



**Limited Feasibility Study  
For Intercity Bus Service  
Connecting Amtrak Rail Service in Montana  
To Salt Lake City and Denver**

**RAIL TRANSIT AND PLANNING DIVISION**

**MONTANA DEPARTMENT OF TRANSPORTATION**

**November 2011**

## CONTENTS

PURPOSE.....	4
OVERVIEW .....	4
STUDY AREA.....	4
METHODOLOGY .....	5
BACKGROUND.....	5
National Intercity Travel Modes.....	5
Intercity Bus Travel Trends.....	6
Models Of Emerging Intercity Bus Service .....	7
Greyhound.....	7
Megabus .....	7
BoltBus.....	8
MONTANA INTERCITY Travel.....	9
Montana Intercity Bus Service .....	10
Current Montana Intercity Providers.....	10
scheduled bus service .....	11
Mileage and Travel Time Per mode.....	13
OPTIONS for AMTRAK CONNECTIVITY SERVICE.....	14
Traditional motor coach – Status quo .....	15
Executive Scale Service .....	15
Shuttle van.....	16
Operating Cost Assumptions, Calculation .....	16
Cost per trip .....	16
Projecting Travel Demand.....	17
FINDINGS .....	17
References .....	19
appendix a .....	20

## Table of Figures

Table 1 Percent travel mode chosen based on trip distance.....	5
Table 2 Rimrock operating expenses.....	11
Table 3 rimrock state fiscal year 2010 costs.....	11
Table 4 Whitefish - salt lake bus service.....	12
Table 5 shelby - denver bus service.....	12
Table 6 other montana intercity bus service .....	12
Table 7 state fiscal year 2011 ridership whitefish – salt lake.....	12
Table 8 mileage and travel time per mode whitefish to salt lake.....	13
Table 9 mileage and travel time per mode shelby to denver .....	13
Table 10 travel time and cost per mode whitefish - salt lake .....	14
Table 11 travel time and cost per mode shelby - Denver .....	14
Table 12 cost per trip.....	16
Table 13 ticket price at capacity.....	17
Table 14 ticket price at 50 percent load .....	17
Table 15 ticket price at 25 percent load .....	17

# **Limited Feasibility Study For Intercity Bus Service Connecting Amtrak Rail Service in Montana To Salt Lake City and Denver**

## **PURPOSE**

The purpose of this limited feasibility study is to assess the economic viability and potential demand for connecting bus service with Amtrak passenger rail routes. The study examines the feasibility of bus routes that connect Empire Builder passenger service in Montana with Amtrak service in Salt Lake City, Utah and Denver, Colo. via bus. Three modes of bus service have been selected to demonstrate cost points for selection by the consumer.

## **OVERVIEW**

Travelling within Montana, choices vary but are limited. While private vehicles are the predominate mode of travel, intrastate public transportation between Montana cities is available via air service and existing intercity bus service. Amtrak operates passenger train routes between Chicago and Seattle or Portland, to include the Empire Builder which currently serves passengers along Montana's northern border.

Montana accommodates interstate travel via auto, air, rail, and bus. Air service exists from major airlines to-from transportation hubs outside of Montana including Seattle, Salt Lake City, Minneapolis, and Denver.

Pertinent to our study corridors, existing interstate bus service does connect from Whitefish and Shelby to Salt Lake City and Denver. Ridership on these routes mirrors the declining national trend of traditional intercity bus service whereby selection of public transit is declining in communities of all population sizes, but has seen an accelerated loss of interest among rural communities of all sizes. (National Household Survey, 2009)

## **STUDY AREA**

The primary focus area of this study is connecting northern Montana cities via intercity bus service to-from the Amtrak Empire Builder in Montana along highways that connect Montana to Salt Lake City and Denver. While literally hundreds of origins-and-destinations can be studied for feasible commercial operation, for the purposes of this study the route from Whitefish through Butte to Salt Lake City, and the route from Shelby through Butte and Billings to Denver were examined.

Butte was selected as the intersection of the study routes because it is coincident with two interstates (I-15 and I-90) and would allow passengers to transfer from one route to the other. See Appendix A for route map.

## METHODOLOGY

The scope of this study is limited to the review of existing literature and studies, along with analyzing existing reports and information from service providers who report to the MDT under 5311(f) grant requirements. Review focused on three areas: national trends in intercity bus service, existing intercity bus service in Montana, and the cost assessment of operating routes at three levels of service (motor coach, executive coach, and shuttle).

Not considered in this study are feeder routes (or city pair) that would connect smaller Montana communities to the main corridors of travel from Whitefish and Shelby to Salt Lake City and Denver. In the absence of this mainline service, city pairs connecting to these corridors are inconsequential.

## BACKGROUND

### NATIONAL INTERCITY TRAVEL MODES

Trip distance and travel time are pivotal considerations for mode selection. As these factors increase, travelers turn to modes that offer economies of scale (air) or greater traveler freedom (auto), and they are willing to spend more for these perceived luxuries. In this section, travel mode selection by distance is discussed.

For several decades, personal highway vehicle travel has been the primary travel mode of choice. (Bureau of Transportation Statistics (b) 2009) However, the likelihood of air travel increases with trip distance. Though personal vehicle travel continues to make up 90 percent of leisure trips and 80 percent of business trips, air travel takes over as the most popular mode of choice in trips over 500 miles. Air travel makes up 74 percent of trips in the 500-749 mile range, and 90 percent of trips over 1500 miles. (Bureau of Transportation Statistics (b), 2009)

TABLE 1 PERCENT TRAVEL MODE CHOSEN BASED ON TRIP DISTANCE

Trip Distance : Percent Selection by Mode				
		250 mi	500 mi	1000 mi
Travel Mode	Auto	88%	41%	2%
	Air	9%	56%	98%
	Rail	0.32%	0.14%	*
	Bus	3%	2%	*

As seen in Table 1, auto dominates leisure travel at an average intercity trip length of 244 miles at 88 percent of mode share, while air captures nine percent, bus captures three percent and rail captures 0.32 percent of leisure mode share. At 500 miles, air captures 56 percent of mode share, auto captures 41 percent, bus captures 2 percent, and rail captures 0.14 percent. At a trip length of 1,000 miles, captures 98 percent of leisure mode share. (National Household Travel Survey, 2009)

Across all income levels, driving is the primary mode for travel. Households with incomes greater than \$75,000 drive fewer miles. Households with incomes below \$25,000 take more trips by bus. (Bureau of Transportation Statistics, 2009)

Business travelers place a higher value on time, leading them to choose air more frequently than leisure travelers. Scheduled domestic enplanements totaled more than 618 million in 2009. (Bureau of Transportation Statistics, 2009) and of all public transportation modes, 85 percent of passengers use air travel for business purposes, 43 percent use air travel for personal business, and 69 percent use air travel for leisure purposes. (Bureau of Transportation Statistics, (b) 2009) Despite the economic downturn, rising fuel prices and other concerns, the FAA projects that commercial airlines will fly 1 billion passengers per year by 2023. This is a 40 percent increase over 2009. (FAA, 2011)

The School of Public and Environmental Affairs at Indiana University conducted a study to explore the future of intercity passenger transportation in the United States. The report forecasts the share of travel that will be completed in 2060 by four modes of transportation – air, auto, bus, and rail. (The Future of Intercity Passenger Travel, 2011) and predicts mode share in 2060 to remain similar to that in 2009.

The study model projected a mode share shift from air to auto for 500 mile trips from 45 percent auto to 75 percent auto. Large relative increases in fuel efficiency for automobile relative to air account for this shift. The model forecasts only small shifts in mode share at short (less than 250 miles) and long (greater than 1,000 miles) distances with auto continuing to dominate at short distances and air continuing to dominate at long distances.

### **INTERCITY BUS TRAVEL TRENDS**

Since the 1960s, intercity bus service and ridership have been declining as travel by personal vehicle and commercial airline has grown. From 1980 through 2002 scheduled intercity bus service declined 4 percent annually. From 2002 to 2006 the decline was 10 percent annually. (Schwieterman, 2008)

However, this ridership trend turned around starting in 2006 attributed mainly to the emergence of curbside intercity bus service and its analogous benefits. (Higgins, Warner, Morgan, & Dunham, 2011) Curbside intercity bus service is generally non-stop thereby decreasing traditional bus travel time. Providers offer low prices and amenities; roomier seating, power outlets, and wireless internet service attract riders. Providers seek to reduce operating costs by selling tickets online (eliminating cost of on-site ticket agents), and they generally do not own terminals (eliminating costs associated with facilities).

Because of these factors, intercity bus has been the fastest-growing mode of intercity travel from 2007 through 2010. (Schwieterman, 2010) Demonstrative statistics show that scheduled intercity bus service in the United States increased by 8 percent in 2006 - 2007 and by nearly 10 percent from 2007 to 2008. Curbside changes from traditional intercity bus service are attracting new riders, including professionals, leisure travelers, and inducing travel.

Previous trends in ridership demographics over the last several decades seem consistent. Regular-route intercity bus riders are likely to be between 12 and 24 years old or over 60 years old and are

likely to have lower household incomes. College students, recent immigrants, military personnel, and recently released prisoners are among the largest intercity bus markets; people with the means to choose other modes of intercity travel generally do not ride a bus. (Higgins, Warner, Morgan, & Dunham, 2011)

The emerging curbside providers are attracting a new traveler demographic. For example, 60 to 70 percent of Megabus business is large “destination” cities with heavy tourism and leisure focus. Fifty percent of riders are college students and young professionals between 18 and 30 years old, with the majority of trips being for leisure rather than business. The second-highest demographic is women between 30 and 55 years old traveling into cities on weekends, and the third-highest is senior citizens looking for low-price leisure trips on weekdays. (Higgins, Warner, Morgan, & Dunham, 2011)

Selection of leisure bus service across demographics is primarily to and from origins and destinations with well-established intracity transit services connecting to hotels, restaurants, shopping and other attractions. Rural communities rarely have this combination of travel service and amenities.

### **MODELS OF EMERGING INTERCITY BUS SERVICE**

The success of the curbside bus industry is influencing the more traditional intercity carriers, such as Greyhound, prompting vehicle upgrades and streamlining routes for quicker, more upscale service. Growth in intercity bus travel is mainly due to express intercity bus services like Megabus and BoltBus, discussed in detail below. The following excerpt of services is from *Examining Long-Distance Express Buses as an Extension of and Feeder to Passenger Rail Systems*.

#### **GREYHOUND**

*Greyhound has taken cues from the passenger rail and airline industries to better serve an evolving travel market. Most tickets for Greyhound buses are purchased by passengers from local ticket agents at the point of departure. However, online sales now account for 30 percent of all ticket sales, and Greyhound’s website is becoming an increasingly important marketing tool. In addition, the company is testing on-site ticketing kiosks at some of its stops. The recent fleet upgrades, the shift to urban-to-urban limited-stop routes, and new intermodal terminals are helping to fuel an increase in Greyhound’s ridership after years of decline. The increased difficulty and inconvenience of air travel is also contributing to a mode shift for intercity travel.*

#### **MEGABUS**

*Megabus is an express bus service owned by Coach USA and founded in 2006. Its service is modeled on the curbside Chinatown buses, but is designed to appeal to a wider demographic with more comfortable vehicles, onboard amenities, and online ticketing.*

*The company’s 120 vehicles are 80-passenger double-decker buses with reclining seats, seatbelts, power outlets, and Wi-Fi. Megabus runs express line-haul service from hubs in New York City, Philadelphia, Chicago, Toronto, and Washington, D.C., to over*

40 cities. Routes range in length from two to eight hours. The most popular routes tend to be between four and eight hours long, including New York to Boston, New York to Washington, D.C., Chicago to Detroit, and Chicago to Indianapolis. Some of the highest-ridership routes are also the longest, such as New York to Toronto, Philadelphia to Toronto, and Chicago to Minneapolis. Megabus attributes the popularity of these four-to-eight-hour bus routes to a combination of onboard comfort and amenities, convenience and price compared to driving or flying between these cities, and an increasing interest in environmentally friendly transportation options.

Shorter routes have no stops between the end-point cities, to minimize travel time. Some of the longer routes incorporate an intermediate stop between the endpoint cities, which is strategically located on the route to incorporate a rest stop for the driver and an additional boarding/disembarking point.

Megabus selects its stop locations within cities carefully, knowing that passengers prefer to arrive and depart from city centers with easy access to other public transit services and/or within walking distance of hotels, restaurants, shopping, and other attractions. Stops are located in safe, highly visible locations that are close to intermodal connections.

Ticket prices are yield managed, with early-purchase pricing beginning at \$1 and progressing through tiers of \$5, \$8, and \$12 seats depending on the particular route and schedule. As the day of departure approaches and/or a bus fills, ticket prices increase. To spread out passenger loads, more discounted seats are available on off-peak trips and days. Trips on Tuesdays through Thursdays tend to be lower priced than weekend schedules. Passenger loads average 50 to 60 percent on Tuesdays through Thursdays and nearly 100 percent Fridays through Mondays, for an overall average of 85 percent.

### **BOLTBUS**

BoltBus was founded in 2008 as a joint venture between Greyhound and Peter Pan bus lines. Like Megabus, its hub-and-spoke express intercity service is modeled on the curbside bus industry. The company operates 80 buses on line-haul routes from a hub in New York City running to Washington, D.C.; Cherry Hill, New Jersey; Philadelphia, Pennsylvania; Boston, Massachusetts; and Baltimore and Greenbelt, Maryland.

Most of the routes are non-stop to the major destination cities; the shortest route, between New York and Philadelphia, is approximately 100 miles long, and the longest, from New York to Washington, D.C., is 230 miles. Travel times on the routes vary from two hours to seven or eight, depending on traffic. About one-third of BoltBus' service operates out of transit terminals (South Station in Boston and Union Station in Washington, D.C.); the rest is curbside. Because approximately 50 percent of BoltBus' riders connect to or from other transit modes, intermodal connections are important to the company's business. For that reason, stop locations are selected with those connections in mind.



*Several of BoltBus' ticketing procedures are copied from Southwest Airlines. Among these is the concept of boarding groups—each ticket sold has a unique boarding number that determines the order in which passengers board at a given stop. These boarding numbers result in an orderly queue at the bus stop (unlike the “mad rush” that often characterizes curbside bus boarding), assists the company in tracking ridership numbers, prevents a rider from accidentally boarding the wrong bus, and helps to prevent ticket fraud. Ticket pricing also resembles the budget-airline industry, with tickets priced to demand; the lowest prices are available to the earliest purchasers, up to a maximum fare that is capped at a level that is still value priced compared with other travel modes in the area.*

*Passenger load factors on BoltBus routes average 60 to 70 percent during the week, and 95 to 100 percent on weekends and holidays, for an average load of 85 percent. The break-even load is 27 to 28 riders per bus, which is about a 50 percent load; so far, none of the routes that have been introduced have failed to meet this minimum ridership level.*

*While business travel is a significant market, leisure travel accounts for a large share of ridership, as evidenced by the large number of riders on BoltBus' weekend routes.*

*The company's business has expanded rapidly during its first 2.5 years, with 400 to 500 percent growth from 2008 to 2009, and another 40 percent from 2009 to 2010. Market analysis has shown that many of the trips on BoltBus are optional trips that riders would not otherwise have taken. BoltBus has successfully positioned itself within a competitive travel market that includes passenger rail and regional air carriers as well as other transit providers. Convenience, onboard amenities, and pricing appear to be driving that success.*

## **MONTANA INTERCITY TRAVEL**

The Western Transportation Institute (WTI) conducted a study for the Montana Department of Transportation (MDT) to provide a current assessment of Montana intercity bus services. This study also provided a methodology that can be used to determine if intercity bus services needs are being met adequately and if not, a process to identify potential new routes/services.

Of particular interest are the results of surveys conducted with the general public in Montana summarized as follows:

A survey of riders in Montana provided the following major findings:

- Riders of intercity bus service were most often using the service to visit family or friends.
- The majority (65%) of all riders surveyed were at least somewhat satisfied with the level of information available about intercity bus service. Similarly, 69% of Montana residents were satisfied or somewhat satisfied with the available routes of intercity bus service.
- Over 70% of Montana residents were at least somewhat satisfied with the frequency of intercity bus services.

- The three leading factors that lead to intercity bus service use were reported to be lack of access to a vehicle, cost of the service, and gas prices.
- Household income distribution showed that over 50% of all respondents were from a household income of less than \$15,000 per year.

The phone survey of Montanans had the following major findings:

- Over 80% of all respondents traveled over 50 miles to their most visited larger cities and 66% of respondents traveled over 100 miles. The most common travel distance was between 100-199 miles and this was more prevalent for those residing in communities without intercity bus service.
- Billings, Missoula, Bozeman, Great Falls, and Helena are the cities the respondents most often visited. Respondents more frequently identified Hamilton, Browning, Stevensville, and Havre as cities that needed intercity bus service services.
- Respondents stated they were much more likely to use intercity bus service when traveling alone than with friends or family.
- 70% of respondents from the phone survey indicated that they would be likely or highly likely to ride intercity bus services, while 70% of respondents felt that the need for intercity bus travel in Montana were not being met.
- Two factors identified as likely increasing the use of intercity bus were more conveniently located bus stations and more available information.
- More than half of the respondents were “unlikely” or “highly unlikely” to use intercity bus for a trip of any duration. Thirty-seven percent of respondents were “likely” or “highly likely” to use intercity bus for a trip of one hour or less, which was the trip duration with the highest likelihood of use.

Respondents in the WTI survey were asked to identify any communities they felt needed intercity bus services. The most common communities named were Hamilton (7%), Browning (5%), Stevensville (5%), and Havre (4%). Communities that had at least three percent of the responses include Anaconda, Conrad, Cut Bank, Eureka, Florence, Lewiston, Lolo and Wolf Point.

### **MONTANA INTERCITY BUS SERVICE**

Montana’s major population areas are currently connected through intercity bus service, though connection from more rural areas to these population centers is limited. Community (intracity) transit services in the state have grown significantly under the last transportation funding bill SAFETEA-LU, and ARRA legislation. Service providers have increased from 12 in 2005 (9 rural and 3 urban) to 43 in 2011 (40 rural and 3 urban) due to a national transit focus and funding allocation. Note that SAFETEA-LU is operating in continuing resolution. In the absence of long-term funding, public transit resource planning and expansion of service should be approached cautiously.

### **CURRENT MONTANA INTERCITY PROVIDERS**

In Montana, Rimrock Trailways is the primary intercity bus operator. Rimrock provides scheduled service across Montana with connections to other providers. Those providers include Greyhound, Salt Lake Express, Arrow/Black Hills Stage Lines, North Central Transit, and Northern Transit

Interlocal. Since Rimrock is the primary intercity operator in Montana their operation is the main focus for the purposes of this study.

Rimrock operates at a significant loss and is subsidized by the Montana Department of Transportation 5311(f) funds and Rimrock’s other business lines as show in table 2. An overview of the 5311(f) funding can be found here:

[http://www.mdt.mt.gov/publications/docs/forms/transit/5311\\_overview.pdf](http://www.mdt.mt.gov/publications/docs/forms/transit/5311_overview.pdf).

TABLE 2 RIMROCK OPERATING EXPENSES

Rimrock Operating Expenses	
Operating, administrative and maintenance costs	\$2,098,972
Fares	\$1,194,925
<b>Operating Loss</b>	<b>\$904,047</b>
5311(f) funding	\$300,000
Subsidization from package express, charter and maintenance	\$604,047
Subsidies	\$904,407

Formative to the above reported losses, Rimrock provides its costs as show in table 3.

TABLE 3 RIMROCK STATE FISCAL YEAR 2010 COSTS

Rimrock SFY 2010 Service	
Cost per mile	\$2.43
Revenue per mile	\$1.39
Net operating deficit per mile	\$1.05
Cost per ride	\$45.32
Rides per day	128
Rides per mile	.05
Average load	12
Passenger trip length	218

Any commercial operation for intercity service in the state must take into account current service and level of reported profitability.

**SCHEDULED BUS SERVICE**

Specifically, intercity transit service is available in Montana from Whitefish to Salt Lake City and from Shelby to Denver through current providers. These routes and corresponding transit service providers are outlined in the tables that follow.

TABLE 4 WHITEFISH - SALT LAKE BUS SERVICE

WHITEFISH - SALT LAKE CITY		
Route	Provider	Trips per day
Whitefish - Missoula via US 93	Rimrock	one round
Missoula - Billings via I-90	Rimrock	two round
Missoula - Billings via Helena	Rimrock	one round
Great Falls - Butte	Rimrock	one round
Butte - Salt Lake City via Idaho Falls	Salt Lake Express	two round

TABLE 5 SHELBY - DENVER BUS SERVICE

SHELBY - DENVER		
Route	Provider	Trips per day
Shelby - Great Falls	Northern Transit Interlocal	two round Mondays and Thursdays
Great Falls - Butte	Rimrock	one round
Missoula - Billings via I-90	Rimrock	two round
Missoula - Billings via Helena	Rimrock	one round
Billings - Denver one through Lovell, Wyo. and one through Sheridan, Wyo.	Arrow/Black Hills Stage Lines	two round

TABLE 6 OTHER MONTANA INTERCITY BUS SERVICE

OTHER INTERCITY SERVICE		
Route	Provider	Trips per day
Missoula - Seattle	Greyhound	two round
Fort Belknap - Great Falls via Havre	North Central Transit	Tuesdays and Thursdays
Shelby - Kalispell	Northern Transit Interlocal	Tuesday and Wednesday

### RIDERSHIP STATE FISCAL YEAR 2011

For the routes discussed above, another important data point gleaned from the existing providers is ridership (current demand for service). The following table details ridership for common routes currently available in Montana.

TABLE 7 STATE FISCAL YEAR 2011 RIDERSHIP WHITEFISH - SALT LAKE

RIDERSHIP, SFY 2011		
Route	Provider	Ridership
Whitefish - Missoula via US 93	Rimrock	5,589
Missoula - Billings via I-90	Rimrock	19,171
Great Falls - Butte	Rimrock	11,290
Butte - Salt Lake City via Idaho Falls	Salt Lake Express	24,147
Shelby - Great Falls	Northern Transit Interlocal	4,231
Billings - Denver	Arrow/Black Hills Stage	—

### MILEAGE AND TRAVEL TIME

Since travel time and distance are such significant factors in mode selection, the following table represents these factors for later discussion regarding the two study corridors. First represented is Whitefish to Salt Lake City, then Shelby to Denver.

TABLE 8 MILEAGE AND TRAVEL TIME PER MODE WHITEFISH TO SALT LAKE

MILEAGE AND TRAVEL TIME PER MODE				
Whitefish to Salt Lake City				
	Travel Time			
	Mileage	Auto	Bus	Air
Starting at Whitefish	*	*	*	*
Whitefish to Kalispell	14	21 minutes		
Kalispell to Missoula	129	2 hours 1 minute		
Missoula to Butte	120	1 hour 49 minutes		
Butte to Dillon	65	1 hour 5 minutes		
Dillon to Idaho Falls	148	2 hours 6 minutes		
Idaho Falls to Pocatello	51	50 minutes		
Pocatello to Salt Lake City	165	2 hours 3 minutes		
<b>Total time</b>	<b>692</b>	<b>9 hours 44 minutes</b>	<b>25 hours, 50 min</b>	<b>1.5 hours</b>

TABLE 9 MILEAGE AND TRAVEL TIME PER MODE SHELBY TO DENVER

Mileage and Travel Time Per Mode				
Shelby to Denver				
	Travel Time			
	Mileage	Auto	Bus	Air
Starting at Shelby	*	*	*	From Great Falls
Shelby to Great Falls	88	1 hour 21 minutes		
Great Falls to Helena	89	1 hour 25 minutes		
Helena to Butte	63	1 hour 3 minutes		
Butte to Bozeman	82	1 hour 21 minutes		
Bozeman to Billings	142	2 hours 7 minutes		
Billings to Casper	278	4 hours 3 minutes		
Casper to Cheyenne	178	2 hours 42 minutes		
Cheyenne to Denver	102	1 hour 36 minutes		
<b>Total time</b>	<b>1022</b>	<b>12 hours 33 minutes</b>	<b>26 hours, 45 min</b>	<b>4 hours</b>

### COST COMPARISON BY MODE

Given the travel time and distances, travel cost(s) by mode can be calculated using common assumptions for price of fuel, fuel economy, etc. The following tables represent this calculation of cost for each of the study corridors.

TABLE 10 TRAVEL TIME AND COST PER MODE WHITEFISH - SALT LAKE

Whitefish to Salt Lake City		
Mode	Travel Time	Travel Cost
Auto	10.5	\$110
Air	1.5	\$460
Bus	25.75	\$176

TABLE 11 TRAVEL TIME AND COST PER MODE SHELBY - DENVER

Shelby to Denver		
Mode	Travel Time	Travel Cost
Auto	15.5	\$172
Air	4	\$350*
Bus	26.75	\$138
* Air travel requires a Great Falls, MT origination, +1.5 hour auto travel req'd		

Auto travel fuel cost was calculated at \$3.50 per gallon at 22 miles per gallon fuel economy. This is in line with AAA estimated costs to operate a vehicle.

As shown in tables 10 and 11 the cost to drive a personal vehicle from Whitefish to Salt Lake City is estimated to be \$110, and takes 10.5 hours. The same trip by air cost \$460 hours and takes 1.5 hours. The trip from Shelby to Denver by personal vehicle is estimated to cost \$172 for fuel and take 15.5 hours. By air, the trip would cost an average of \$350 and take 4 hours, plus a 1.5 hour connecting drive to Great Falls. The estimated bus travel time would be expected to be longer than that of personal vehicle by several hours. Any commercial intercity transit service must consider these price points and resultant cost comparison when competing with other common travel modes.

### OPTIONS FOR AMTRAK CONNECTIVITY SERVICE

In this section three possible intercity bus service options to connect Amtrak routes are reviewed; motor coach (traditional), executive (luxury), and shuttle (smaller-capacity, traditional). For the sake of comparison, different vehicles on the market are listed.

### TRADITIONAL MOTOR COACH – STATUS QUO

The current service being provided is generally by traditional motor coach. Listed on busforsale.com, the 2008 MCI D4505: “CAT 8464” has a cost of \$299,000. This bus seats 55.



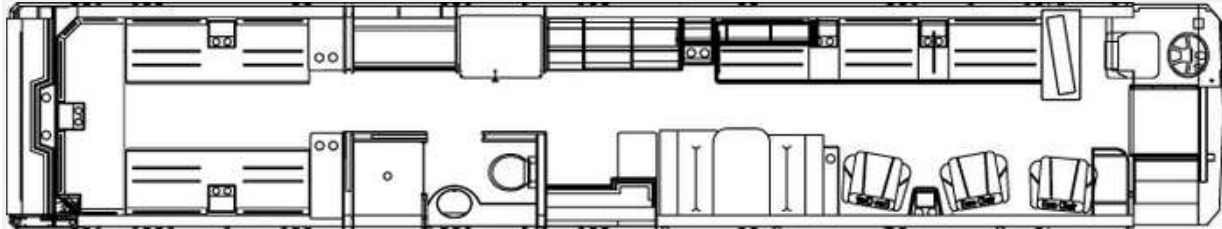
Because this service is the same as currently available, no changes in demand or costs are anticipated.

### EXECUTIVE SCALE SERVICE

On the upper end of bus travel, this 2008 Prevost H3-45: “Wolfpack” provides business class amenities and room. The cost of this bus on [www.busforsale.com](http://www.busforsale.com) is \$735,000 and seats 20.



### FLOOR PLAN:





## SHUTTLE VAN

This 2008 STALLION Sunliner SLC 38 seats 38 at a cost of \$169,000 on [www.busesonline.com](http://www.busesonline.com).



### OPERATING COST ASSUMPTIONS, CALCULATION

For these listed options, capital and operating costs vary greatly depending on location, service model, and amenities. There is no clear industry unit cost value used. For the purpose of this analysis, values from Karst Stages national survey will be used with the average cost per mile to operate a motor coach of \$5, and fuel mileage per coach averaging 5.8 miles per gallon.

Based on this and an average per gallon price of diesel of \$4, the following table shows a projected cost per trip for the two study corridors.

TABLE 12 COST PER TRIP

COST PER TRIP		
	Whitefish to Salt Lake	Shelby to Denver
Miles	692	1022
Fuel cost	\$477	\$705
Operating costs	\$3,460	\$5,110
<b>Cost per one-way trip</b>	<b>\$4,629</b>	<b>\$5,815</b>
<b>Cost per mile</b>	<b>\$6.69</b>	<b>\$5.69</b>



## PROJECTING TRAVEL DEMAND

Determining demand and price elasticity of demand is beyond the scope of this study. However, estimating break-even ticket pricing at different loading rates provides a point of comparison for the cost of each level of bus service and other modes of travel.

TABLE 13 TICKET PRICE AT CAPACITY

100 PERCENT LOAD FACTOR			
		Break even cost per one-way trip Whitefish - SLC	Break even cost per one-way trip Shelby - Denver
<b>Capacity</b>		\$4,629	\$5,815
Motor coach	55	\$84.16	\$105.73
Executive	20	\$231.45	\$290.75
Shuttle	38	\$121.82	\$153.03

TABLE 14 TICKET PRICE AT 50 PERCENT LOAD

50 PERCENT LOAD FACTOR			
		Break even cost per one-way trip Whitefish - SLC	Break even cost per one-way trip Shelby - Denver
<b>50 % capacity</b>		\$4,629	\$5,815
Motor coach	28	\$168.33	\$211.45
Executive	10	\$462.90	\$581.50
Shuttle	19	\$243.63	\$306.05

TABLE 15 TICKET PRICE AT 25 PERCENT LOAD

25 PERCENT LOAD FACTOR			
		Break even cost per one-way trip Whitefish - SLC	Break even cost per one-way trip Shelby - Denver
<b>Capacity</b>		\$4,629	\$5,815
Motor coach		\$330.64	\$415.36
Executive		\$925.80	\$1,163.00
Shuttle		\$487.26	\$612.11

## FINDINGS

Distance is always at the heart of travel issues in Montana. Those with the economic means to use a personal vehicle overwhelmingly choose to do so. According to national research, as travel distances exceed 500 miles, travelers choose air over other modes due to convenience and time savings. It is not likely that intercity bus travel would be so significantly cost competitive in Montana that those who can afford another means of travel would choose to travel by bus.

Looking to the future, the current prediction for mode share in 2060 is to remain similar to that in 2009. The exception is a shift of more choosing auto up to the distance of 500 miles rather than air. Connecting Amtrak by bus or personal vehicle between Whitefish and Salt Lake City and Shelby and Denver are trips of almost 700 miles and over 1,000 miles. There is little consideration by travelers at this distance to modeshift to bus or train.

More than half of the respondents to the Montana-specific survey conducted by WTI were “unlikely” or “highly unlikely” to use intercity bus service for a trip of any duration. Thirty-seven percent of respondents were “likely” or “highly likely” to use intercity bus service for a trip of one hour or less, which was the trip duration with the highest likelihood of use.

Additionally, the survey of riders in Montana provided the following findings:

- The three leading factors that lead to intercity bus service use were reported to be lack of access to a vehicle, cost of the service, and gas prices.
- Household income distribution showed that over 50 percent of all respondents were from a household income of less than \$15,000 per year.

Currently there are intercity bus service options that provide transportation from Whitefish to Salt Lake City and Shelby to Denver. This service is provided by combining a number of different providers. While Rimrock currently is the main intercity transit provider in the state, it operates this service at a significant loss and is heavily-subsidized by MDT 5311(f) funds and Rimrock’s other business lines.

Nationally, growth in demand for intercity bus service has been spurred by “curbside” or express providers. Commercial providers responded to market demand by determining destinations and market needs, then met the needs by paying attention to the details. Service was not spurred, implemented, and then demand created for the service. Montana would be well served if current providers looked at elements contributing to the success of curbside providers such as Megabus and Bolt.

## REFERENCES

- Bureau of Transportation Statistics (a), 2009,  
[http://www.bts.gov/programs/national\\_household\\_travel\\_survey/long\\_distance\\_business\\_travel.html](http://www.bts.gov/programs/national_household_travel_survey/long_distance_business_travel.html)
- Bureau of Transportation Statistics (b). 2009.  
[http://www.bts.gov/programs/national\\_household\\_travel\\_survey/long\\_distance.html](http://www.bts.gov/programs/national_household_travel_survey/long_distance.html)
- Federal Aviation Administration. Fact Sheet. 2010.  
[http://www.faa.gov/news/fact\\_sheets/news\\_story.cfm?newsId=10457](http://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=10457)
- Higgins, L., Warner, J., Morgan, C., & Dunham, P. (2011, March). Examining Long-Distance Express Buses as an Extension of and Feeder to Passenger Rail Systems. Pp. 11,13, 20, 21
- The Future of Intercity Passenger Transportation. (2011, May 23). School of Public and Environmental Affairs Indiana University.
- Mattson, J., Peterson, D., Thoms, W., Ripplinger, D., & Hough, J. (2011, May). Assessing Demand for Rural Intercity Transportation in a changing Environment.
- Schwieterman, J., & Fischer, L. (2010, December 12). The Intercity Bus: America's Fastest Growing Transportation Mode 2010 Update on Scheduled Bus Service.
- Schwieterman, J., (2008, November 24). Update on Intercity Bus Service: Summary of Annual Change.
- Summary of Travel Trends 2009 National Household Travel Survey. US Department of Transportation Federal Highway Administration. p22. <http://nhts.ornl.gov/2009/pub/stt.pdf>. Accessed 10/14/2011
- Summary of Travel Trends 2010 National Household Travel Survey. US Department of Transportation Federal Highway Administration.
- Ye, Z., Kack, David., Chaudhari J., Ewan, L. (2011, November). Montana Intercity Bus Service Study.

## APPENDIX A