Appendix A

Population Group Survey Instruments

Many of the conclusions drawn during the Missouri ICB study came as a result of information obtained through the surveys administered by the study team. There were 10 different surveys in total, each targeting a specific population group. On the following pages each of the survey instruments are shown, and the particulars of each survey are briefly described below.

General Population: A link to an online survey was posted on the MoDOT website, which was open to any member of the general public. The survey link was available from May 22, 2009 through the end of July, and a total of 249 responses were received.

Current ICB Riders: To obtain information from this population group, a study team member rode each of the major intercity bus routes in the state. These trips were made throughout the months of June and July, 2009. Passengers were asked to fill out a paper survey while they were travelling. A total of 555 passengers were aboard these routes, and 318 (57%) completed surveys.

Low Income: Addresses were obtained for residents, from across the state, that fall into household income groups below $35,000 per year. A paper survey was mailed to 5,000 of these residents (500 in each of MoDOT's 10 districts). Surveys were sent out on May 4, 2009, and by the June 23rd closing date, a total of 359 responses were received.

Elderly: Members of the elderly community were asked to respond to an online survey. Area Agencies on Aging and other senior service centers advertised the survey and aided the elderly with their responses. The online survey was available from April 15, 2009, through the end of July, and a total of 24 responses were received from this group.

Disabled: Similarly to the elderly community, this population was asked to respond to an online survey. The survey was promoted at facilities and centers that attract a large volume of people with disabilities. The survey was available from April 15, 2009 through the end of July, and a total of 45 responses were received.

Hospitals: To obtain information regarding the potential use of ICB for medical trips, Missouri hospitals were asked to respond to a survey, rather than the patients. The survey was distributed via fax on July 6, 2009, to each of the 159 hospitals in the state. A total of 10 responses were received by the end of July.

Students: At the beginning of May 2009, a notice was posted in the weekly e-bulletin at Missouri State University inviting students to participate in a web survey. The online survey was available through the end of July, 2009. Of the nearly 19,000 students at the University, a total of 75 responded to the survey.

Wardens: Information regarding the use of ICB by released prisoners and visitors to prisons was obtained by surveying the wardens at each of the 20 correctional facilities in Missouri. An e-mail was sent directly to each warden containing an Excel spreadsheet survey form. The request was sent on January 26, 2009, and wardens were asked to complete the survey and return it via e-mail by February 13, 2009. Surveys were completed by 17 of the wardens.

Amish: An advertisement for the ICB survey was placed in *The Budget*, a weekly newspaper that is widely read by Amish and Mennonite communities in the U.S. The ad appeared in the April 29, 2009 issue. Missouri readers were directed to request copies of the survey either by phone or by mail. The deadline for survey requests was May 16, 2009. Surveys were then distributed by mail on May 19, 2009, along with an envelope and postage to return the surveys. Over 200 surveys were requested, and 70 were returned by the June 23rd closing date.

Military: Soldiers (specifically trainees) from the Fort Leonard Wood Army Base were sent an e-mail, through the military transportation and public affairs personnel, asking them to respond to the online ICB survey. The e-mail was distributed at the end of June, and the survey was available until the end of July, 2009. A total of 101 responses were received.

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General Long-Distance Travel

In the last 12 months, how often did you travel more than 50 miles? (Please count round-trips as two trips):

	Never	1-2 times	3-6 Times	More than 6 Times
Automotive - driven by self	○	○	○	○
Automobile - driven by other(s)	●	●	●	●
Airplane	○	○	○	○
Train	●	●	●	●
Bus - long-distance regularly scheduled bus such as Greyhound, Jefferson Lines, Burlington Trailways, Megabus, Ozark Shuttles	○	○	○	○
Bus - chartered bus such as USA Tours	●	●	●	●
Bus - other such as Medicaid, local public providers	○	○	○	○
Other	●	●	●	●

If you answered *Other* in the previous question, please describe

Next

Long-Distance Travel Details

You stated that you took one or more trips more than 50 miles. Please mark all of the reasons why you traveled this far.

- ☐ Visit family/friends
- ☐ Job - normal commute
- ☐ Job - other
- ☐ Medical
- ☐ Shopping
- ☐ Vacation/Recreation
- ☐ School/Education
- ☐ Other

If you answered *Other* in the previous question, please describe

For trips of over 50 miles, please select the option that describes how you *usually* travel:

- ○ Alone
- ○ With 1 companion
- ○ With 2 companions
- ○ With 3 or more companions

What city and state did you visit on your last trip of over 50 miles?

City

State (Click here to choose)

Next

Most Recent Long-Distance Bus Trip

Some of these questions are almost the same as the questions you just answered. This is needed for our study.

You stated that you traveled at least 50 miles on a long-distance regularly scheduled bus such as Greyhound, Jefferson Lines, Burlington Trailways, Megabus, or Ozark Shuttles. The following questions are about ***your most recent bus trip*** on a long-distance bus.

Please mark the main reason why you traveled on your last long-distance bus trip.

- ○ Visit family/friends
- ○ Job - normal commute
- ○ Job - other
- ○ Medical
- ○ Shopping
- ○ Vacation/Recreation
- ○ School/Education
- ○ Other

If you answered *Other* in the previous question, please describe

Did you travel alone or with others?

- ○ Alone
- ○ With 1 companion
- ○ With 2 companions
- ○ With 3 or more companions

What city and state did you visit on your last long-distance bus trip?

City

State (Click here to choose)

Next

Most Recent Long-Distance Bus Trip, Part II

How far did you travel from where you started your trip (usually your home) to where you got on the long-distance bus?

- ○ Less than 5 miles
- ○ Between 5 to 10 miles
- ○ Between 10 to 25 miles
- ○ More than 25 miles

How did you get from your starting point to the long-distance bus stop/station?

- ○ Walked
- ○ Dropped off by someone
- ○ Drove and parked
- ○ City bus
- ○ Shuttle or van service (not city bus)
- ○ Taxi
- ○ Other

How far did you travel from your final long-distance bus stop to your final destination?

- ○ Less than 5 miles
- ○ Between 5 to 10 miles
- ○ Between 10 to 25 miles
- ○ More than 25 miles

How did you get from your final long-distance bus stop to your final destination?

- ○ Walked
- ○ Picked up by someone
- ○ Drove
- ○ City Bus
- ○ Shuttle or van service (not city bus)
- ○ Taxi
- ○ Other

Next

Most Recent Long-Distance Bus Trip, Part III

What are the major reasons why you chose the long-distance bus over other options? (please select all that apply)

- ☐ Cost
- ☐ Safety
- ☐ No other option
- ☐ Ability to travel with family/friends
- ☐ Bus stop/station was easy to reach
- ☐ Green (environmentally friendly)
- ☐ Relaxed pace
- ☐ Other

If you answered *Other* in the previous question, please describe

On your most recent long-distance bus trip, which carrier did you use? (If you rode more than one, please select the one you rode the longest).

- ○ Greyhound
- ○ Jefferson Lines
- ○ Burlington Trailways
- ○ Megabus
- ○ Ozark Shuttle
- ○ Other

If you answered *Other* in the previous question, please name the carrier

How satisfied were you with your experience on your last long-distance bus trip?

- ○ Very Satisfied
- ○ Slightly Satisfied
- ○ Slightly Dissatisfied
- ○ Very Dissatisfied

Next

Long-Distance Bus - Potential Use

You stated that you had not traveled at least 50 miles on a long-distance regularly scheduled bus such as Greyhound, Jefferson Lines, Burlington Trailways, Megabus, or Ozark Shuttles in the last twelve months. If any of the following changes were made, how likely would you be to ride on a long-distance bus on your next trip over 50 miles?

	I would ride a long-distance bus	I probably would ride a long-distance bus	I probably would not ride a long-distance bus	I would not ride a long-distance bus	This change would not be a factor for me
Lower bus ticket prices	○	○	○	○	○
Bus arrived at its destination faster	○	○	○	○	○
Bus had more security	○	○	○	○	○
Easier to find a schedule or book a ticket	○	○	○	○	○
There was a stop closer to my home or starting point	○	○	○	○	○
There was a stop closer to my destination	○	○	○	○	○
The bus was better suited for the disabled	○	○	○	○	○
Transportation was available to get to and from the bus stop	○	○	○	○	○
Bus came at a more convenient time of day	○	○	○	○	○
Bus came more often	○	○	○	○	○
Bus itself was improved (better restrooms, more space, electrical outlets)	○	○	○	○	○
Bus station/stop was improved (security, weather protection, restrooms, vending machines, etc.)	○	○	○	○	○
Gas prices rose to make the bus an affordable alternative to driving	○	○	○	○	○

Next

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Long-Distance Bus - Awareness

Do you know where the closest long-distance bus stop or station is to your home?

- ○ Yes
- ○ No
- ○ I'm not sure

Do you know the cost of bus service from that stop to places you typically travel?

- ○ Yes
- ○ No
- ○ N/A - Bus does not travel where I want to go

Please select the reasons why you have not ridden in a long-distance bus for a trip over 50 miles in the last twelve months? (mark all that apply)

- ☐ I did not need to travel over 50 miles
- ☐ Cost of bus ticket
- ☐ Bus ride would take too long
- ☐ Bus does not go where I want to go
- ☐ Bus does not leave/arrive when I want to go
- ☐ Safety concerns about bus travel
- ☐ Bus travel is uncomfortable
- ☐ Bus travel does not have the services I desire
- ☐ An automobile is much more convenient

Next

Long-Distance Bus - Suggestions

In addition to anything you previously answered, what could be done so you would be more likely to ride a long-distance bus?

If you could create a new long-distance bus route in or near Missouri, where would you want the route to start and end?

Starting Point Bus Stop City:	
Starting Point Bus Stop State:	(Click here to choose)
Ending Point Bus Stop City:	
Ending Point Bus Stop State:	(Click here to choose)

If you could create a *second* new long-distance bus route in or near Missouri, where would you want the route to start and end?

Starting Point Bus Stop City:	
Starting Point Bus Stop State:	(Click here to choose)
Ending Point Bus Stop City:	
Ending Point Bus Stop State:	(Click here to choose)

Next

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Long-Distance Bus - Frequency of Use for New Routes

If the routes you just suggested became available, at a reasonable price, how often would you use them?

- ○ Once a month or more
- ○ Once every six months
- ○ Once a year
- ○ Less than once a year
- ○ Never
- ○ N/A - I did not suggest any new routes

Next

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Demographics

These questions are asked because we want to make sure that we include all groups of people from our survey. Feel free to skip any questions that make you uncomfortable.

Do you own or have access to a car for a long trip?

- ○ Yes
- ○ No

Do you have a condition or disability that prevents you from driving?

- ○ Yes
- ○ No

What is your gender?

- ○ Female
- ○ Male

Please answer the following

Home zip code	
Number of people who live in your house	

What is your household income?

- ○ Less than $15,000
- ○ $15,000 to $24,999
- ○ $25,000 to $34,999
- ○ $35,000 to $49,999
- ○ $50,000 to $74,999
- ○ $75,000 and over

How old are you?

- ○ Under 18
- ○ 18 to 25
- ○ 26 to 40
- ○ 41 to 65
- ○ Over 65

Submit Survey

Missouri Long-Distance Bus Survey

Summer 2009

Dear Bus Rider:

Please help us. We have been hired by the Missouri Department of Transportation (MoDOT) to survey bus riders about your opinions regarding long-distance travel. We are specifically interested in where and why people travel and ways to improve "Long-Distance Bus" travel options in Missouri. This includes bus services such as Greyhound, Jefferson Lines, Burlington Trailways, MegaBus, and Ozark Shuttle.

We would appreciate it if you could spend a few minutes completing this survey to help MoDOT better understand ways to serve Missouri's citizens and visitors. Our main interest in the project is to provide accurate information about your bus travel and what you think, so please respond as accurately and completely as possible. The survey is completely anonymous; we do not ask your name or address. The survey should take only 5 to 10 minutes to complete, and you can hand it back to the person that gave it to you or return it in a postage paid envelope that we can provide to you.

Thank you,

Christopher Kinzel, P.E.
Project Director

1. Please tell us about your current long-distance bus trip. Where did you get on the bus at the beginning of your trip? (bus stop or station location) City: _____ State: _____

2. How far did you have to travel to get to the bus stop or station where you first started your trip? _____ miles

3. How did you reach the bus stop/station where you first started your trip?

◯ Walked	◯ Taxi	◯ Drove and parked	◯ Shuttle or van service
◯ Dropped off	◯ City bus	◯ Other:	

4. Where will you get off the bus at the end of your trip? (bus stop or station location)
City: _____ State: _____

5. How far will you have to travel to get from the bus stop or station to your final destination? _____ miles

6. How will you get from the bus stop or station to your final destination?

◯ Walk	◯ Taxi	◯ Drive	◯ Shuttle or van service
◯ Be picked up	◯ City bus	◯ Other:	

7. What is the purpose of your current trip?

◯ Visit family/friends	◯ Medical	◯ School/education	◯ Family/personal business
◯ Vacation/recreation	◯ Work	◯ Moving/relocation	◯ Other:

8. If you are traveling with other people, please note how many adults and how many children (do not include yourself). If you are traveling alone, please check that option.

	1	2	3	4	5	6+
adults	◯	◯	◯	◯	◯	◯
children (age 16 or under)	◯	◯	◯	◯	◯	◯

◯	I am traveling alone

9. What was the total cost of your bus ticket? _____

10. Is this trip part of a round trip or is it a one-way trip? ◯ One-way ◯ Round Trip

11. Why did you choose long-distance bus over other travel options? (select all that apply)

◯ Cost	◯ I like riding the bus	◯ Ability to travel with family/friends
◯ Safety	◯ I do not like to fly	◯ Bus stop/station was easy to reach
◯ Relaxed pace	◯ No car or cannot drive	◯ I do not like to drive long distances
◯ Convenience	◯ Environmentally friendly	◯ I did not have anyone to drive me
◯ No other option	◯ Other:	

12. How often did you travel by long-distance bus in the last 12 months? (<u>treat round trips as two bus trips</u>)

◯ No trips	◯ 1 one-way trip	◯ 2 one-way trips (typically one round trip)	◯ 3-4 one-way trips	◯ 5 or more one-way trips

13. Please respond to the following statement: I would ride a long-distance bus **<u>more often</u>** if the following improvements were made.

	Strongly Agree	Agree	Disagree	Strongly Disagree	Would not affect whether I ride
More buses	◯	◯	◯	◯	◯
Improved buses	◯	◯	◯	◯	◯
Improved bus stops and stations	◯	◯	◯	◯	◯
New stop locations	◯	◯	◯	◯	◯
Buses came at a better time of day	◯	◯	◯	◯	◯

14. In what Missouri (or close to Missouri) city or cities would you like to see a new long distance bus stop or station?

_____

<u>The following questions are very important to our study</u>. Please remember the survey is anonymous. We do not want your name, address, or other detailed identifying information.

15. What is your age group? ◯ Under 18 | ◯ 18 to 25 | ◯ 26 to 40 | ◯ 41 to 65 | ◯ Over 65

16. What is your home city or zip code? City: _____ or Zip Code: _____

17. What is your current employment category?

◯ Construction or Maintenance	◯ Student	◯ Office or Administrative
◯ Sales or Service Business	◯ Retired	◯ Healthcare or Social Services
◯ Transportation and Material Moving	◯ Homemaker	◯ Farming & Agriculture
◯ Professional or Management	◯ Unemployed	◯ Technical, Craft, or Industrial
◯ Government & Related Services	◯ Active Military	◯ Other:

18. How many people live in your household? ◯ 1 | ◯ 2 | ◯ 3 | ◯ 4 | ◯ 5 | ◯ 6 or more

19. What is your gender? ◯ Male | ◯ Female

20. What is your annual household income?

◯ 0 to $14,999 | ◯ $15,000 to $24,999 | ◯ $25,000 to $49,999 | ◯ $50,000 to $74,999 | ◯ $75,000 or more

21. Do you own or have access to a reliable car you could use for a long trip? ◯ Yes | ◯ No

22. Do you have a condition or disability that prevents you from driving? ◯ Yes | ◯ No

23. What is your ethnicity/race? (Please select all that apply)

◯ American Indian or Alaska Native	◯ Asian
◯ Black or African American	◯ Hispanic or Latino
◯ Native Hawaiian or Other Pacific Islander	◯ White

Dear Resident,

Please help us. Heartland Market Research LLC has been hired by the Missouri Department of Transportation (MoDOT) to survey the general public about your opinions regarding long distance travel. **We are specifically interested in ways to improve "Long-Distance Bus" travel options in Missouri. Long-Distance Bus carriers include firms such as Greyhound, Jefferson Lines, Burlington Trailways, etc**. We would appreciate it if you could spend a few minutes completing this survey to help MoDOT better serve the citizens of Missouri.

Our only interest in the project is to provide accurate information about what you think, so please respond as accurately and completely as possible. The survey should take about 5 minutes to complete, and you can return the survey to us in the enclosed postage paid envelope. If you have any questions about the survey, please call me directly at (573) 578-5423.

Thank you,

Lance Gentry
Principal Investigator, Heartland Market Research LLC

HEARTLAND
MARKET RESEARCH LLC

MARKING INSTRUCTIONS
- **Use pencil or a blue or black ink pen.**
- **Make no stray marks on this form.**
- **Completely fill in the appropriate ovals.**

CORRECT: ● **INCORRECT:** ✓ ✗ ◒ ◯

Long-Distance Bus Survey

1. In the last 12 months, how often did you travel more than 50 miles? (Please count round-trips as two trips):

	Never	1-2 Times	3-6 Times	More than 6 Times
A. Automotive - driven by self	◯	◯	◯	◯
B. Automotive - driven by other(s)	◯	◯	◯	◯
C. Airplane	◯	◯	◯	◯
D. Train	◯	◯	◯	◯
E. Bus - long-distance regularly scheduled bus such as Greyhound, Jefferson Lines, Burlington Trailways, Megabus, Ozark Shuttle	◯	◯	◯	◯
F. Bus - chartered bus such as USA Tours	◯	◯	◯	◯
G. Bus - other such as Medicaid, local public providers	◯	◯	◯	◯
H. Other	◯	◯	◯	◯

If you answered "Never" to all of the items in Question 1, please go directly to Question 5.

2. You stated that you took one or more trips of more than 50 miles in the last 12 months. Please mark all of the reasons why you traveled this far.

◯ Visit family/friends ◯ Job - other ◯ Shopping ◯ School/Education
◯ Job - normal commute ◯ Medical ◯ Vacation/Recreation ◯ Other

3. For trips of over 50 miles, please select the option that describes how you *usually* travel:

◯ Alone ◯ With 1 companion ◯ With 2 companions ◯ With 3 or more companions

4. If you have riden a long-distance bus, what are the major reasons why you chose the long-distance bus over other options? (Please select all that apply)

◯ Cost ◯ No other option ◯ Bus stop/station was easy to reach ◯ Relaxed pace
◯ Safety ◯ Ability to travel with family/friends ◯ Green (environmentally friendly) ◯ Other

5. Do you know where the closest *long-distance* bus stop or station is to your home? (Long-Distance buses are regularly scheduled buses such as Greyhound, Jefferson Lines, Burlington Trailways, Megabus, Ozark Shuttle, etc.)

◯ Y Yes ◯ N No

6. Do you know the approximate cost of bus service from your location to places you typically travel?

◯ Y Yes ◯ N No ◯ Not Applicable - the bus does not travel where I want to go

7. If you have not ridden a long-distance bus in the last 12 months, please select the reasons why. (Mark all that apply)

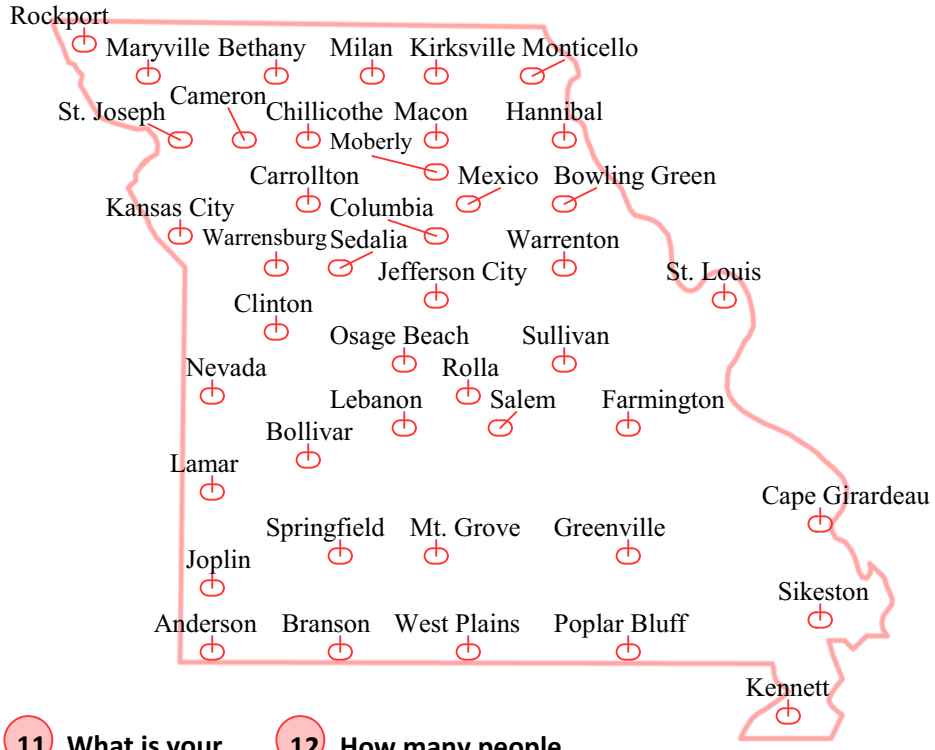
◯ Not Applicable - I have ridden a long-distance bus recently
◯ The bus does not go where I need to travel
◯ The bus does not leave/arrive when I need to travel
◯ The bus never crossed my mind as an option
◯ I had not need for long-distance travel
◯ the cost of long-distance bus ticket
◯ a long-distance bus takes too long
◯ concerns about my safety
◯ concerns about comfort
◯ I prefer the convenience of a personal vehicle

Please complete both sides of the survey. →

8 **Please consider the following possible improvements to long-distance bus service in Missouri. Tell us if these changes would make you more likely to ride a long-distance bus in the future.**

	This change **would** make me more likely to ride a long-distance bus	This change **would not** make me more likely to ride a long-distance bus
Lower bus ticket prices	○	○
Bus arrived at its destination faster	○	○
Bus had more security	○	○
Easier to find a schedule or book a ticket	○	○
There was a stop closer to my home or starting point	○	○
There was a stop closer to my destination	○	○
The bus was better suited for the disabled	○	○
Transportation was available to get to and from the bus stop	○	○
Bus came at a more convenient time of day	○	○
Bus came more often	○	○
Bus itself was improved (better restrooms, more space, electrical outlets, etc.)	○	○
Bus station/stop was improved (security, weather protection, restrooms, etc.)	○	○
Gas prices rose to make the bus an affordable alternative to driving	○	○

9 **If you would travel on a long-distance bus if it went where you wanted to go at a reasonable price, please fill-in the bubbles on the map below for the various places you would want to visit in Missouri by long-distance bus. Remember to include the location nearest your home. The bubbles are <u>under</u> the city names.**



10 **If you would travel on a long-distance bus if it went to other States (or Canada or Mexico) at a reasonable price, please let us know where you would want to visit.**

- ○ Alabama
- ○ Alaska
- ○ Arizona
- ○ Arkansas
- ○ California
- ○ Canada
- ○ Colorado
- ○ Connecticut
- ○ Delaware
- ○ Florida
- ○ Georgia
- ○ Idaho
- ○ Illinois
- ○ Indiana
- ○ Iowa
- ○ Kansas
- ○ Kentucky
- ○ Louisiana
- ○ Maine
- ○ Maryland
- ○ Massachusetts
- ○ Mexico
- ○ Michigan
- ○ Minnesota
- ○ Mississippi
- ○ Montana
- ○ Nebraska
- ○ Nevada
- ○ New Hampshire
- ○ New Jersey
- ○ New Mexico
- ○ New York
- ○ North Carolina
- ○ North Dakota
- ○ Ohio
- ○ Oklahoma
- ○ Oregon
- ○ Pennsylvania
- ○ Rhode Island
- ○ South Carolina
- ○ South Dakota
- ○ Tennessee
- ○ Texas
- ○ Utah
- ○ Vermont
- ○ Virginia
- ○ Washington
- ○ Washington DC
- ○ West Virginia
- ○ Wisconsin
- ○ Wyoming

11 **What is your home zip code?**

Zip Code

0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

12 **How many people live in your home?**

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more

13 **How old are you?**

- ○ Under 18
- ○ 18 to 25
- ○ 26 to 40
- ○ 41 to 65
- ○ Over 65

14 **What is your annual household income?**

- ○ Less than $15,000
- ○ $15,000 to $24,999
- ○ $25,000 to $34,999
- ○ $35,000 to $49,999
- ○ $50,000 and over

15 **Are you male or female?**

- Ⓜ Male
- Ⓕ Female

16 **Do you own or have access to a car for a long trip?**

- Ⓨ Yes
- Ⓝ No

17 **Do you have a condition or disability that prevents you from driving?**

Ⓨ Yes Ⓝ No

Missouri Long-Distance Bus Survey: Medical Patients

Dear COO or Hospital Administrator:

The Missouri Department of Transportation need your help! Please assist us by taking a few minutes to fill out the following brief survey. The survey was developed by HDR, a consulting firm working in partnership with the Missouri Department of Transportation, as part of a research study about long-distance bus service (such as Greyhound) throughout the state of Missouri. We are interested in finding out more about the transportation needs of medical patients. It would help us a great deal with our study if you would complete the following survey on behalf of your medical facility. Please simply write your best guess for any questions to which you do not know the exact answer. You may answer the questions below and fax the completed survey back to us at 816-360-2777. **Thank you, in advance, for your participation!**

Thank you,

Christopher Kinzel, P.E.
Project Director
christopher.kinzel@hdrinc.com

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1. Name of your medical facility? _____
   City:_____ Zip: _____

2. How many office visits did your facility experience in 2008? _____ How many individual patients does this represent (counting each patient only once)? _____

3. On average, how often would you estimate that a typical individual patient visits your facility?
   a. More than once a month
   b. About once a month
   c. About once a quarter
   d. About twice a year
   e. About once a year
   f. Less than once a year

4. What is the average distance that your patients travel to get to your facility?

5. How many (or what percentage) of your patients travel greater than 50 miles to visit your facility?

6. What percentage of your patients are unable to drive themselves to your facility (please estimate)?

7. What percentage of your patients would you estimate:
   a. Drive themselves in personal automobile ____
   b. Have someone else drive them in personal automobile____
   c. Utilize local public transportation ____
   d. Utilize a long-distance bus (Greyhound, etc.) ____
   e. Utilize OATS, SMTS, or other rural transportation services ____
   f. Utilize specialized transportation services ____ (please specify: _____)
   g. Other ____ (please specify: _____)

8. What cities or places do you feel your patients have the most difficulty getting to/from?

9. Does your hospital/medical center provide any specialized medical services that might attract patients from long distances (e.g. cancer treatment, dialysis)?

10. What do you perceive to be the most significant barriers to people being able to get to your facility from distances of greater than 50 miles?

11. Is there a long-distance bus stop/station (e.g. Greyhound) within 10 miles of your facility?

12. If new or improved long-distance bus service were introduced into your area, do you think any of your patients would use it to travel to your facility?

13. Approximately how many patient cancellations does your facility experience annually? ____ Of these, what percentage would you estimate are attributable to issues with transportation? _____

14. Is there someone who helps your patients coordinate transportation to/from your facility? _____ (if yes, name: _____)

15. Please provide any additional comments you have about transportation to/from your facility and/or long-distance bus transportation: _____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Please feel free to fax additional pages if your comments exceed the space provided above.

Thank you for your time!

MoDOT Intercity Bus Study
Correctional Facility Survey
1/26/2009

This data will be kept confidential and will only be used for purposes of the Intercity Bus Study. Please e-mail the response and any attachments to amanda.schulte@hdrinc.com

What is the name and address of your facility?	
What is your name and title?	

Released Prisoners

How many prisoners did your facility release last year? If you are able to give an average per month, week or day, that would be helpful. If you have detailed release data in electronic form, you could attach it.	
It is our understanding that state policy is to send released prisoners back to the County of prosecution and sentencing (with some exceptions). Are you able to provide ZIP code or City/County data for release locations over the past year (broken down by month and/or day, if available)? If so, can you e-mail that data?	
In the past year, how many released prisoners did you transport to a bus stop?	
Was it always the same bus stop? If so, where was it located? If not, can you list all the stops (and how many prisoners to each)?	
Have you had any issues with using intercity bus for prisoner release transportation? (e.g., bus stop far away, schedule inconvenient, etc.)	
In the past year, how many released prisoners did you transport to a train station?	
Was it always the same station? If so, where was it located? If not, can you list all the stations?	
In the past year, how many released prisoners did you transport to a place other than a bus stop or train station? Can you list these sites?	
In the past year, how many released prisoners were picked up outside your facility by a private citizen upon their release?	

Visitors

Do you have logs of visitors to your facility over the past year?	
If so, how many visitors did you receive last year (broken down by month, and even day, if possible)?	
Do you know **how** visitors arrived at, and departed from, the facility? (e.g., Greyhound, Amtrak, chartered bus, drove themselves, etc.) If so, can you provide or estimate percentage breakdowns of each of these transportation modes (or whichever of them you have data for)?	
If visitors arrived by a chartered bus, vanpool, or some other organized means (but not a train or scheduled bus such as Greyhound), can you provide the names of the organization(s) that provided the transportation?	
Do you know **where** visitors traveled from (County, City, ZIP code)? If so, can you provide this data?	

Potential Needs

Do you think the people arriving at, and departing from, your facility would be interested in new (or improved) bus service with a stop at/near your location?	
If yes, what would be the optimal new route or routes, from your perspective? Please be as specific as possible and include destination(s), pick-up and arrival times, and days of service. How many people do you think would use each suggested route per week?	
Do you think that your employees would be interested in new (or improved) bus service for commuting to the facility?	

HEARTLAND
MARKET RESEARCH LLC
12738 CR 8400
Rolla, MO 65401

Dear Resident,

Please help us. Heartland Market Research LLC has been hired by the Missouri Department of Transportation (MoDOT) to learn about your opinions regarding long distance travel. **We are specifically interested in ways to improve "Long-Distance Bus" travel options in Missouri. Long-Distance Bus carriers include firms such as Greyhound, Jefferson Lines, Burlington Trailways, etc**. We would appreciate it if you could spend a few minutes completing this survey to help us better understand how your transportation needs can be better served.

This survey is completely anonymous. We do not ask for your name or address. There are no tracking numbers on the survey, so **your privacy is completely protected**. Our only interest in the project is to provide accurate information about what you think, so please respond as accurately and completely as possible. We need a completed survey for each person, so please use as many surveys as necessary. If you need more surveys, please contact us at the address on the right.

Our intent is that communities or groups will coordinate the return of the surveys using the postage-paid envelopes we provided. Mailing the surveys together is another way to ensure your privacy. If you need to send the survey separately, send it to us at the address on your right. Please mail all surveys by Saturday, June 6, 2009. Thank you for your help.

Sincerely,

Lance Gentry
Principal Investigator, Heartland Market Research LLC

MARKING INSTRUCTIONS
- **Use pencil or a blue or black ink pen.**
- **Make no stray marks on this form.**
- **Completely fill in the appropriate ovals.**

CORRECT: ● **INCORRECT:** ✓ ✗ ◒ ◒

1 In the last twelve months, how often did you travel more than 50 miles from your home in the different vehicles listed below? (Please count round-trips as two trips):

	Never	1-2 Times	3-6 Times	More than 6 Times
A. Automobile (including trucks and vans)	○	○	○	○
B. Airplane	○	○	○	○
C. Train	○	○	○	○
D. Horse and horse drawn vehicle (buggy, surrey, etc.)	○	○	○	○
E. Bus - long-distance regularly scheduled bus such as Greyhound, Jefferson Lines, Burlington Trailways, Megabus, Ozark Shuttle	○	○	○	○
F. Bus - chartered bus such as USA Tours	○	○	○	○
G. Bus - other such as Medicaid, local public bus service	○	○	○	○
H. Other	○	○	○	○

2 Please mark all of the reasons why you make trips of over 50 miles. (Mark all that apply).

○ Family Reunions ○ Funerals ○ Caregiving ○ Weddings
○ Other visits to family/friends ○ Medical ○ Church/Religious ○ Shopping
○ Job - normal commute ○ Job - other ○ School/Education ○ Vacation/Recreation
○ I do not travel over 50 miles ○ Other reasons

If you answered *Other* for questions 1 or 2, please describe. Please keep your comments within the thick red lines.

3 For trips of over 50 miles, please select the option that describes how you *usually* travel:

○ Alone ○ With 1 companion ○ With 2 companions ○ With 3 or more companions
○ I do not travel over 50 miles

4 How important is long-distance bus service to your community?

○ Essential ○ Very Important ○ Slightly Important ○ Not Important

5 How well is your community currently served by long-distance bus service?

○ Very well ○ Fairly Well ○ Not Well ○ Not at all ○ I don't know

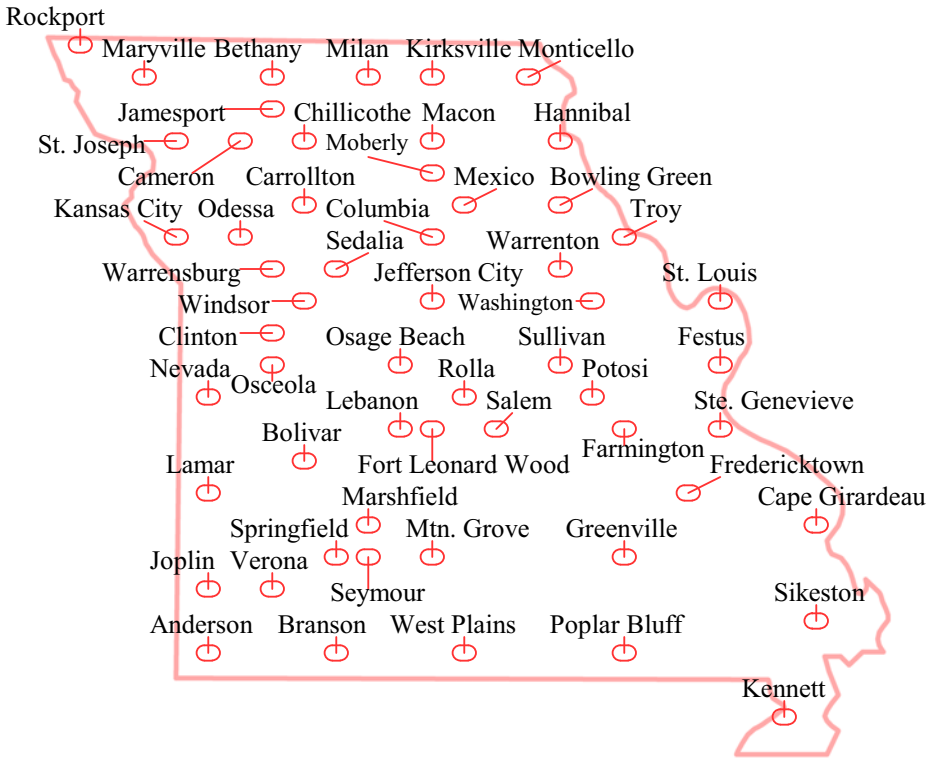
6 How close is the nearest long-distance bus stop to your home?

○ 0 to 10 miles ○ 10 to 25 miles ○ 25 to 50 miles ○ more than 50 miles ○ I don't know

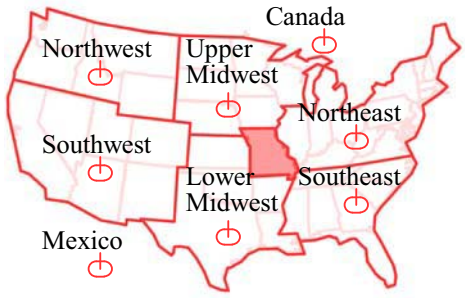
7 If any of these changes were made, how likely would you be to ride a long-distance bus on your next trip over 50 miles?

	I probably **would** ride a long-distance bus	This change would not be a factor for me	I probably **would not** ride a long-distance bus
Lower bus ticket prices	○	○	○
Bus arrived at its destination faster	○	○	○
Bus had more security	○	○	○
Easier to find a schedule or book a ticket	○	○	○
There was a stop closer to my home or starting point	○	○	○
There was a stop closer to my destination	○	○	○
The bus was better suited for the disabled	○	○	○
Transportation was available to get to and from the bus stop	○	○	○
Bus came at a more convenient time of day	○	○	○
Bus came more often	○	○	○
Bus itself was improved (better restrooms, more space, etc.)	○	○	○
Bus station/stop was improved (security, weather protection, restrooms, etc.)	○	○	○
If taxi or hauling prices dramatically increased	○	○	○

8 If you could design your own new long-distance bus route, where would it go? On the map of Missouri below, fill in the bubble for the city nearest to where your route would start (most likely your home). Then fill in the bubbles on the Missouri and U.S. maps for the locations nearest to the various places you would most like to travel to and from using long-distance bus. The red line in each bubble points to the city or region name.



Locations Outside Missouri



9 If new routes to the locations you identified on the maps were available, at a reasonable price, how often would you use them?

- ○ Once a month or more
- ○ Once every six months
- ○ Once a year
- ○ Very rarely
- ○ Never

10 What is the best way to communicate with you about long-distance bus service in your area?

- ○ Regular mail
- ○ Local newspapers
- ○ Specialty papers such as *The Budget*
- ○ Posters
- ○ Other
- ○ I am not interested in long-distance bus service

11 What is your home zip code?

Zip Code

12 How many people live in your home?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more

13 How old are you?

- ○ Under 18
- ○ 18 to 25
- ○ 26 to 40
- ○ 41 to 65
- ○ Over 65

14 Are you male or female?

- Ⓜ Male
- Ⓕ Female

Thank you for sharing your opinions. If you have any additional thoughts about long-distance bus service, please provide them on additional sheets. All surveys and comment sheets should be returned to Heartland Market Research.

Appendix B

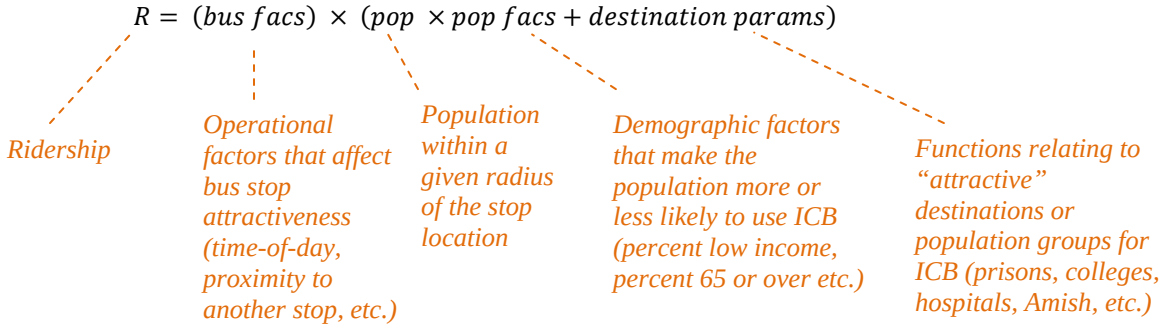
Ridership Forecasting

Appendix B: MoDOT Intercity Bus (ICB) Ridership Forecasting

To attempt to quantify potential ICB demand and ridership in currently unserved areas of Missouri, the study team used existing provider data, demographic information, and geographical parameters to develop regression equations correlating demand to known or predictable quantities.

The intercity bus companies provided daily ridership data on a per-stop basis. Due to non-disclosure agreements with the companies, this report does not identify which data came from which stops.

In studying both the data and the nature of intercity bus operations, the study team proposed the following structure for a forecasting model:



Traditional ICB forecasting models have been route-based. It is acknowledged that a route-based approach has the potential to give a truer picture of the total on-board ridership between stops, but this study chose a stop-based model in order to specifically forecast the demand surrounding a particular node. This approach is more aligned with the study's focus on rural areas.

The development of each element of this model structure into mathematical relationships is described below, divided into the three main components: bus factors, population factors, and destination parameters.

Bus Factors

Bus Equivalents

It became clear through the course of the analysis that time-of-day was a very influential variable. Since many stops are only served by one bus per day per direction, the arrival/departure time can heavily influence the attractiveness of ICB as a travel option for a given location. In recognition of this, the study team developed the numeric time-of-day rating system shown at right. Essentially, a rating of 10 indicates the best time-of-day. Only mid-day qualifies for this rating, because earlier times may be very desirable for departing travelers, but not as palatable for

Time-Of-Day (TOD) factors as a function of bus arrival times

Time	rating
12a – 5a	3
5a – 7a	7
7a –10a	9
10a – 2p	10
2p – 6p	9
6p – 10^{30}p	7
10^{30}p - 11^{30}p	5
11^{30}p – 12a	3

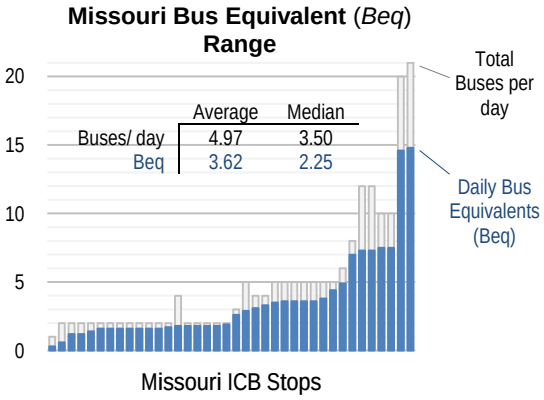
arriving travelers (since they would have had to board a bus much earlier in the day). The reverse is true for times later in the day. These TOD factors were iteratively adjusted during the regression exercise to account for actual ridership data.

The TOD factors are translated to an overall **Bus Equivalent index (*Beq*)** for a given stop, calculated by summing the TOD factors for each bus stopping at the location throughout a typical day, and dividing by 10:

$$Beq = \frac{1}{10}\sum_{bus\ i} f_{TOD,i}$$

So, for example, a stop with two daily buses, one at 8:00 a.m. (f_{TOD} = 9) and one at 11:45 p.m. (f_{TOD} = 3) would have *Beq* = (9+3)/10 = 1.2. In an ideal situation, Beq would equal the total number of buses per day (with all buses having a f_{TOD} of 10).

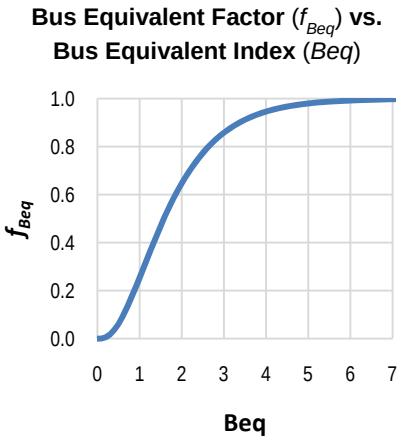
Using this construct, the range of Bus equivalents in Missouri can be plotted, as shown at right. The graph also shows the total daily buses at each top, for comparison purposes, as well as some summary statistics. Many of Missouri's rural stops experience two buses per day, and the calculated Beq value is often somewhat less than 2.0.



The study team hypothesized that decreasing Bus Equivalents would decrease the overall "attractiveness" of a given stop, but not linearly. The study team developed a multiplicative **Bus Equivalent factor, f_{Beq},** ranging between 0 and 1, that would reduce predicted ridership/demand for stations with lower *Beq* values. An "s"-shaped curve was hypothesized, and through the regression process, the following function was developed:

$$f_{Beq} = (1 - e^{-B_{eq}})^3$$

The developed relationship between *Beq* and f_{Beq} is graphed at right. In using this relationship for forecasting, a future *Beq* may not always be known. One can assume an ideal situation in which ridership is not reduced (f_{Beq} = 1); such an assumption could be used to predict unconstrained *demand*. Alternatively, for proposed rural stops, A *Beq* value of 2.0 (f_{Beq} = 0.65) is a suggested value to use for projecting a realistic expectation of *ridership*.



Proximity Factor and Transfer Proximity Factor

If a stop is located within the catchment area of another nearby stop, the study team hypothesized that ridership at both stops could be reduced; both stops are "competing" for the same pool of riders.

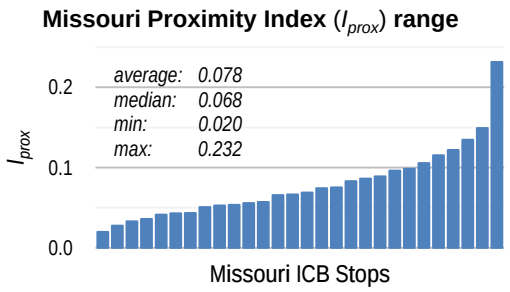
It was hypothesized that (1) the further away a "competing" stop is, the lower the percentage it would be expected to "steal" from a given stop, and (2) the higher a "competing" stop's Bus Equivalents (*Beq*), the higher the percentage it would be expected to "steal". Therefore, the study team developed a **Proximity Index** for a given stop, computed based on the two nearest stops (proportional to the distance to the other stops and inversely proportional to the *Beq* values of the other stops):

$$I_{Prox} = \frac{Beq_1}{D_1^{1.3}} + \frac{Beq_2}{D_2^{1.3}}$$

Where:
I_{prox} = Proximity Index
Beq_1, Beq_2 = Bus Equivalent indices for two nearest stops
D_1, D_2 = Respective distances to two nearest stops, miles

If D_1 or D_2 is greater than or equal to 100 miles, the respective term (Beq/D) is set to 0. The Proximity Index is not deemed applicable outside this range.

Using this construct, the range of the Proximity Index in Missouri can be plotted, as shown at right. Note that the larger ICB stops in Missouri are not included in this graph. As the summary statistics indicate, I_{prox} ranges from 0.02 to 0.23 for the stops analyzed.

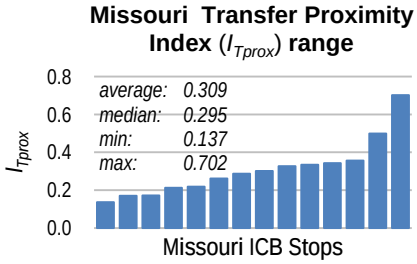


Similarly, if a stop is located near a major ICB transfer stop, the study team hypothesized that this could further reduce the stop's ridership. At major transfer stops, buses routes converge from multiple directions, more services are provided, and routes to more long-distance locations are typically available. Major transfer stops in Missouri are St. Louis, Kansas City, Springfield, St. Joseph, Joplin, and Sikeston. (Omaha, Nebraska was also considered a major transfer stop for the purposes of this study.) It was hypothesized that people are willing to drive longer distances, bypassing an interim ICB stop, to access these major transfer sites. Accordingly, the study team developed a **Transfer Proximity Index**:

$$I_{Tprox} = \frac{4\ Beq_{Tx}}{T^{1.3}}$$

Where:
I_{Tprox} = Transfer Proximity index
Beq_{Tx} = Bus Equivalent index for nearest major transfer stop
T = Travel time to nearest major transfer stop, minutes

Not all stops in Missouri have an I_{TProx}. The graph at right shows the range of I_{TProx} values for stops that do. As the summary statistics indicate, I_{Tprox} ranges from 0.14 to 0.7 for the stops analyzed.



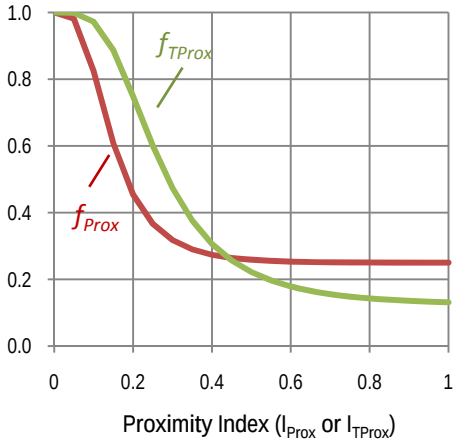
It was hypothesized that increasing values of the two proximity indices would decrease the overall "attractiveness" of a given stop, but not linearly. Similar to f_{Beq}, the study team developed multiplicative **proximity factors, f_{Prox} (general proximity) and f_{TProx} (transfer proximity)**, each with a maximum value of 1.0 and a limiting minimum value. These values are intended to reduce ridership/demand for stations with higher proximity indices. Reverse "s"-shaped curves were hypothesized, and through the regression process, the following functions were developed:

$$f_{Prox} = [(1 - e^{-10 I_{Prox}})^5 + 1]^{-2}$$

$$f_{TProx} = [(1 - e^{-5 I_{TProx}})^5 + 1]^{-3}$$

These proximity relationships are graphed at right. In using these relationships for forecasting, the factors should be set to 1 for determining *demand*, but the proximity indices can be used to determine *ridership*. Note that F_{Prox} reaches a lower limit of 0.250, while F_{TProx} has a minimum of 0.125.

Proximity Factors as Functions of Proximity Indices



Generalized Bus Factors

The equations for the three bus factors can be generalized to a single form:

$$f_{bus,i} = \left[\left(1 - e^{-a_i f_{bus,i}}\right)^{b_i} + c_i\right]^{d_i}$$

Factor (f_{bus})	a_i	b_i	c_i	d_i
Bus equiv factor (f_{Beq})	1	3	0	1
Nearest station proximity factor (f_{Prox})	10	5	1	-2
Transfer station proximity factor (f_{TProx})	5	5	1	-3

Population Factors

The fundamental parameter affecting ridership is the population of the catchment area. Population information for this study was extracted from the 2000 Census at the block level. Initially, population was examined in two bands: a 10-mile radius, and a 25-mile radius. It was found that the 10-mile population was a sufficient explanatory variable. However, the ratio of the 10-mile population to the 25-mile population was found to be useful in developing coefficients for different area types, as described below.

The study team ultimately found that breaking geographical population groupings into three area types yielded logical sets of coefficients for the same functional form. The table at right illustrates the criteria for these area types. Note that the definitions differ from those of the typical Census designations, but were found to be convenient for the purposes of this study.

Definitions of Area Types

Area Type	Pop_{10}	Pop_{10}/Pop_{25}
rural	< 20,000	all
exurban	≥ 20,000	< 20%
micro/metropolitan	≥ 20,000	≥ 20%

The census provides information on demographic sub-groups: low-income, ethnic groups, elderly (and other age cohorts), and those with disabilities. Many of these groups are known to be higher-than-average users of ICB. The study hypothesized that areas in which these groups are represented in higher percentages would show increased ridership. A generalized linear functional form was considered to model this relationship:

$$R_{pop} = N_{pop,10} \sum_{j} (a_j P_{j,10})$$

Where:

- R_{pop} = Population component of ridership (or demand)
- $N_{pop,10}$ = Population within a 10-mile radius
- j = Index for population segment
- a_j = coefficient for population segment *j* (see below)
- $P_{j,10}$ = Population segment *j* within a 10-mile radius, expressed as a percentage of $N_{pop,10}$

During the regression testing, only the low-income population was found to provide results considered significant. The resulting parameters are shown in the table at right.

Population Factors, Coefficient a_j

Segment	Micro & metro	Rural & exurb
Low income	1.16	0.63
Elderly	-	-
Disabled	-	-
Hispanic	-	-

Destination Factors

Destination factors are similar to population factors, and look at two types of elements: (1) Specialty groups not recorded in the Census (or not measured in the Census as needed for the correlations) – such as the Amish, and (2) Specialty "attractors" such as schools, prisons, hospitals, and military installations. Rather than using Census percentages multiplied by the general population, the study team posited a simple linear functional form:

$$R_{dest} = \sum_{k} (a_k N_k)$$

Where:

- R_{dest} = Destination/attraction component of ridership
- k = Index for destination/attraction
- a_k = Coefficient for destination/attraction *k* (see below)
- N_k = Size measurement for *k* (e.g., hospital beds, annual prisoners released)

For the Amish and released prisoners, the study team found that locations outside a 10-mile radius also contributed to ridership (with different coefficients than locations inside a 10-mile radius).

Ccollege students and hospitals (by bed count) were not found to sensibly integrate into the correlations.

Destination Factors, Parameter a_k

Segment	Micro & metro	Rural & exurb
Amish (districts) w/in 10 mi	20	180
Amish (districts) w/in 10-25 mi	20	180
Prison (releases) w/in 10 mi	1.0	1.0
Prison (releases) w/in 10-25 mi	0.1	0.7
College (students)	-	-
Military Inst (pop)	1.1	1.0
Hospital (beds)	-	-

Forecasting Equation Development

The equations and factors above were developed and tested using actual ridership data from Missouri's existing ICB stops (for the year 2007), and actual demographic and attraction factors from the 2000 Census and other published data. The primary motivation to develop these correlations were: (1) to provide the ability to construct maps of potential demand "hot spots" in Missouri currently unserved by ICB (see Chapter 6); (2) to forecast an approximate demand for a proposed specific stop or route, given estimated service levels and stop locations; and (3) to develop a prediction formula structure that can be further explored, eventually with data from other states. It is acknowledged that the ICB stops in Missouri constitute a fairly small sample size, and the models developed herein cannot be considered statistically significant in that sense. However, the forms of the equations and the general orders-of-magnitude appear to be reasonable.

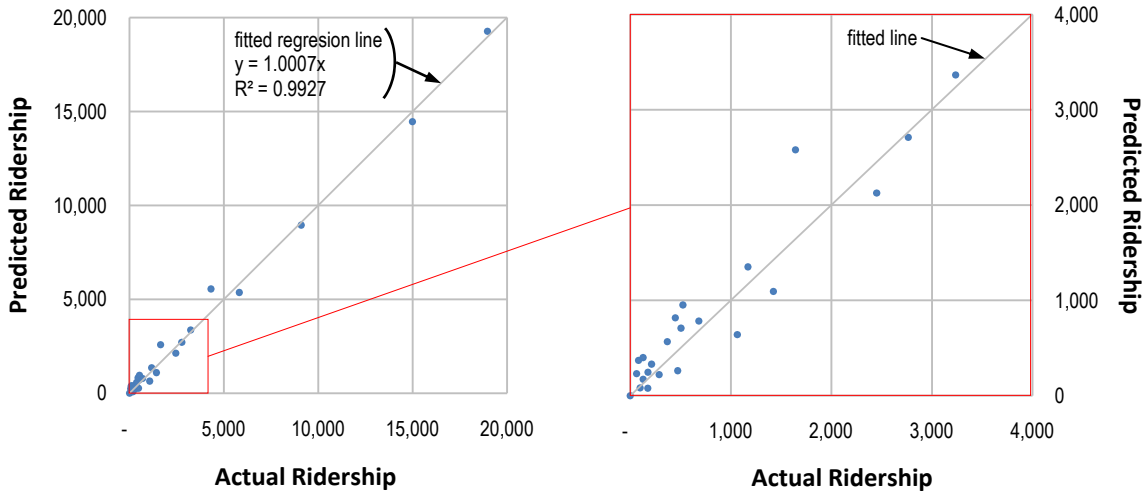
Ultimately, extending this model to incorporate expected trip lengths and origin-destination considerations would enhance its power and universality.

Even with all the factors developed as described in this Appendix, there were still a small number of outliers that were addressed with special adjustments:

- Several stops that are theoretically on the "national" ICB network cannot be easily accessed through on-line national ticketing. These stops consistently exhibit lower ridership than would be expected based on the parameters developed in this study. It was found that a multiplicative factor of roughly 0.5 applied to the forecasting equations more accurately predicted actual ridership.
- One of the micropolitan cities in Missouri is served by an express bus route to a major Midwestern city. The ridership data indicated that this route made the city more attractive than the equations would predict. A special factor was applied to this city, and a related reduction factor was applied to a nearby city.

For the purposes of forecasting ridership, neither of these factors was included in the equations, because it was assumed (perhaps ideally) that new stops would not exhibit either of these characteristics. However, these factors are included in the graphs below, which show the results of the regression analysis for all stops in the state.

Results of the Ridership Regression Analysis (Predicted vs. Actual)



In mathematical notation, the complete ridership formula can be expressed as follows:

$$R = \left\{ \prod_i \left[\left(1 - e^{-a_i f_{bus,i}}\right)^{b_i} + c_i \right]^{d_i} \right\} \left[N_{pop,10} \sum_j \left(a_j P_{j,10}\right) + \sum_k \left(a_k N_k\right) \right]$$

Where:

R =	ridership at given station, total on/off passengers per year
i =	index for operational (bus and station) factors
$f_{bus,\,i}$ =	factor for index i
a_i, b_i, c_i , d_i =	operational parameters or coefficients
j =	index for demographic or population factors
$N_{pop,10}$ =	total population within a radius of 10 miles **(excluding prisoners)**
$P_{j,10}$ =	population group size expressed as the proportion of the total population within a 10-mile radius
a_j =	population parameters or coefficients
k =	index for destinations or population groups
N_k =	the relevant size of the destination or group in question
a_k =	destination and attraction parameters or coefficients

The parameters are summarized in the following tables.

Parameters for index *i* (bus and station factors):

Factor (f_{bus})	How to calculate	Associated parameters			
		a_i	b_i	c_i	d_i
Bus equiv index (B_{eq})	Sum of time-of-day (TOD) factors for each bus that stops at the location daily, divided by 10. For rural areas, use a desirable value of **2.0**.	1	3	0	1
Nearest station proximity index (I_{Prox})	For the nearest stops, calculate (B_{eq} for the other station ÷ distance to the other stop in miles). Add up these values for the two nearest stops within 100 miles (if >100 miles, use 0).	10	5	1	-2
Transfer station proximity index (I_{TProx})	If any major transfer stops are within 60 miles, use a modified version of the nearest station factor above: B_{eq} ÷ (distance in miles x 1.22). Major transfer stops in Missouri are Kansas City, St. Louis, Springfield, Joplin, St. Joseph and Sikeston. Outside the state, Omaha (NE) is also used.	5	5	1	-3

Parameters for index *j* (demographic/population factors):

Segment	Micro & metro	Rural& exurb
Low income	1.16	0.63
Elderly	-	-
Disabled	-	-
Hispanic	-	-

Parameters for index *k* (destinations/population groups):

Segment	Micro & metro	Rural& exurb
Amish (pop) w/in 10 mi	20	180
Amish (pop) w/in 10-25 mi	20	180
Prison (pop) w/in 10 mi	1.0	1.0
Prison (pop) w/in 10-25 mi	0.1	0.7
College (students)	-	-
Military Inst (pop)	1.1	1.0
Hospital (beds)	-	-

In long form, the calculation can be represented as:

Metro and Micro ($Pop_{10} \geq 20{,}000$ and $Pop_{10}/Pop_{25} \geq 20\%$):

$$R = (1 - e^{-B_{eq}})^3 \left[\left(1 - e^{-10 f_{prox}}\right)^5 + 1\right]^{-2} \left[\left(1 - e^{-5 f_{Tprox}}\right)^5 + 1\right]^{-3} \left[N_{pop,10}\left(1.16 P_{lowinc,10}\right) + 1.0 N_{prison,10} + 0.1 N_{prison,10-25} + 1.1 N_{military,10} + 20 N_{Amish,10} + 20 N_{Amish,10-25}\right]$$

Rural and Exurb ($Pop_{10} < 20{,}000$; or $Pop_{10} \geq 20{,}000$ and $Pop_{10}/Pop_{25} < 20\%$):

$$R = (1 - e^{-B_{eq}})^3 \left[\left(1 - e^{-10 f_{prox}}\right)^5 + 1\right]^{-2} \left[\left(1 - e^{-5 f_{Tprox}}\right)^5 + 1\right]^{-3} \left[N_{pop,10}\left(0.63 P_{lowinc,10}\right) + 1.0 N_{prison,10} + 0.7 N_{prison,10-25} + 1.0 N_{military,10} + 180 N_{Amish,10} + 180 N_{Amish,10-25}\right]$$

Appendix C

Estimated Costs for Recommended Routes

Missouri ICB - Estimated Costs for Recommended Routes

	High Priority			Long-Term Priority			
Route	US-36	US-60	US-63	US-50	US-63	US-65	US-67
Location	St. Joseph/ Hannibal	Springfield/ Sikeston	Rolla/ IA stateline	Warrensburg/ St. Louis	Rolla/ AR stateline	Springfield/ AR stateline	Poplar Bluff/ St. Louis
Distance *(miles)*	195	245	215	220	130	55	150
One-way trips per day *(round trip = 2)*	2	2	2	2	2	2	2
Annual one-way trips	730	730	730	730	730	730	730
Total annual bus miles	142350	178850	156950	160600	94900	40150	109500
Costs							
Cost per mile	$4.00	$4.00	$4.00	$4.00	$4.00	$4.00	$4.00
Annual operating cost	$569,400	$715,400	$627,800	$642,400	$379,600	$160,600	$438,000
Potential new stops	2	2	4	3	2	1	2
Cost of new stops*	0	0	$13,500	$13,500	0	0	0
Annual marketing cost *(per route)*	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Cost offset for route integration	0	0	0	-$500	0	0	0
Total cost	$619,400	$765,400	$691,300	$705,400	$429,600	$210,600	$488,000
Revenues							
Ticket revenue *(per passenger mile)*	$0.10	$0.10	$0.10	$0.10	$0.10	$0.10	$0.10
Ticket revenue *(per passenger)*	$19.50	$24.50	$21.50	$22.00	$13.00	$5.50	$15.00
Bus capacity	55	55	55	55	55	55	55
Load factor	25%	25%	25%	25%	25%	25%	25%
Average total passengers	14	14	14	14	14	14	14
Total annual route revenue	$195,731.25	$245,918.75	$215,806.25	$220,825.00	$130,487.50	$55,206.25	$150,562.50
Subsidy							
Annual revenue vs. cost *(per route)*	($423,668.75)	($519,481.25)	($475,493.75)	($484,575.00)	($299,112.50)	($155,393.75)	($337,437.50)

**New stops only impact total cost if they are full-service, stand-alone depots or stations. No additional cost for limited-service stops (gas stations, restaurants).*