ridership assumptions would indicate this is not expected. As can be gleaned from **Table 7-2**, the routes would be expected to recover on the order of 30 percent of operating costs from ticket revenue. If the state wished to ensure the viability of these routes, it would need to assist with finding ways (most likely subsidies) to fund the remaining 70 percent, on the order of $2.7 million. (In comparison, the state currently subsidizes Amtrak for over $6 million annually, and annual programmatic state subsidies to all other forms of transit are over $7 million.) Appendix B includes a more detailed derivation of the expected costs.

Table 7-2: Estimated Cost of Recommended Routes ($2009)

		Route	Between		Distance (miles)	One-way Trips per day	Total Cost	Total Annual Route Revenue	Net Projected Operating Deficit
High Priority	1	US-36	St. Joseph	Hannibal	195	2	$619,400	$195,731	($423,669)
	2	US-60	Springfield	Sikeston	245	2	$765,400	$245,919	($519,481)
	3	US-63	Rolla	IA stateline	215	2	$691,300	$215,806	($475,494)
Long-Term Priority	4	US-50	Warrensburg	St. Louis	220	2	$705,400	$220,825	($484,575)
	5	US-63	Rolla	AR stateline	130	2	$429,600	$130,488	($299,112)
	6	US-65	Springfield	AR stateline	55	2	$210,600	$55,206	($155,394)
	7	US-67	Poplar Bluff	St. Louis	150	2	$488,000	$150,563	($337,437)

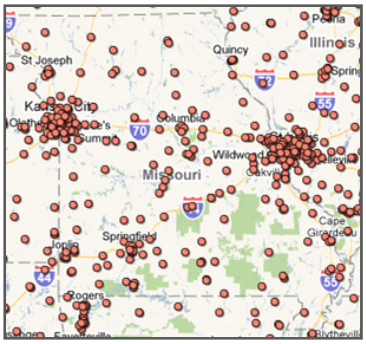
The second half of Solution #4 is to allow providers to submit bids to serve the network. MoDOT is certainly accustomed to the process of contracting in other areas of its operations, and should be able to develop a workable system that results in providers competing to provide the components listed above. This solution also would necessitate a monitoring component that would become MoDOT's responsibility.

5 Partner with statewide or nationwide commercial franchises (McDonald's, Wal-Mart, TA Centers) for stops, agents, and marketing.

It seems quite natural to take advantage of the existing geographic networks built by these and other franchises as a way to:

- Bring more stops under consolidated ownership to simplify negotiations and ongoing coordination.
- Bring the power of a nationally known and recognized brand to bear in marketing ICB services and increasing customer comfort through familiarity.
- Facilitate service agreements that allow more uniform, high-quality stops to be developed, providing a more consistent experience for users.
- Potentially utilize existing staff and training resources to support a ticket agent function (although electronic ticketing kiosks should certainly be explored, a la McDonald's agreements with the Red Box video rental company).

McDonald's Locations in Missouri



As an example, there are numerous McDonald's restaurants spread throughout Missouri. The map at right illustrates their locations. Establishments such as these are already in almost any location one could imagine needing intercity bus service, and many of them are already traveler-oriented. For example, the McDonald's web site provides a "map my trip"-type option based around the locations of restaurants. Wal-Mart is well-known for providing free overnight parking to long-distance travelers in Recreational Vehicles (RVs). And TA Centers are, by their very nature, oriented to travelers and their needs. These three uses can more generally fall into the categories of restaurants, big-box chain stores, and truck stops/travel centers.

MoDOT could certainly have an important role in this endeavor by bringing potential partners to the table to discuss potential synergies that could arise from these alliances, and presenting the larger goals/vision to those involved. MoDOT could even have a role in brokering agreements between ICB providers and franchises, and in the extreme case could even be party to these agreements.

6 Include advertising needs as part of assistance projects and contracts.

Even with a robust, high-quality system in place, ICB ridership will only be strong to the extent that the public is aware of the system and can easily obtain information on accessing it. With this in mind:

- It is recommended that every assistance project and contract explicitly include an advertising component. This recommendation partners with Solution #8. To ensure that this happens, advertising/marketing requirements should be added to any MoDOT checklists, forms or applications that are part of the state assistance process.

7

Continue to allow 5311(f) recipients to make competitive grant proposals to increase ICB services to/from their service areas.

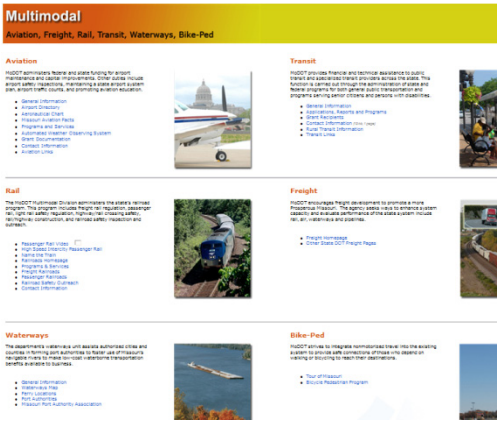
The current structure is viewed favorably by those involved, and it is recommended that it be retained.

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.

As stated above, even a well-designed system will only be effective in proportion to its success in creating public awareness and disseminating access/schedule information. Therefore:

- It is recommended that MoDOT create ICB brochures, identify locations for distribution, and oversee the distribution. A general brochure should be developed, illustrating the ICB network throughout the state, along with nearby transit and rail options (as well as aviation, in certain cases). The brochure should include any phone, web or other contact information for making any connections shown (by any of the modes listed). Secondary brochures should be developed for each major corridor, giving more detail on stop locations and schedules.
- It is recommended that these brochures be updated at least annually, due to the changing nature of the ICB industry.
- It is recommended that these brochures be implemented in Web form on MoDOT's web site. Implementation should be at least to the level of MoDOT's Amtrak site, with route and schedule information, along with direct links to provider web sites. In addition, ICB should share equal billing with the rest of the modes on MoDOT's multimodal page (shown at right).



9

Provide subsidies and usage guarantees to increase total services.

This recommendation would be above and beyond MoDOT's 5311(f) program. It envisions a new dedicated state funding stream solely for ICB, with the goal of supporting the ICB network described in Solution #4.

MoDOT Role

Table 7-3 summarizes the potential roles MoDOT might play in each of the solutions described above.

Table 7-3: MoDOT Potential Roles in Recommended Solutions

	Coordination	Monitoring	Legal party	Funding	Contracting agency
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 level 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 (McDonald's, Wal-Mart, TA Centers) 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 location served by ICB; create press releases when new service is introduced	■	■		■	■
9. Provide subsidies and usage guarantees to increase total services		■		■	

Additional Recommendations

In addition to the solutions prioritized in the previous sections, the study team has two other recommendations for MoDOT activities as a result of the study:

- For two of the market segments studied, obtaining detailed information on usage and potential usage of ICB was difficult within the scope of this study:
  - Long-distance medical travel is not tracked by any one group, and available information on the subject was found to be largely anecdotal and piecemeal. However, needs related to medical travel are universally acknowledged as high, and it is recommended that MoDOT conduct more focused studies to further identify needs and match them with solutions.
  - Long-distance travel by the Hispanic community, although identified anecdotally as a major need, was very difficult to document. Frankly, there is a barrier of mistrust that must be overcome to work together with this community. Hispanic males especially were uniformly reluctant to answer on-board surveys, and the contacts made (and attempted) within community leaders did not lead to sources of information that would point to comprehensive conclusions. It is recommended that MoDOT continue to work with Hispanic community leaders to find ways to further work together to identify and support the transportation needs of this community.

Although MoDOT does have a measure for ICB within its Tracker Report – namely, the total number of stops in the state – it is recommended that one or two more measures be added that give an indication of the quality of coverage (both temporally and spatially). For example, the "Bus Equivalents" measure developed in this study could be aggregated, averaged, or otherwise formulaically compared to a reasonable target or minimum.