Breckenridge, CO

2009 Transit Plan

Prepared for

TOWN OF BRECKENRIDGE

TRANSPORTATION CONSULTANTS, INC.

Breckenridge 2009 Transit Operations Plan

Final Report

Prepared for:

Town of Breckenridge
150 Ski Hill Road
Breckenridge, CO 80424
(970) 453-3191

Prepared by:

LSC Transportation Consultants, Inc.
516 North Tejon Street
Colorado Springs, CO 80903
(719) 633-2868

LSC #084530

February 12, 2009

TABLE OF CONTENTS

LIST OF TABULATIONS

LIST OF ILLUSTRATIONS

Chapter I

CHAPTER I
Introduction

The Town of Breckenridge contracted with LSC Transportation Consultants, Inc. to complete an Operations Analysis for the FREE RIDE and provide recommendations with a focus on determining the needs for future service expansion and to identify efficiencies in providing those services. The overall approach to this project is to collect and evaluate available data, review service information, provide an analysis of demand, and review operational characteristics. LSC and the Town of Breckenridge have refined recommendations on how to make the system more efficient, developed new route structures and schedules, and provided information for making key decisions on future levels of service and how that service is structured both internally in terms of staffing and externally in terms of actual operations. This Final Report presents a thorough analysis of data collected as part of the survey performed in 2008, as well as a detailed analysis of existing services and the demand for fixed-route services. Additionally, the final Operations Plans have been refined and accepted by the Town Council.

ORGANIZATION OF THIS REPORT

Chapter II presents a brief overview of the unique population dynamics experienced in the area. This includes a review of the permanent resident population and seasonal guests and residents, or peak population. These significant seasonal changes in population play an important role in how service is designed and provided to both market segments.

A detailed overview and analysis of the FREE RIDE's current operating environment is provided in Chapter III. This includes ridership, financial, and structure information collected from the Town. This information is extremely important in

determining how effectively and efficiently service is provided and where deficiencies currently exist.

Chapter IV presents the onboard survey analysis based on data collected in March 2008. Chapter V presents current issues facing the Town of Breckenridge as they relate to the transportation network.

Chapter VI provides a review of transit demand for the area, including the development of a fixed-route transit demand model to be used to evaluate future route structures.

Chapter VII presents criteria for bus stops and service. These criteria can be used for selecting bus stop locations, improving existing bus stops, and evaluating requests for new service.

Service options that were analyzed are provided in Chapter VIII. These service options address many of the issues raised through public input and the evaluation of the existing service. Chapter IX describes organizational restructuring of the service provided by the Town of Breckenridge and the service provided by Breckenridge Ski Resort.

Final Winter and Summer Operations Plans are described in Chapter X. Finally, Chapter XI discusses long-range planning efforts.

CURRENT PLANNING FRAMEWORK

The reason behind this current planning effort is to evaluate the current ridership characteristics of passengers and the use of the fixed-route system, the financial standing of the system, the organization of personnel, and to identify recommendations for increased efficiencies. The Breckenridge area is a unique mountain resort town that caters to skier visitors as well as summer visitors for a variety of attractions, festivals, and other activities. The town was founded during the gold rush of the 1800s and has since experienced development based on tourism. The second-home nature of the community and daily skier visits—the peak population of the town—far outweighs the number who live and work there full time. Seasonal

employment also creates a unique setting for the area, as part-time workers flood to the area to work the ski slopes, work in dining and lodging establishments, drive buses, and plow roads.

The Town operates a free fixed-route bus service in the area. The fixed-route service operates six year-round routes and four additional seasonal routes. The route structure currently operates in a hub-and-spoke fashion from the Breckenridge Station, the transfer station at the base of the new gondola. The Breckenridge Station transfer facility is where passengers can make convenient transfers between routes and to the gondola and the Summit Stage system, as well as other private shuttles and the Breckenridge Ski Area system. The service has been in operation since 1997, and in May 2001, the Town began operation of a hub-and-spoke system with new routes and schedules, known as FREE RIDE. Ridership on the fixed-route service has increased over the past five years, with annual one-way trips ranging from 294,000 to 550,000.

Total operating costs approach nearly $1.7 million annually. Revenues are provided through a variety of sources. The Town receives Federal Transit Administration (FTA) Section 5309 funding for capital needs, FTA Section 5311 funding for operations, and contract services. However, the majority of funding comes from local general funds.

A key factor in the planning process was to identify the geographical and level of service gaps now and in the long term. A key aspect examined through this planning process was the development of evaluation criteria for new services. In recent years there has been an increasing number of requests for fixed-route services. The Town has struggled with providing the appropriate responses to residents' requests for services. The Planning Team developed an evaluation tool to be used by local planners and decision makers that will aid in responding to these requests. This evaluation tool will allow local planners to respond to service

needs by evaluating the potential for ridership, whether service can feasibly be provided using current or future street networks, and the cost of providing service. This tool will be a critical part of the process as it will enable the consultant and local representatives to plan for appropriate future services.

Chapter II

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CHAPTER II

Community Conditions

INTRODUCTION

The purpose of this chapter is to provide the Town of Breckenridge Transit Division with community conditions as they pertain to transit service for permanent and seasonal populations. In a resort community such as Breckenridge, perhaps the greatest issue facing the local transit service is the ability to provide an adequate level of service that will meet the needs of the extreme changes in population during the ski season, which increases the population of the town by over ten times the number of permanent residents.

Using US Census information, population data gathered by the Town of Breckenridge, and ridership data gathered by FREE RIDE, the analysis from this chapter will be used to help FREE RIDE maximize service between the massive population increase created by the ski season and the quaint mountain village atmosphere that exists during the non-peak season.

PERMANENT POPULATION

According to the Town of Breckenridge Comprehensive Plan of 2008, the permanent resident population of the town is 3,406. Permanent population is defined as the number of people who reside in the community on a year-round basis. Table II-1 compares Breckenridge's permanent population to other resort communities in Summit County. The table also illustrates the rapid increase in the town's permanent population growth over the past 45 years.

Table II-1
Permanent Population of Summit County Towns

TOWN	1960	1970	1980	1990	2000	2005
Breckenridge	393	548	818	1,285	2,408	2,680
Blue River	NA	8	230	440	685	814
Dillon	814	182	337	553	802	774
Frisco	316	471	1,221	1,601	2,443	2,418
Montezuma	NA	NA	NA	60	42	42
Silverthorne	NA	400	989	1,768	3,196	3,610

For transit purposes, the permanent population is the service population generally during the months of May through October with some seasonal visitors that come to Breckenridge for the many summer recreational activities that the town has to offer such as hiking, camping, cycling, fishing, kayaking, and golf. Table II-2 shows FREE RIDE passenger-trips during May through October 2007.

Table II-2
FREE RIDE Ridership May-October 2007

May	June	July	August	Sept.	Oct.	TOTAL
15,719	25,363	29,527	24,775	18,812	16,633	**130,829**

These ridership numbers represent the lowest per-month totals for the year. The highest figure for the non-peak service (July) is more than three times less than the highest figure for the peak season (January).

Projected Permanent Population Growth

The 2008 Breckenridge Comprehensive Plan presented a methodology for predicting future growth in the permanent population based on high, low, and medium growth rate percentages. The high population growth of eight percent is based on what the town experienced in the 1990s. The low growth rate of four percent is from the State Demographers Office estimate of future growth in Breckenridge. The medium rate of six percent is the Town Planner's attempt to balance out the high and low extremes. These projections have been included in this docu-

ment so that FREE RIDE will have reliable estimates on determining how the system should grow to meet these population projections presented in Table II-3.

Table II-3
Reaching Build-Out of Permanent Population (5,681)
By Different Growth Rates

Population Year	Low (4%)	Medium (6%)	High (8%)
2006	3,406	3,406	3,406
2007	3,542	3,678	3,678
2008	3,684	3,899	3,972
2009	3,831	4,133	4,290
2010	3,984	4,381	4,633
2011	4,143	4,644	5,004
2012	4,309	4,923	5,404
2013	4,481	5,218	5,836*
2014	4,660	5,531	
2015	4,868	5863*	
2016	5,040		
2017	5,242		
2018	5452		
2019	5,670		
2020	5,897*		

* Projected permanent population of 5,705 attained

SEASONAL POPULATION

The population of Breckenridge fluctuates throughout the year due to the resort industry which operates different activities year-round. However, the main fluctuation occurs during the months of December through March when ski season occurs. According to the Town of Breckenridge Comprehensive Plan, peak population is the total number of people who are in the town at one time, including residents, second homeowners, day visitors, day skiers, along with an assumed

100 percent occupancy of all lodging units. Peak population is a very important number for the transit service because service requirements are based on the actual number of people in town at any one time. Table II-4 shows the projected increase in peak population according to the comprehensive plan.

Table II-4
Breckenridge Peak Population Projections
(Based on Medium Growth Rate of 6%)

Year	Peak Population
2006	36,157
2007	37,047
2008	37,937
2009	38,828
2010	39,718
2011	40,608
2012	41,498
2013	42,388
2014	43,279
2015	44,169

This table is important to the transit service in that it provides a good estimation of seasonal population increase for the next nine years. Table II-5 provides ridership figures for FREE RIDE during the peak season (December through March).

Table II-5
FREE RIDE Ridership December-April 2007

December	January	February	March	TOTAL
81,576	98,108	86,574	96544	362,802

The total number of passengers in the four months of the peak season is approximately 2.75 times the number during the six months of the non-peak season.

Table II-6 provides ridership figures for FREE RIDE during the shoulder season (April and November). The shoulder season includes the month before the peak season begins (November) and the month after the end of the peak season (April). These two months do not have the high ridership of the peak season months, but do have substantially more than the non-peak months. For this reason they have been designated separately.

Table II-6
FREE RIDE Ridership - April and November

April	November	TOTAL
45,544	33,528	79,072

MAJOR ACTIVITY CENTERS

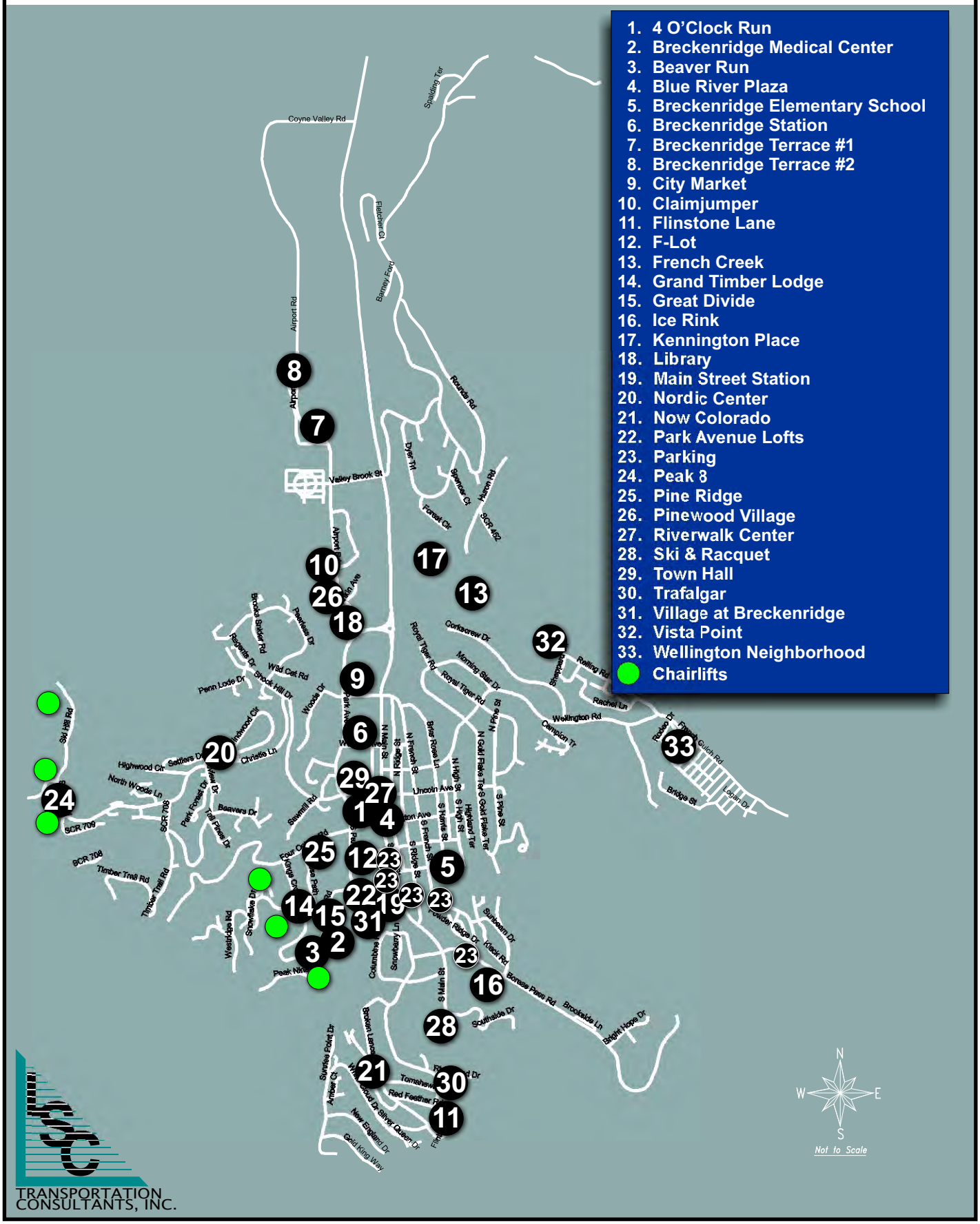
Major activity centers are clusters of points of interest. They are important in terms of land use, trip generation rates, and their ability to be served by public transit. Figure II-1 presents the major activity centers for the Breckenridge study area.

CONCLUSION

From the planning work performed by the Town of Breckenridge it is quite apparent that the Breckenridge population—both permanent and seasonal—will continue to grow. The information in this chapter assisted the LSC Team and FREE RIDE in developing a transit system plan that will be able to grow with the community.

Figure II-1

Transit Activity Centers



Chapter III

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CHAPTER III

Evaluation of Breckenridge Transit

INTRODUCTION

This chapter provides an overview of Breckenridge Transit. Breckenridge Transit is provided by the Town of Breckenridge. The Breckenridge Transit office, storage, and maintenance facility are located at 1105 Airport Road within the public works facility in Breckenridge. The Town of Breckenridge operates a free fixed-route transit system within the town limits and to the ski area.

DESCRIPTION OF TRANSPORTATION SERVICES

The Town of Breckenridge offers transportation in the town's commercial core, bed base, and recreation area. The Town has operated this transit system since 1997. In May 2001, the Town of Breckenridge began operation of a hub-and-spoke system with new routes and schedules known as "Breckenridge FREE RIDE."

Breckenridge's FREE RIDE Transit System has six year-round routes and three seasonal routes serving historic Main and Ridge Streets, City Market, Breckenridge Station, Beaver Run Resort, and the base areas of Peaks 8 and 9 with stops in between. Local transfers can be made at the two main transfer points—Breckenridge Station and Beaver Run transfer point.

The routes operate from 6:30 a.m. to midnight, seven days a week. The six year-round routes include:

- Black Route
- Blue Route
- Brown 1 Route
- Orange 1 Route
- Yellow Route
- Purple Route (started in November 2007)

The seasonal routes operate from early November through late April. The three seasonal routes include:

- Brown 2 Route
- Orange 2 Route
- Main Street Express (not currently operated)

The ski area operates two Blue/Black Route buses, two Green Route buses, four Red Route buses, and two employee shuttle buses. Though the scheduled routes are shown on the Breckenridge FREE RIDE schedule, they are operated by the Breckenridge Ski Resort (BSR) transportation. Since these routes are not operated by the Town of Breckenridge, information about these routes is not included in the report.

Service Area

Most of the Town of Breckenridge is covered by the fixed routes. The routes run mainly along the following major roadways in town—Main Street, King's Crown Road, South Park Avenue, and North Park Avenue. The system serves all five chairlifts in town, along with the major shopping centers and medical centers. The routes for the Breckenridge FREE RIDE transit service are presented in Figure III-1.

In addition to the transportation provided by the Town of Breckenridge, the Breckenridge Ski Resort, Summit County's Summit Stage, and various private resorts provide service in the town. The Breckenridge Ski Resort, owned by Vail Resorts, provides free transit service within the Breckenridge town limits and the ski base areas. The service is provided during the ski season and is funded entirely by Vail Resorts. Service is offered from 6:30 a.m. to 5:00 p.m. during the winter. The Summit Stage also provides free fixed-route service to the surrounding areas of Copper Mountain, Keystone, and the towns of Dillon, Frisco, and Silverthorne. Bus service is provided from 6:00 a.m. to 1:45 a.m., seven days a week, 365 days a year. Also, a large number of private resorts operate their own demand-response shuttle services for their guests.

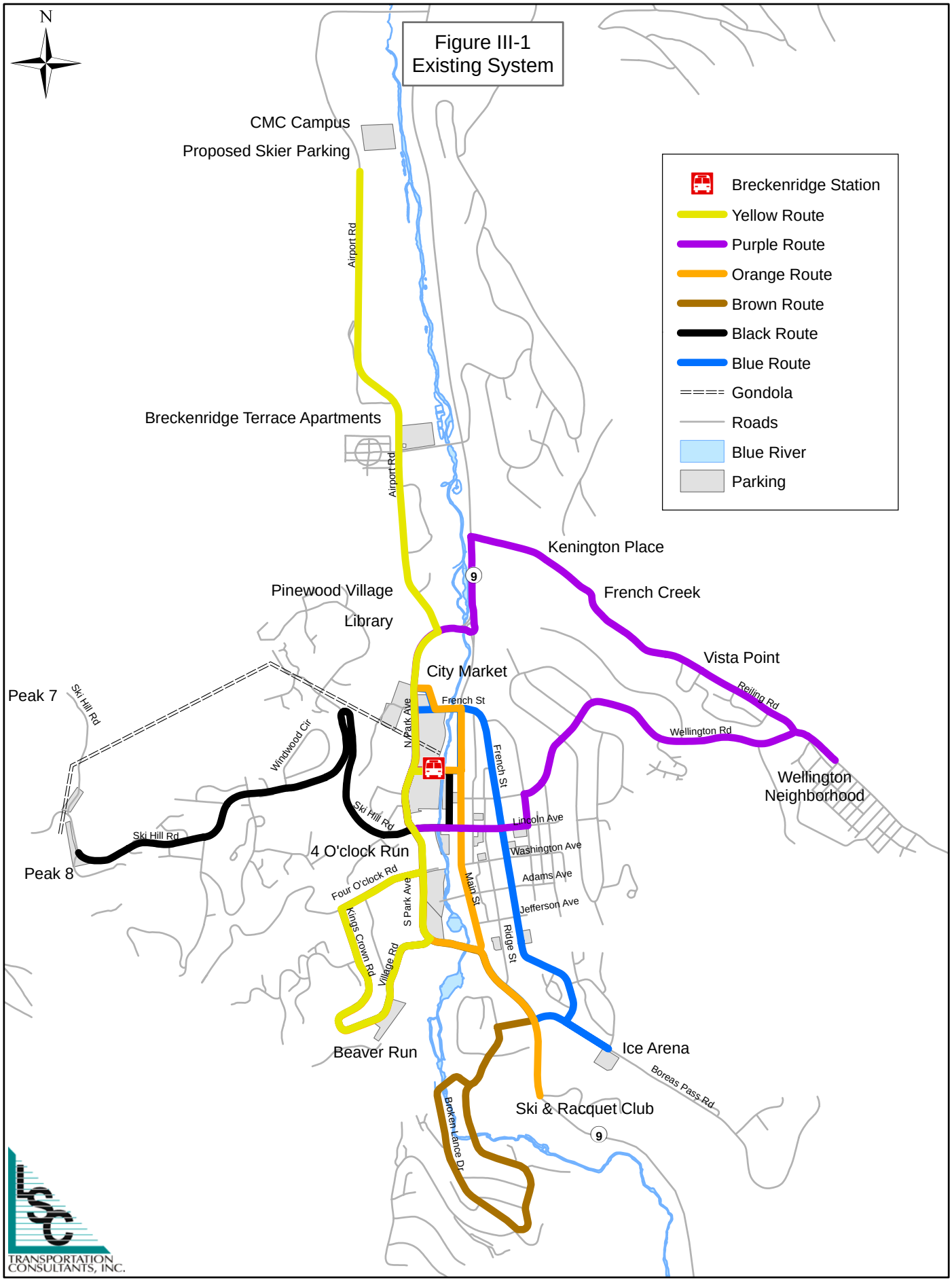


Figure III-1
Existing System
N
CMC Campus
Proposed Skier Parking
Airport Rd
Breckenridge Terrace Apartments
Airport Rd
Kenington Place
9
Pinewood Village
Library
French Creek
Vista Point
City Market
Peak 7
Ski Hill Rd
Windwood Cir
N Park Ave
French St
Relling Rd
Wellington Rd
Wellington
Neighborhood
French St
Ski Hill Rd
Ski Hill Rd
Lincoln Ave
Washington Ave
Adams Ave
Jefferson Ave
4 O'clock Run
Peak 8
Four O'clock Rd
S Park Ave
Main St
Ridge St
Kings Crown Rd
Village Rd
Beaver Run
Ice Arena
Boreas Pass Rd
Ski & Racquet Club
9
Broken Lance Dr
Breckenridge Station
Yellow Route
Purple Route
Orange Route
Brown Route
Black Route
Blue Route
Gondola
Roads
Blue River
Parking
TRANSPORTATION CONSULTANTS, INC.

Fleet and Facility Information

The agency has a current fleet of 13 vehicles. The fleet information is provided in Table III-1. The vehicles are stored in the Town of Breckenridge-owned facilities.

Table III-1
Breckenridge Transit Service Fleet

Make	Model	Year
Gillig	Hybrid	2008
Gillig	Hybrid	2008
Chevy	CC5V042	2008
Chevy	CC5V042	2008
Chevy	CC5V042	2008
World Trans	Collins	1998
Chance	LFB-29	2002
Chance	LFB-29	2002
Chance	LFB-29	2002
Optima	LFB-29	2004
Optima	LFB-29	2004
Optima	LFB-29	2004
Optima	LFB-29	2004

Source: Town of Breckenridge, 2008.

Stops and Signage

A full inventory of stops and signage is presented in Chapter VII. This includes information regarding actual stop level characteristics and signage. However, a precursory analysis of existing stops and signage done before the bus stop inventory had identified the following deficiencies:

- Stops may require more lighting in certain areas.
- Stops are difficult to see due to the small size of signage in areas.
- Stops range from heated shelters with a resort architectural design to simple steel poles with a small sign mounted.
- Some stops may be difficult to access due to snow.

Additionally, a threshold to determine when and where a stop should be located and type of stop is established in Chapter VII.

Ridership Patterns

Recent Ridership Trends

Monthly ridership for FY 2006-2007 is shown in Table III-2 and Figure III-2. December through March is the peak ridership season, with January having the highest ridership with 98,108 passenger-trips, followed by March with 96,544 passenger-trips. April and November have a comparatively lower ridership that does not fit in the peak season, hence they are grouped as "shoulder season." May through October is the off-season ridership, with July having the highest non-peak ridership with 29,527 passengers followed by June with 25,363 passengers. Please note that since the Purple Route started in November 2007, information about the Purple Route was not included in this section.

Table III-2
FY 2006-2007 Breckenridge Ridership Variation

Month- Year	Passengers
July 06	29,527
August 06	24,775
September 06	18,812
October 06	16,633
November 06	33,582
December 06	81,576
January 07	98,108
February 07	86,574
March 07	96,544
April 07	45,544
May 07	15,719
June 07	25,363

Please note that this ridership does not include the Purple Route which started on November 10, 2007.

Source: Town of Breckenridge, 2008.

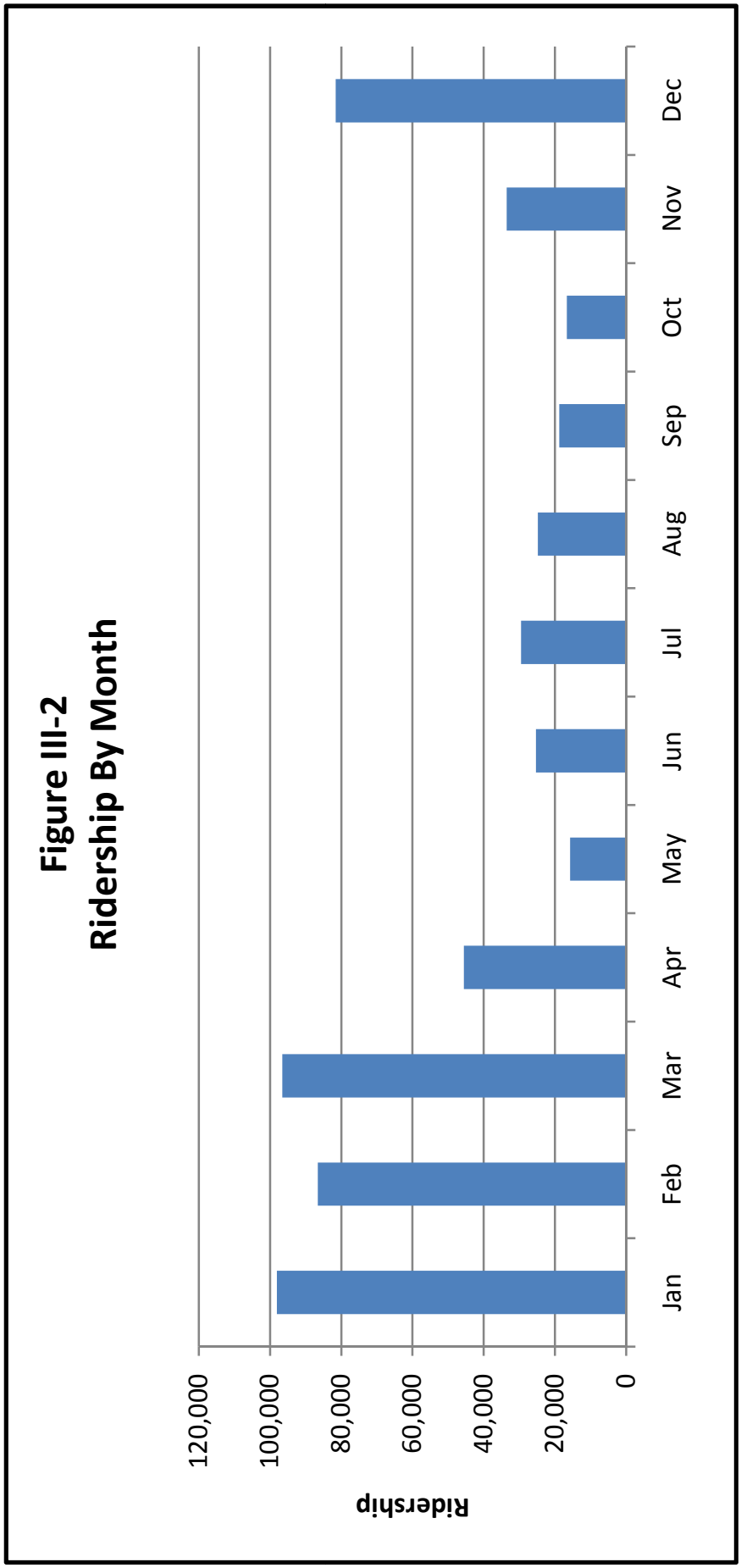


Figure III-2
Ridership By Month
Ridership
120,000
100,000
80,000
60,000
40,000
20,000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

Historical Ridership Trends

Ridership was provided for the last seven years. Figure III-3 illustrates the ridership trends since FY 2000-01. Ridership has increased over the past seven years, with annual one-way trips increasing from 294,000 to 550,000. The ridership for FY 2006-07 was 572,757 passengers.

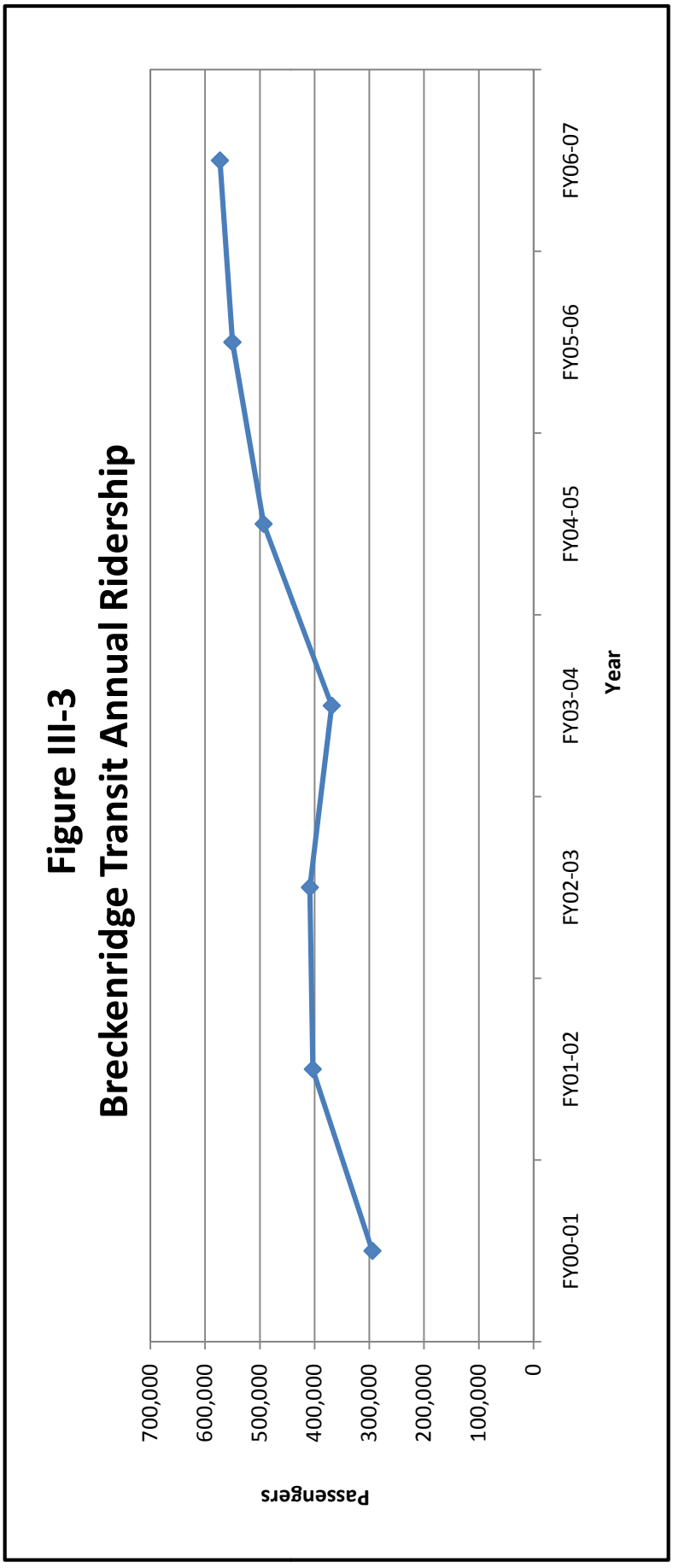
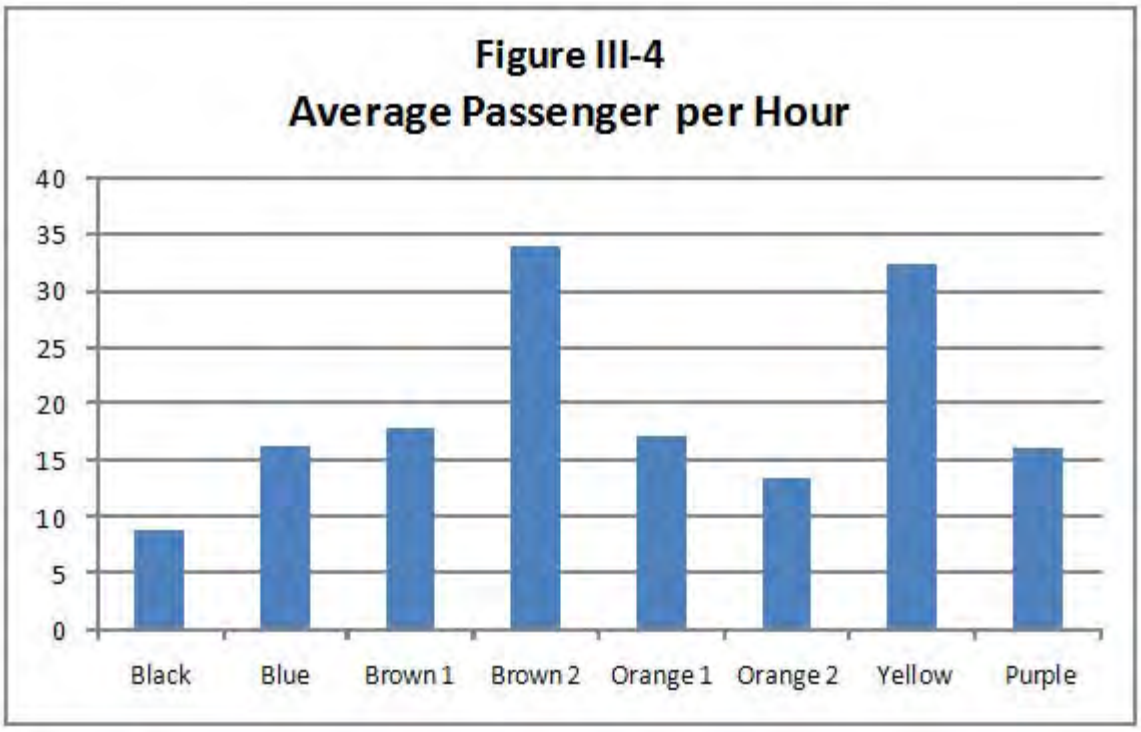


Figure III-3
Breckenridge Transit Annual Ridership
Passengers
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
FY00-01
FY01-02
FY02-03
FY03-04
FY04-05
FY05-06
FY06-07
Year

Average Passenger per Hour by Route

Since the routes operate different months of the year, the average passengers per hour for each of the Breckenridge routes is presented in Figure III-4. The Brown Route 2 (seasonal) was the most effective, carrying 34 passengers per hour. This was closely followed by the Yellow Route (year-round) with an average of 32 passengers per hour. The least effective route was the Black Route which carried nine passengers per hour. Please note that since the Purple Route started in November 2007, the average passengers per hour was based on ridership for three months from November 10, 2007 through February 10, 2008.



Ridership by Hour

The ridership by hour was displayed in three categories—peak season (December - March), non-peak season (May-October), and shoulder season (April and November)—which are illustrated in Figures III-5 through III-7. As illustrated in Figures III-5 and III-6, the peak season and shoulder season had similar ridership trends, with the peak hours between 7:00 and 9:00 a.m. and between 2:00 and 5:00 p.m. Figure III-7, which illustrates the non-peak season ridership by hour, shows a fairly even distribution of ridership with spikes in ridership observed during resident commuting hours from 7:00 to 9:00 a.m. and between 3:00 and 5:00 p.m.

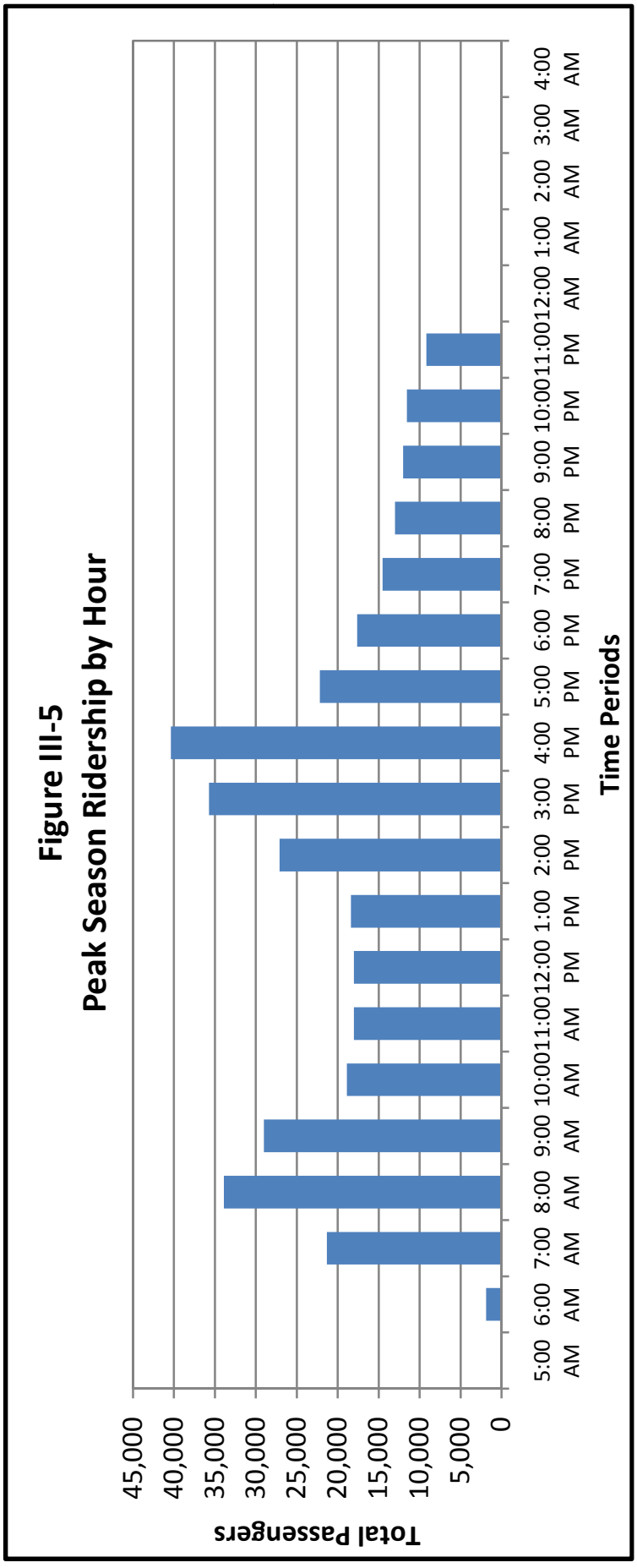


Figure III-5
Peak Season Ridership by Hour
Total Passengers
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Time Periods
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
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4:00 AM

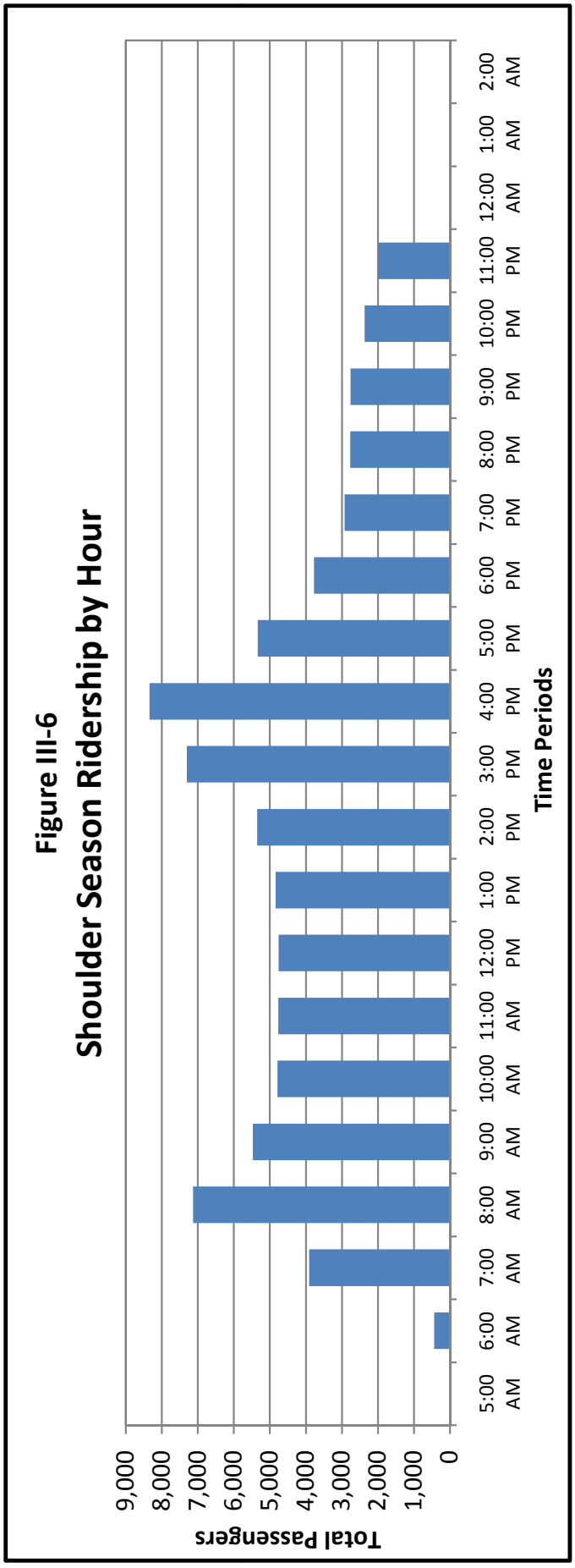
Figure III-6
Shoulder Season Ridership by Hour
Total Passengers
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Time Periods
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
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10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM

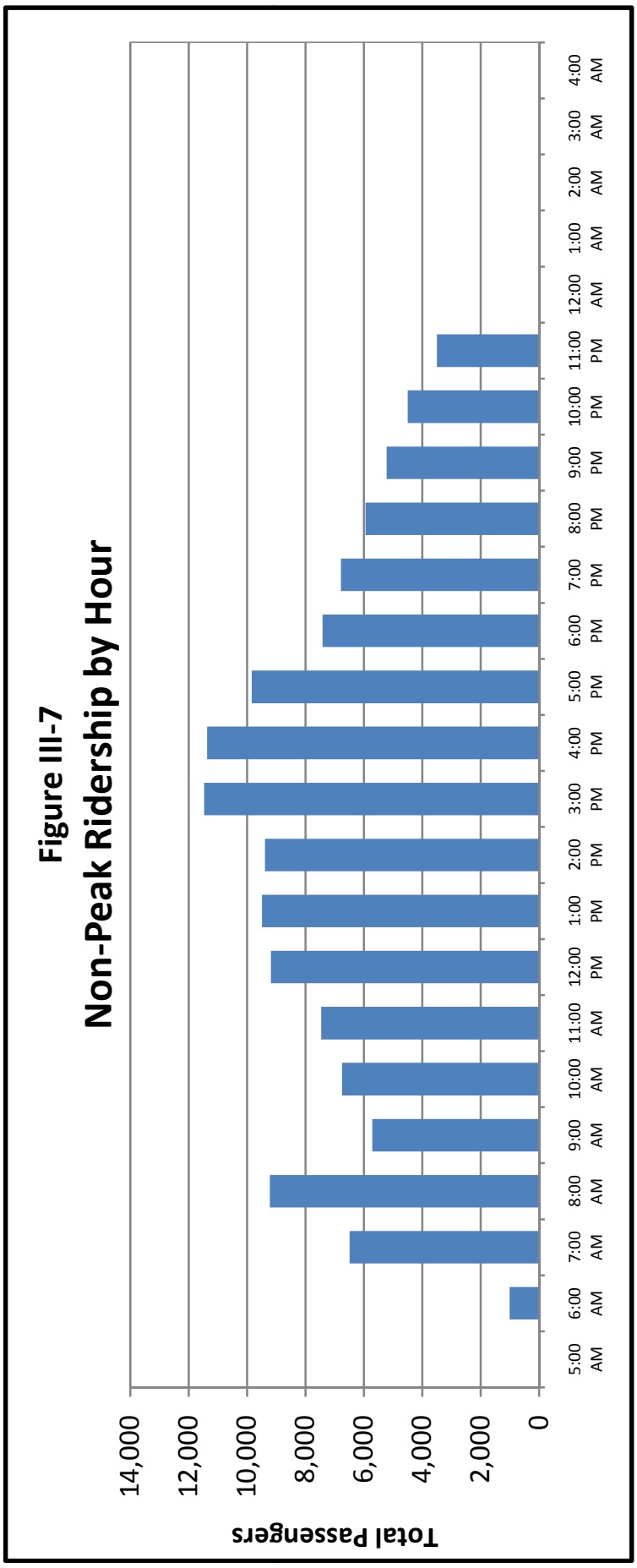
Figure III-7
Non-Peak Ridership by Hour
Total Passengers
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
5:00 AM
6:00 AM
7:00 AM
8:00 AM
9:00 AM
10:00 AM
11:00 AM
12:00 PM
1:00 PM
2:00 PM
3:00 PM
4:00 PM
5:00 PM
6:00 PM
7:00 PM
8:00 PM
9:00 PM
10:00 PM
11:00 PM
12:00 AM
1:00 AM
2:00 AM
3:00 AM
4:00 AM

Financial Status

Revenues

The revenue required to operate Breckenridge Transit comes from a variety of sources including FTA Section 5310 funding for capital needs, FTA Section 5311 funding for operations, contract services, and local general funds.

Expenses

The other half of the total equation is, of course, expenditures. Total expenditures for the 2007 fiscal year were $1,675,746. The primary expenses for Breckenridge Transit (and all other transit agencies across the United States) are salaries and benefits. Breckenridge Transit's operating costs for the 2007 fiscal year are shown in the following section which presents the cost allocation model.

Cost Allocation Model

Financial, ridership, and service information can be used to develop internal evaluation tools for Breckenridge Transit. A cost allocation model provides base information against which current operations can be judged. In addition, the model is useful for estimating the cost ramifications of any proposed service alternative. The Breckenridge Transit cost allocation model is shown in Table III-3.

Table III-3
Cost Allocation Model

FIXED-ROUTE SERVICES

PROPOSED ACCOUNT	Budget 2007	Vehicle-Hours	Vehicle-Miles	Fixed Cost
Admin. Salaries/Wages/Benefits	$281,771			$281,771
Op. Salaries/Wages/Benefits	$875,769	$875,769		
Vehicle Supplies	$497,856		$497,856	
Advertising/ Marketing	$17,500			$17,500
Office Expenses	$2,850			$2,850
TOTAL OPERATING COSTS	**$1,675,746**	**$875,769**	**$497,856**	**$302,121**
Service Variable Quantities		veh-hrs	veh-mls	Fixed-Cost
Used for Planning Purposes		28,395	246,477	Factor
		$30.84	$2.02	1.22

Source: Town of Breckenridge Transit, 2008.

Cost information from the 2007 fiscal year was used to develop a three-factor cost allocation model of the current Breckenridge Transit operations. In order to develop such a model, each cost line item is allocated to one of three service variables— hours, miles, and fixed costs. Fixed costs are those costs that are identified/defined as being constant. These costs do not increase or decrease based on the level of service. This is a valid assumption for the short term, although fixed costs could change over the long term (more than one or two years). Examples of the cost allocation methodology include allocating fuel costs to vehicle-miles and allocating operator salaries to vehicle-hours. The total costs allocated to each variable are then divided by the total quantity (i.e., total revenue-miles or hours) to determine a cost rate for each variable.

The allocation of costs for Breckenridge Transit's 2007 fiscal year operations yields the following cost equation for existing bus operations:

Total Cost = $302,121 + ($2.02 x Revenue-Miles) + ($30.84 x Revenue-Hours)

OR

Total Cost = ($2.02 x Revenue-Miles + $30.84 x Revenue-Hours)

x Fixed-cost factor (1.22)

Incremental costs such as the extension of service hours or service routes/areas are evaluated considering only the mileage and hourly costs:

Incremental Costs = ($2.02 x Revenue-Miles) + ($30.84 x Revenue-Hours)

Performance Measures

Operating effectiveness and financial efficiency of the transit system are two important factors to the success of the system. The operating effectiveness is the ability of the transit service to generate ridership. Financial efficiency is the ability of the transit system to provide service and serve passenger-trips in a cost-efficient manner. Table III-4 presents the systemwide characteristics for Breckenridge Transit's 2007 fiscal year.

Table III-4 System Performance	
Fixed-Route Services	
Breckenridge Transit	**FY 2007**
Operating Cost	$1,675,746
Ridership	572,757
Vehicle-Miles	246,477
Vehicle-Hours	28,395
Operating Effectiveness	
Pass.-Trips per Mile	2.3
Pass.-Trips per Hour	20.2
Financial Efficiency	
Cost per Pass.-Trip	$2.93
Cost per Veh.-Hour	$59.02
Source: Town of Breckenridge, LSC 2008.	

Route Performance

The route performance section presents the current passengers per hour, passengers per mile, passengers, and approximate cost per route. Table III-5 presents this information. The table also contains the cost per passenger, cost per mile, and cost per hour of service.

The most efficient routes with the lowest cost per passenger were the Brown Route 2 with a cost per passenger of $1.77, closely followed by the Yellow Route with a cost per passenger of $2.01. On the other hand, the Blue Route had the highest cost per passenger of $6.04. Thus the overall result of the operational efficiency is that the transit service operated by Breckenridge Transit operates 20.2 passengers per hour at a cost of approximately $2.93 per passenger-trip.

Table III-5

Breckenridge Transit's Route Performance

Route	Total Route Ridership	Avg. Monthly Ridership	% of Total Avg. Monthly Ridership	Total Route Hours	Pass. Per Hour	Total Route Miles	Pass. Per Mile	Cost Derived From Vehicle-Hours	Cost Derived From Vehicle-Miles	Total Route Operating Cost*	Cost Per Pass.*
Black	38,150	4,239	7.8%	2,476	15.4	22,996	1.7	$76,366.51	$46,449	$149,828	$3.93
Blue	40,196	3,350	6.1%	4,302	9.3	32,806	1.2	$132,685.27	$66,264	$242,706	$6.04
Brown 1	117,492	9,791	17.9%	6,542	18.0	57,173	2.1	$201,772.90	$115,482	$387,034	$3.29
Brown 2	24,348	6,087	11.2%	716	34.0	6,565	3.7	$22,083.37	$13,261	$43,118	$1.77
Orange 1	112,412	9,368	17.2%	6,617	17.0	42,777	2.6	$204,076.85	$86,405	$354,372	$3.15
Orange 2	6,809	2,270	4.2%	509	13.4	4,204	1.6	$15,698.93	$8,492	$29,512	$4.33
Yellow	233,350	19,446	35.6%	7,233	32.3	79,957	2.9	$223,085.20	$161,504	$469,177	$2.01
TOTAL SYSTEMWIDE	**572,757**	**54,550**	**100.0%**	**28,395**	*Average* **20.2**	**246,477**	**2.3**	**$875,769**	**$497,856**	**$1,675,746**	*Average* $2.93
Purple**	25,477	8,492	n/a	1,593	16.0	12,740	2.0				

*** Please note that the Purple Route was not added to the table because it has different months of data (Nov. 07 - Feb. 08) compared to the other routes and the additional cost to operate the service was not available.*

**Note: Taken from Cost Allocation Model.*

Total Operating *$1,675,746*

Source: Town of Breckenridge, 2008.

BOARDING COUNTS

The Town of Breckenridge records and maintains a database with the number of passengers boarding at a stop by route and date. This information was used to analyze the existing ridership and to determine the locations that have the greatest demand and those that are underused by season. Since the Town of Breckenridge has large variation in its ridership, the routes were categorized into peak season (December-March), non-peak season (May-October), and shoulder season (Aril and November). The daily average boardings by route for the system and for each route are illustrated in Figures III-8 through III-28. The average daily number of passenger boardings on the routes during the peak season was approximately 3,300; non-peak season was approximately 800 passengers; and shoulder season was approximately 1,300 passengers. Each map shows a scaled dot representing the number of passenger boardings at each bus stop along the route. Table III-6 shows the busiest stops for passenger boardings starting with the highest number of boardings by season.

- The busiest stops for passenger boardings during the peak season include Breckenridge Station, Beaver Run, Breckenridge Terrace #2, F-Lot, and Main Street Station.

- The primary passenger boardings during the non-peak season include Breckenridge Station followed by City Market, Beaver Run, Breckenridge Terrace #2, and the Blue River Plaza.

- The primary passenger boardings during the shoulder season include Breckenridge Station, Breckenridge Terrace #2, Beaver Run, F-Lot, and Main Street Station. Thus, during the peak season and shoulder season the busiest stops are focused on ski areas and parking lots, whereas during the non-peak season, the busiest stops are focused around grocery shopping, rental apartments, and other activity centers.

Table III-6
Primary Boardings on Breckenridge Transit by Season

Peak Season - Primary Boardings	Number of Boardings
Breckenridge Station	779
Beaver Run	261
Breckenridge Terrace #2	244
F-Lot	168
Main Street Station	120
Non-Peak Season - Primary Boardings	**Number of Boardings**
Breckenridge Station	235
City Market	48
Beaver Run	47
Breckenridge Terrace #2	45
Blue River Plaza	31
Shoulder Season - Primary Boardings	**Number of Boardings**
Breckenridge Station	319
Breckenridge Terrace #2	121
Beaver Run	116
F-Lot	64
Main Street Station	57

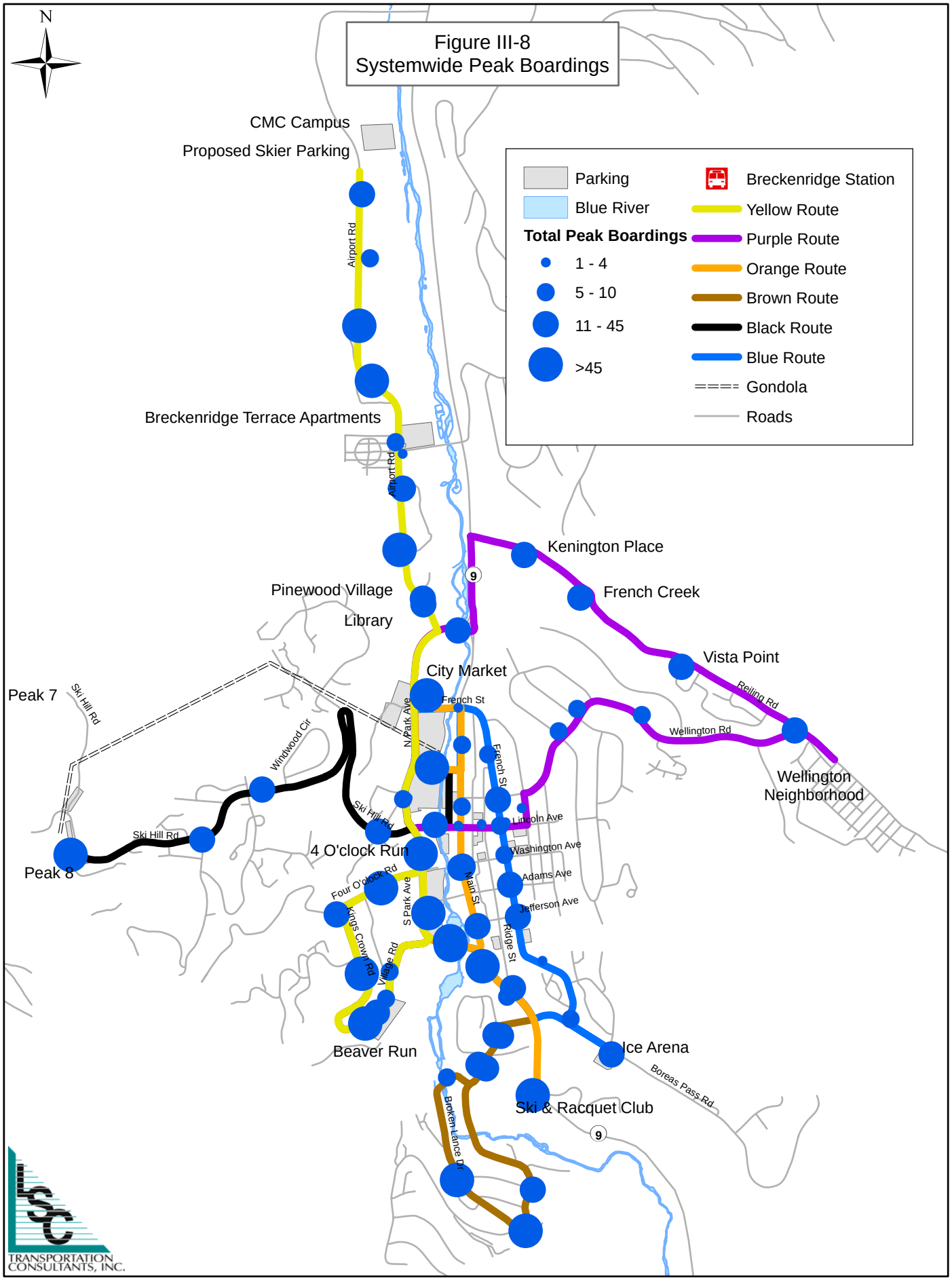
Figure III-8
Systemwide Peak Boardings
N
CMC Campus
Proposed Skier Parking
Breckenridge Terrace Apartments
Kenington Place
Pinewood Village
Library
French Creek
Vista Point
City Market
Peak 7
Peak 8
4 O'clock Run
Wellington Neighborhood
Beaver Run
Ice Arena
Ski & Racquet Club
Airport Rd
Ski Hill Rd
Windwood Cir
N Park Ave
French St
Lincoln Ave
Washington Ave
Adams Ave
Jefferson Ave
Main St
S Park Ave
Four O'clock Rd
Kings Crown Rd
Village Rd
Ridge St
Relling Rd
Wellington Rd
Boreas Pass Rd
Broken Lance Dr
9
Parking
Blue River
Total Peak Boardings
1 - 4
5 - 10
11 - 45
>45
Breckenridge Station
Yellow Route
Purple Route
Orange Route
Brown Route
Black Route
Blue Route
Gondola
Roads
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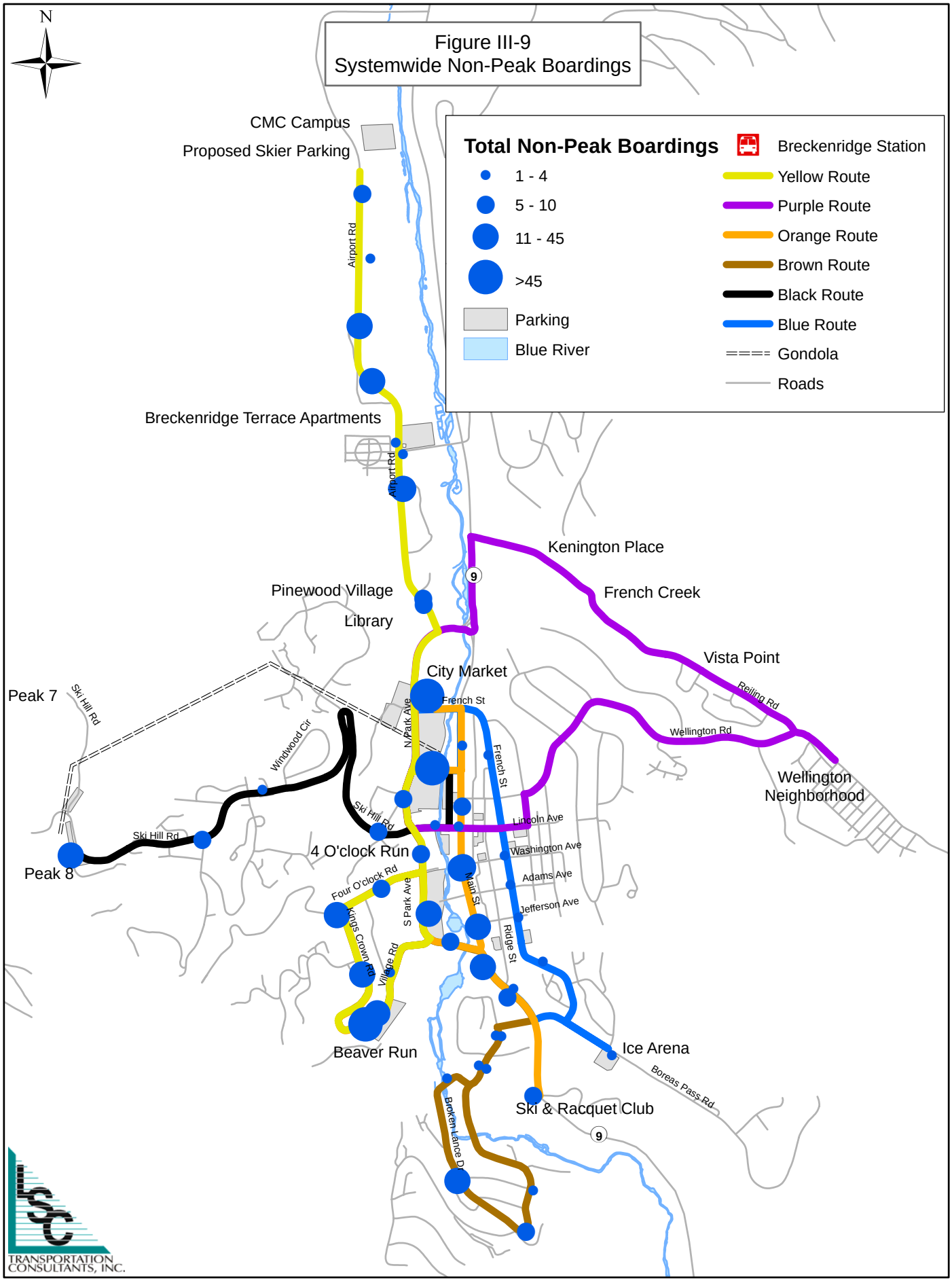
N
Figure III-9
Systemwide Non-Peak Boardings
Total Non-Peak Boardings
1 - 4
5 - 10
11 - 45
>45
Parking
Blue River
Breckenridge Station
Yellow Route
Purple Route
Orange Route
Brown Route
Black Route
Blue Route
Gondola
Roads
CMC Campus
Proposed Skier Parking
Airport Rd
Breckenridge Terrace Apartments
Kenington Place
French Creek
Pinewood Village
Library
Vista Point
City Market
Peak 7
Ski Hill Rd
Windwood Cir
N Park Ave
French St
Relling Rd
Wellington Rd
Wellington
Neighborhood
Lincoln Ave
Washington Ave
Adams Ave
Jefferson Ave
Main St
Ridge St
S Park Ave
Four O'clock Rd
Kings Crown Rd
Village Rd
4 O'clock Run
Peak 8
Beaver Run
Ice Arena
Boreas Pass Rd
Ski & Racquet Club
Broken Lance Dr
9
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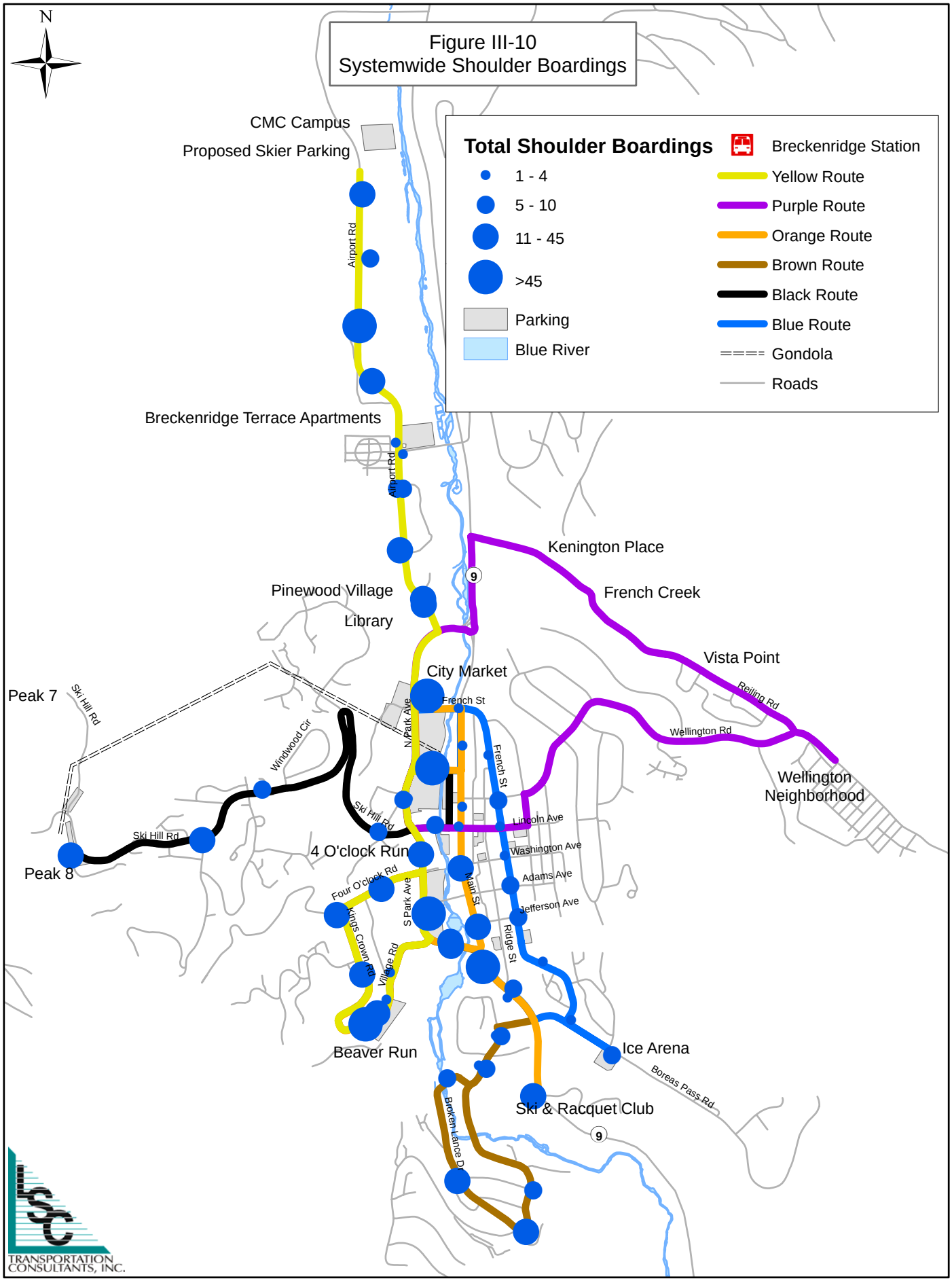
Figure III-10
Systemwide Shoulder Boardings
N
Total Shoulder Boardings
1 - 4
5 - 10
11 - 45
>45
Parking
Blue River
Breckenridge Station
Yellow Route
Purple Route
Orange Route
Brown Route
Black Route
Blue Route
Gondola
Roads
CMC Campus
Proposed Skier Parking
Airport Rd
Breckenridge Terrace Apartments
Kenington Place
French Creek
Pinewood Village
Library
Vista Point
City Market
Peak 7
Ski Hill Rd
Windwood Cir
N Park Ave
French St
Relling Rd
Wellington Rd
Wellington
Neighborhood
Lincoln Ave
Washington Ave
Adams Ave
Jefferson Ave
Ridge St
Main St
S Park Ave
Four O'clock Rd
4 O'clock Run
Peak 8
Kings Crown Rd
Village Rd
Beaver Run
Ice Arena
Boreas Pass Rd
Ski & Racquet Club
Broken Lance Dr
9
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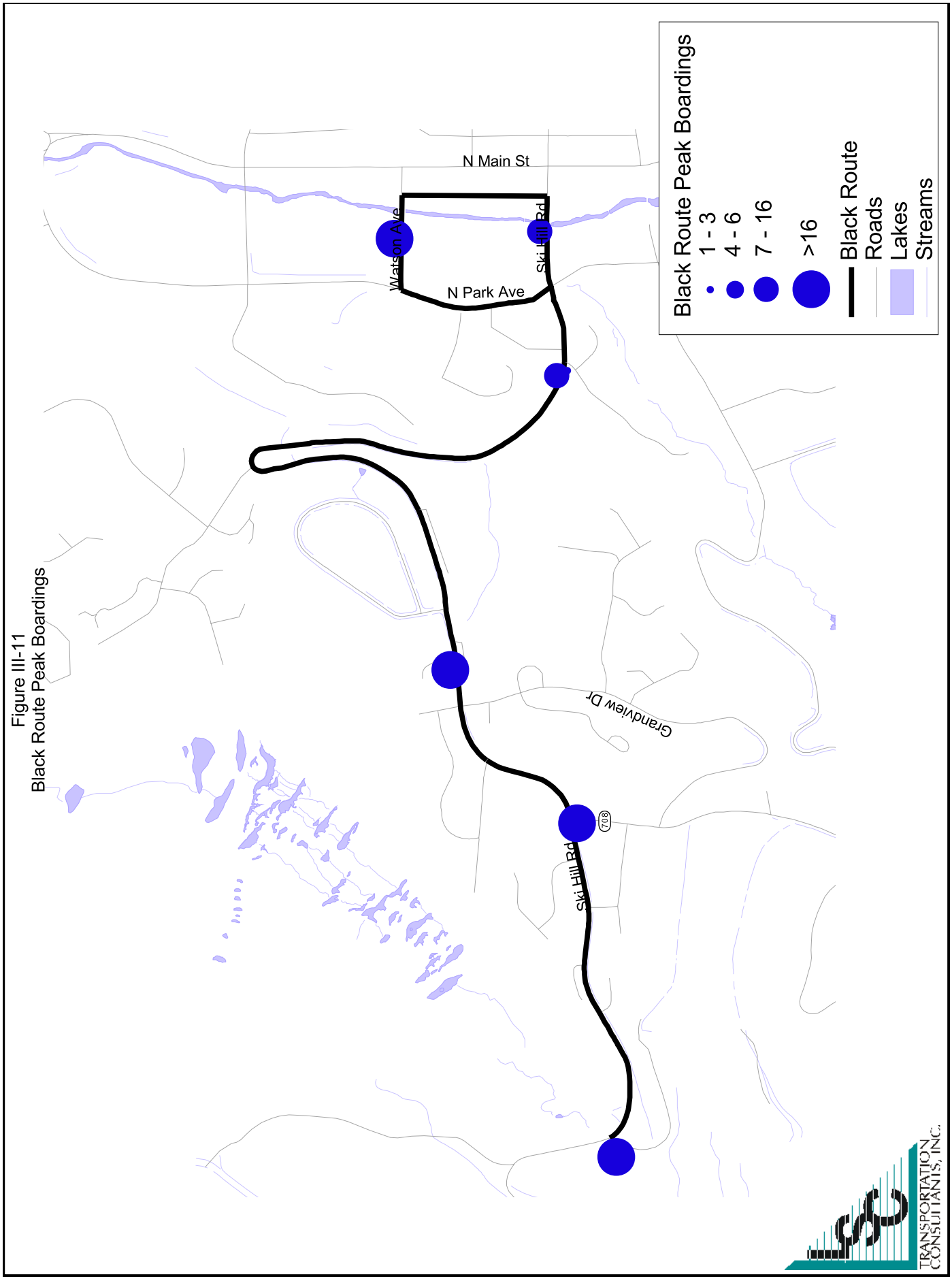

Figure III-11
Black Route Peak Boardings

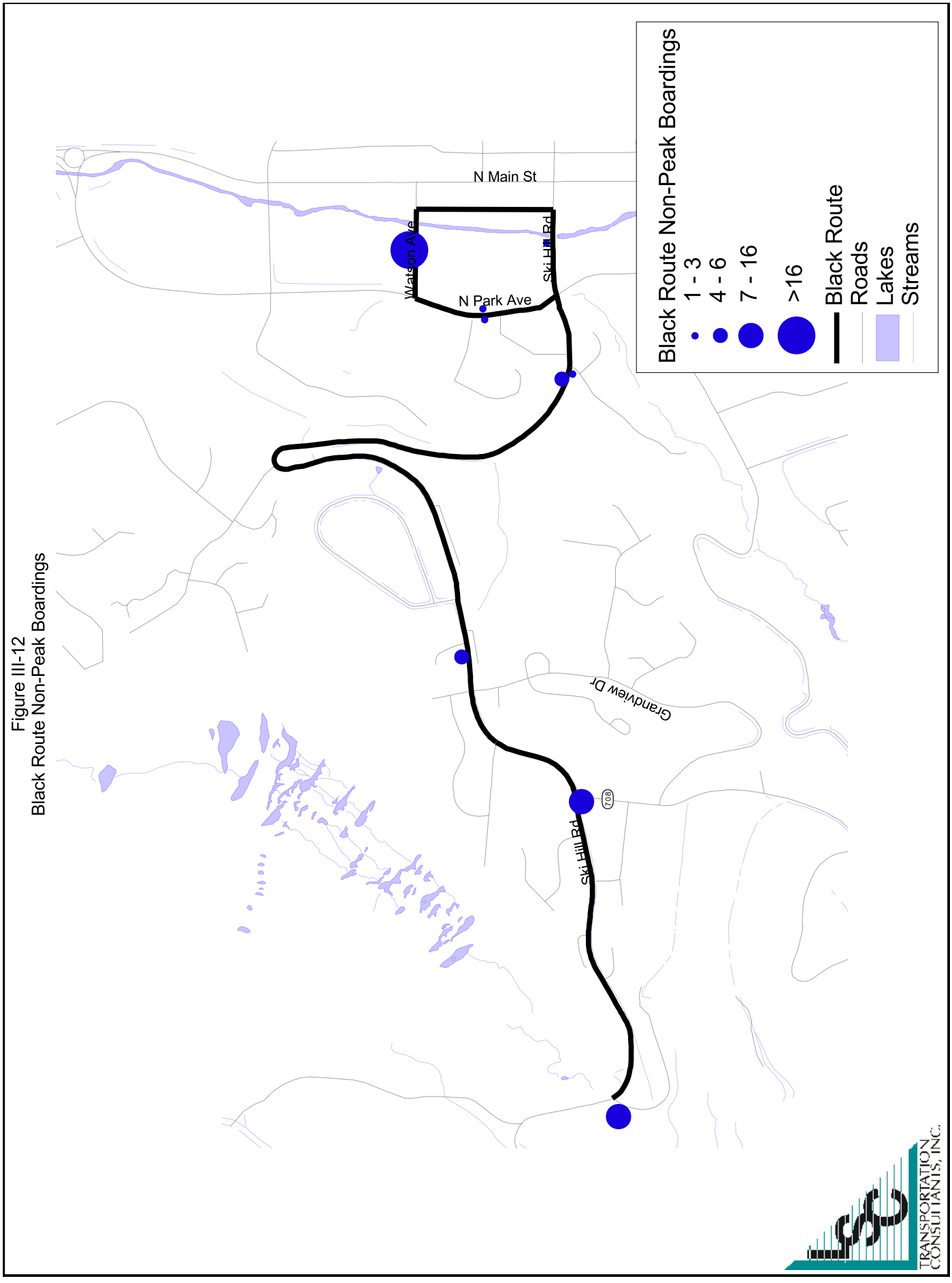

Figure III-12
Black Route Non-Peak Boardings

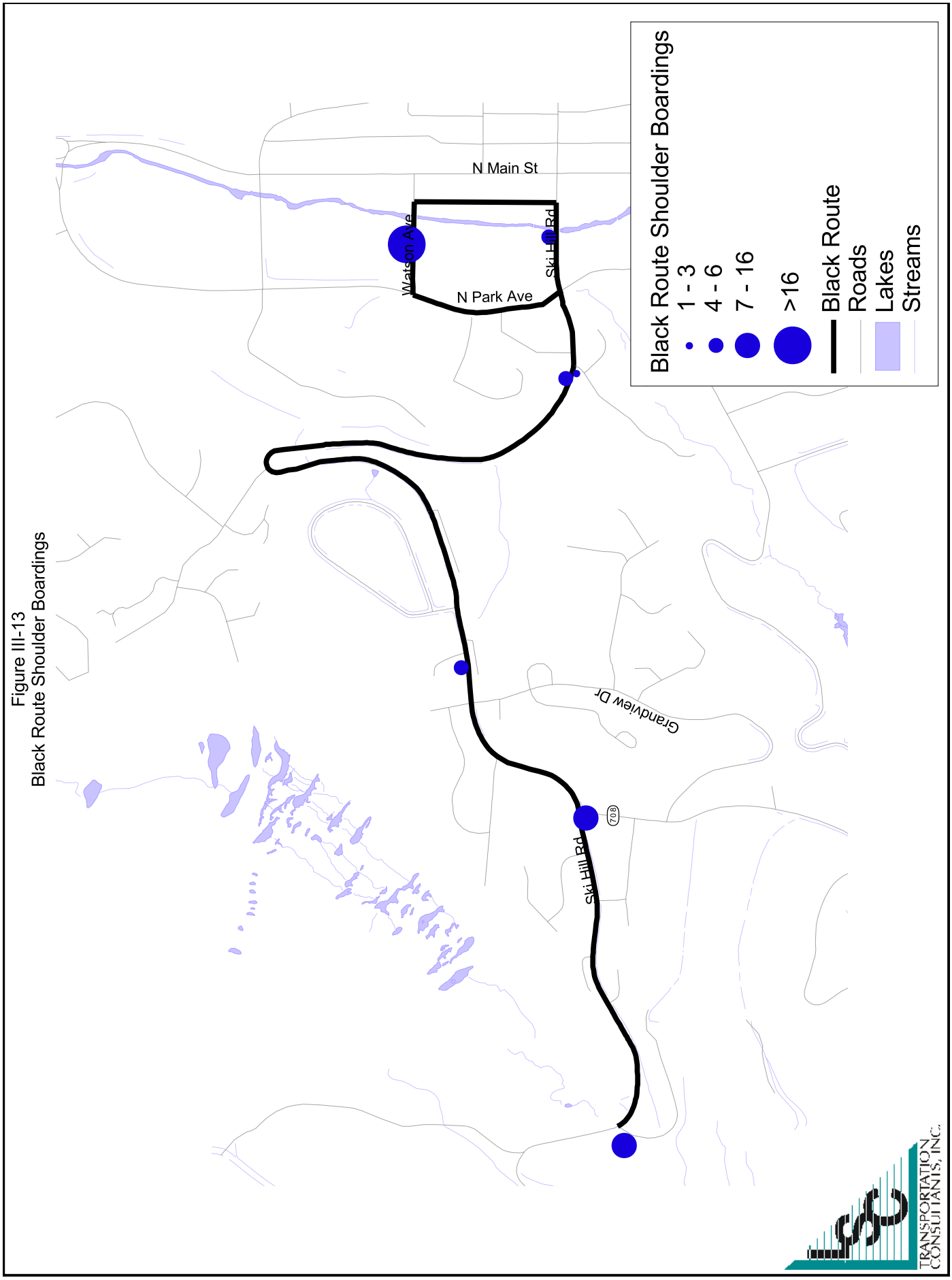

Figure III-13
Black Route Shoulder Boardings

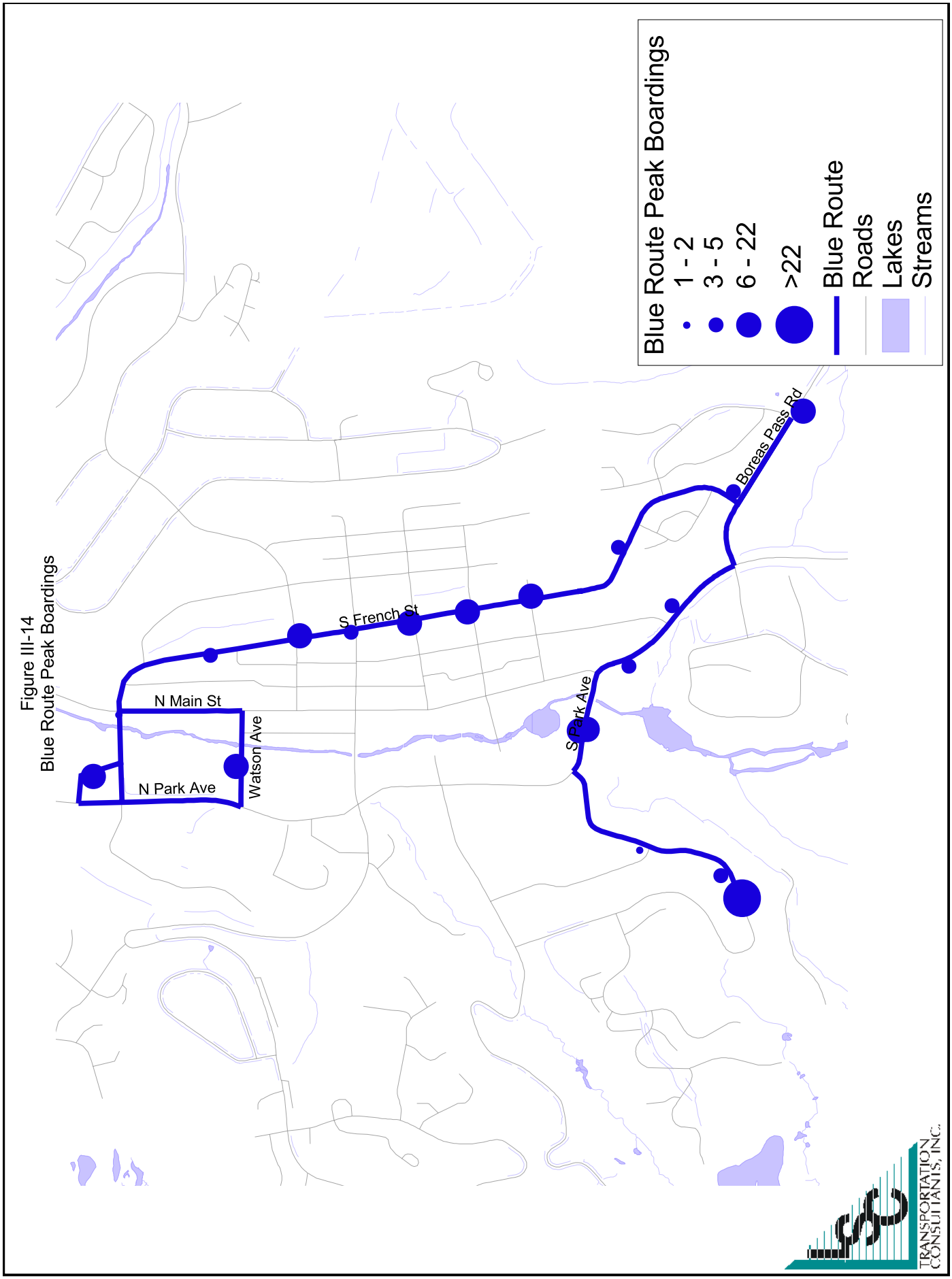

Figure III-14
Blue Route Peak Boardings

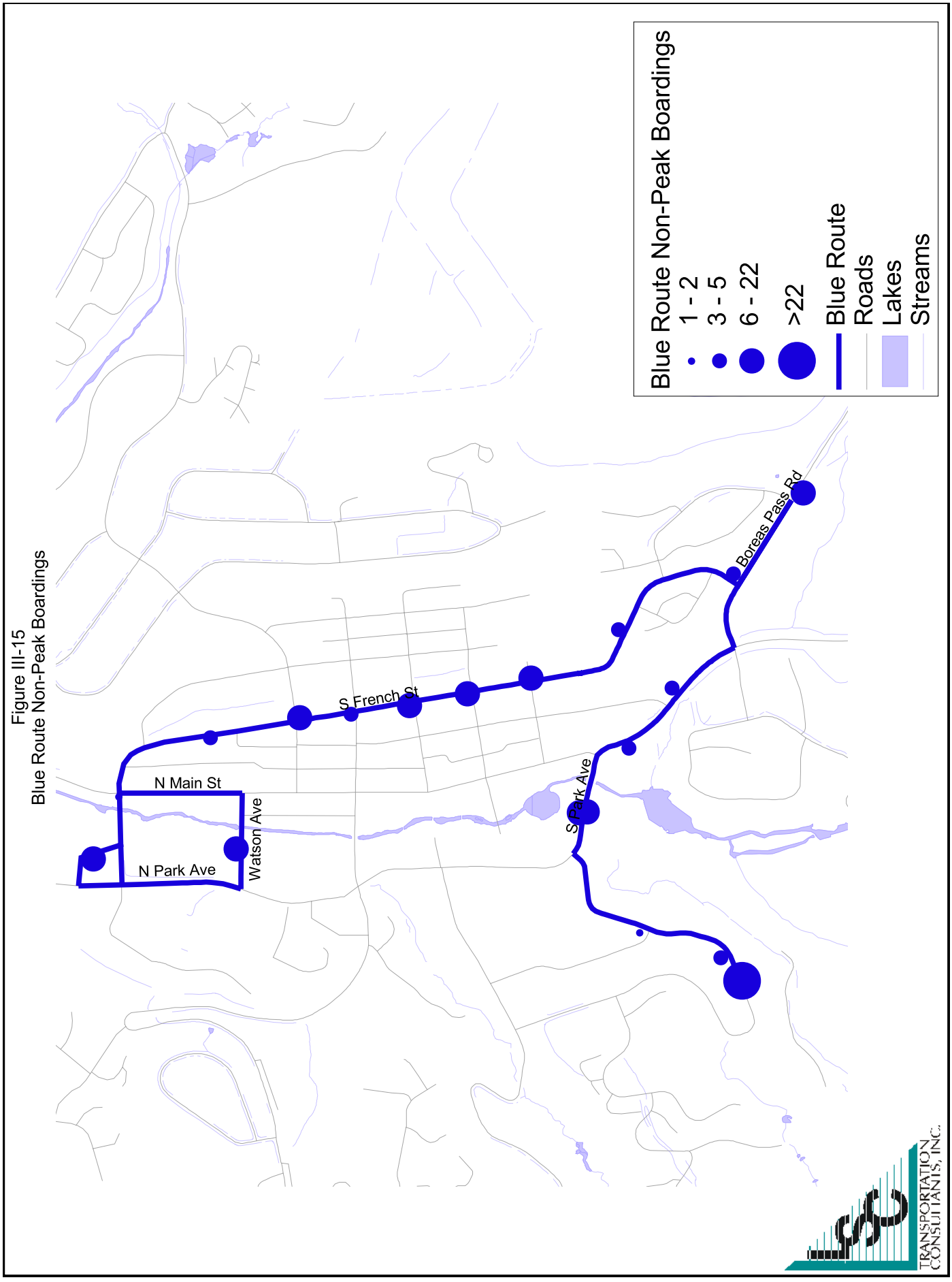

Figure III-15
Blue Route Non-Peak Boardings

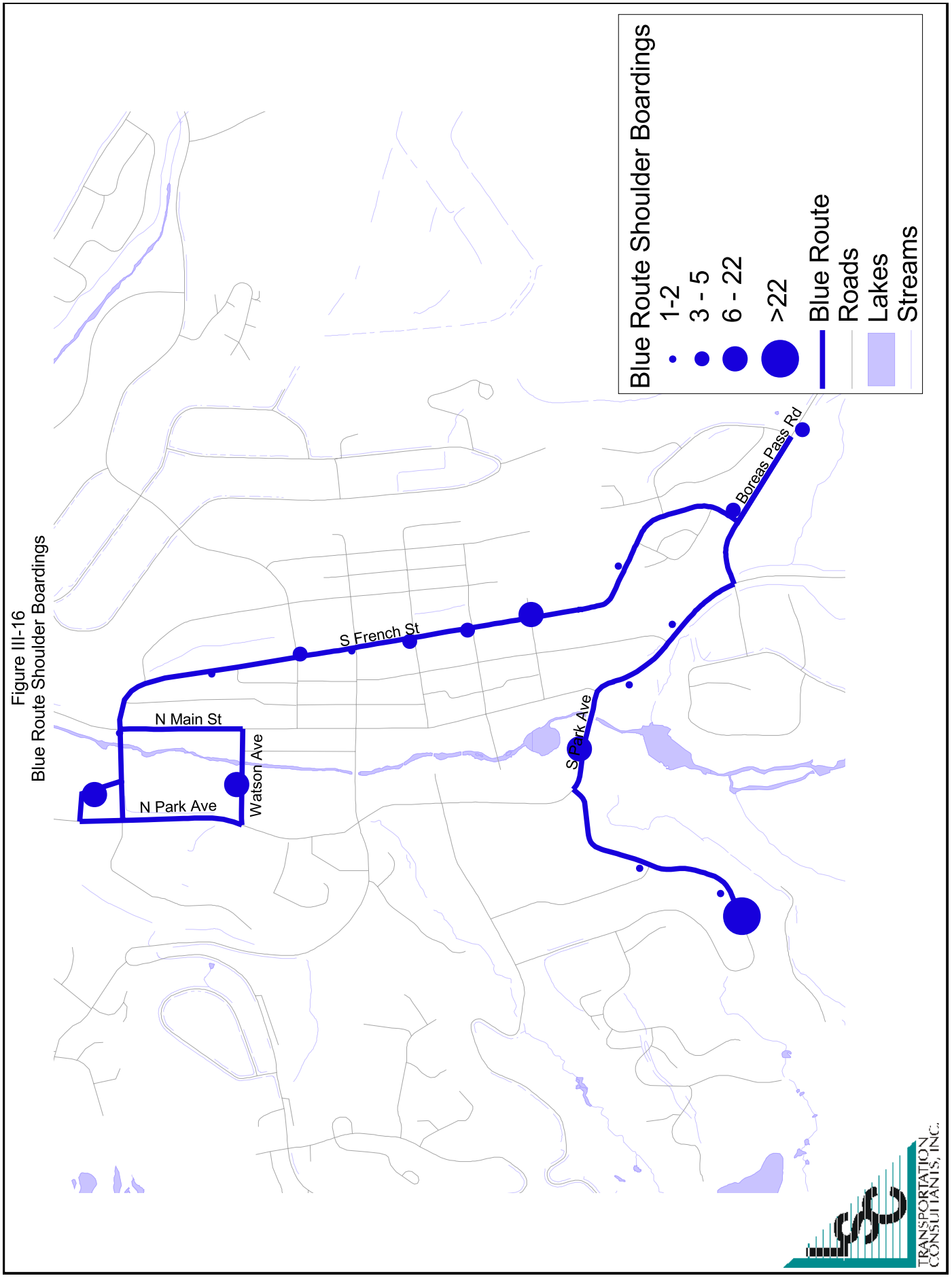

Figure III-16
Blue Route Shoulder Boardings

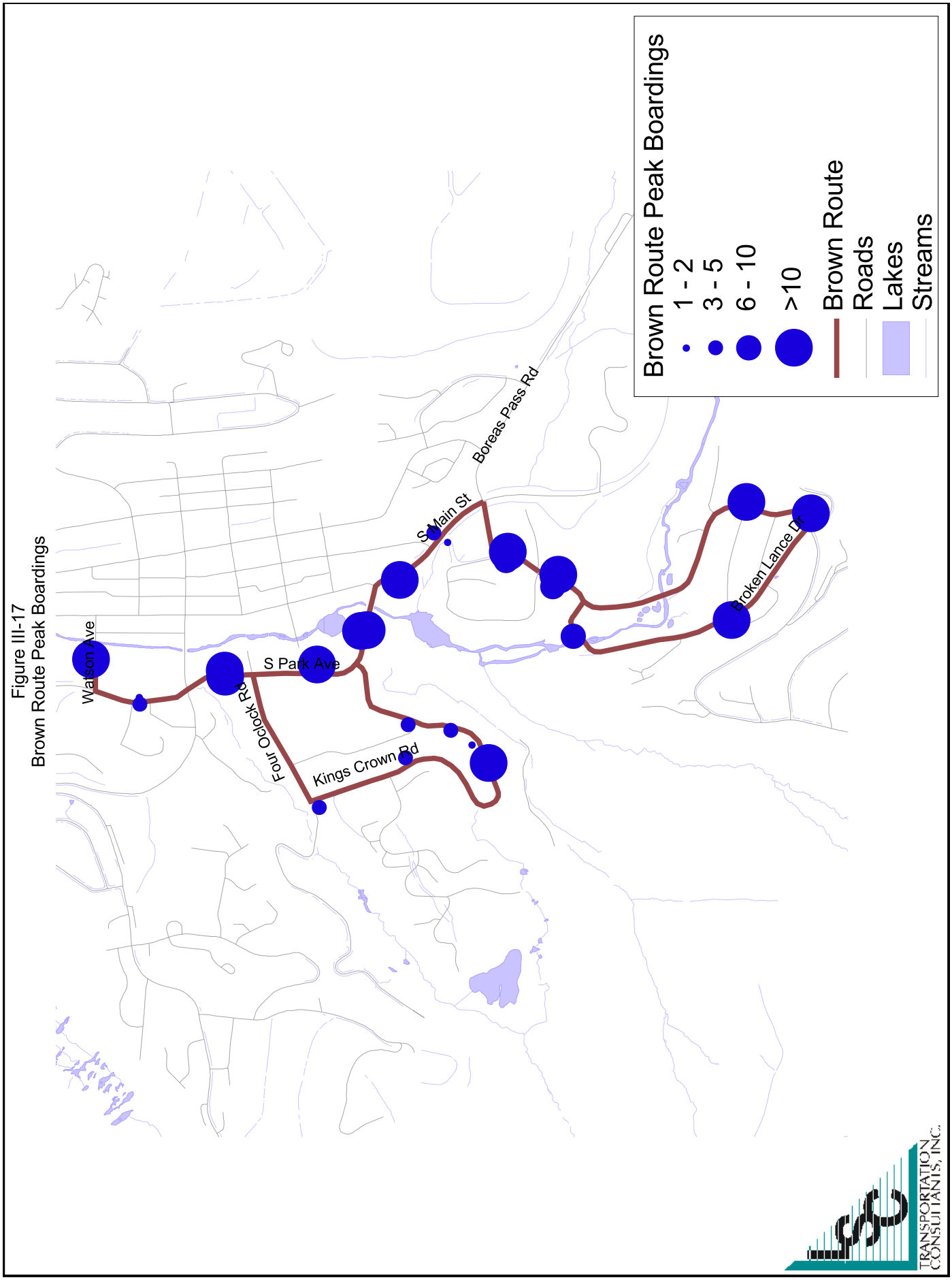
Figure III-17
Brown Route Peak Boardings
Brown Route Peak Boardings
1 - 2
3 - 5
6 - 10
>10
Brown Route
Roads
Lakes
Streams
Watson Ave
S Park Ave
Four Oclock Rd
Kings Crown Rd
S Main St
Boreas Pass Rd
Broken Lance Dr
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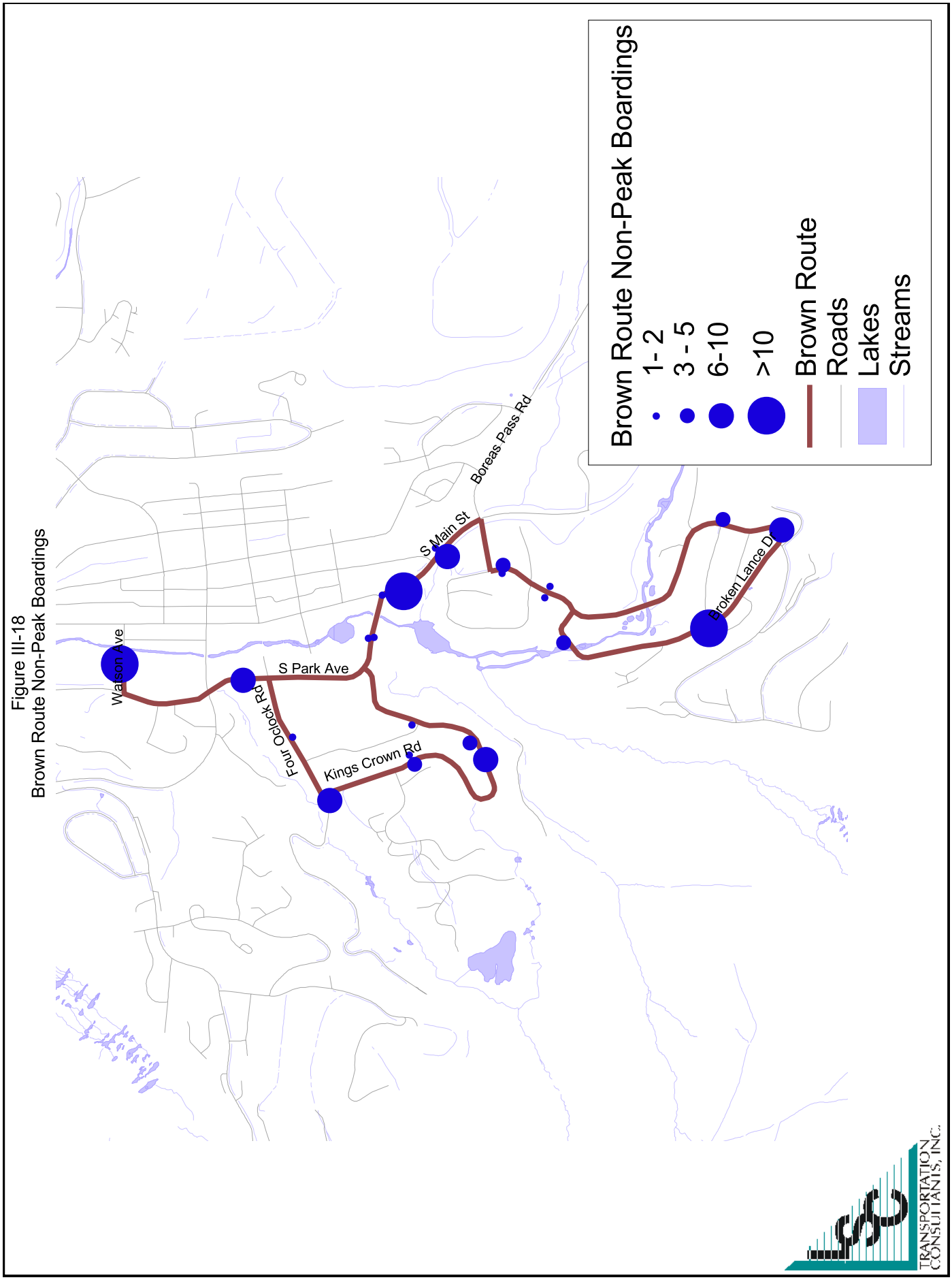

Figure III-18
Brown Route Non-Peak Boardings

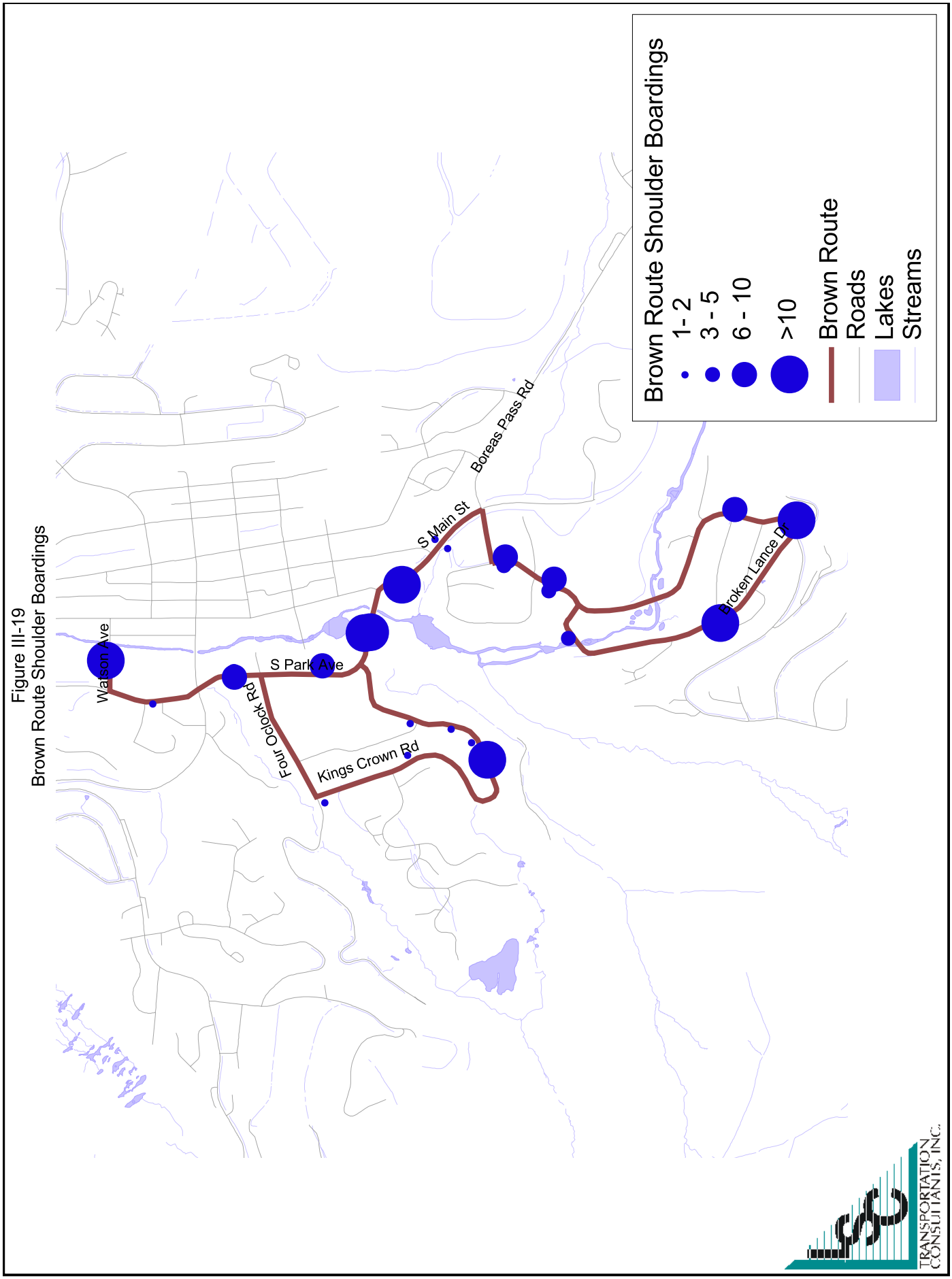
Figure III-19
Brown Route Shoulder Boardings
Brown Route Shoulder Boardings
1- 2
3 - 5
6 - 10
>10
Brown Route
Roads
Lakes
Streams
Watson Ave
S Park Ave
Four Oclock Rd
Kings Crown Rd
S Main St
Boreas Pass Rd
Broken Lance Dr
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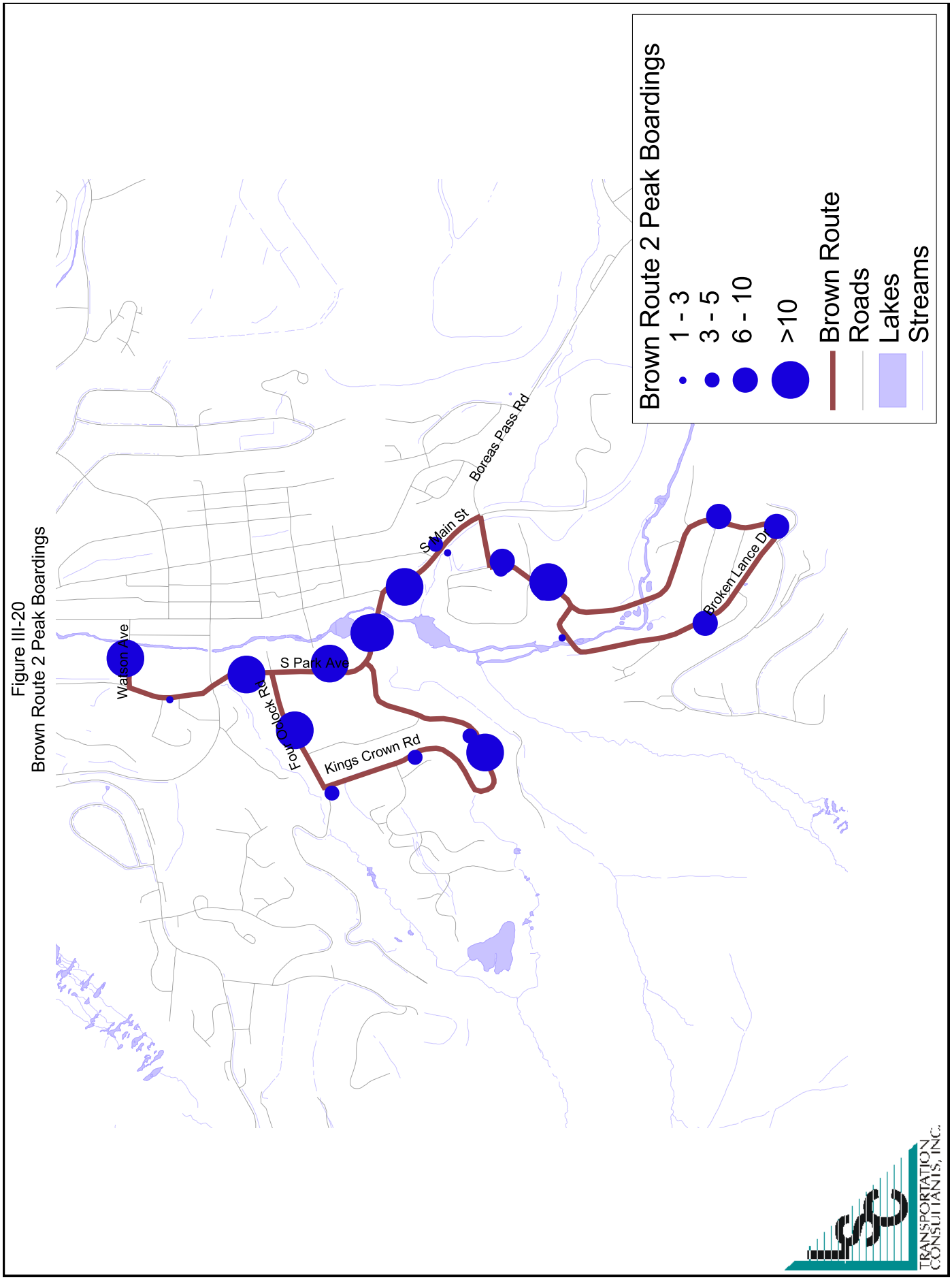

Figure III-20
Brown Route 2 Peak Boardings

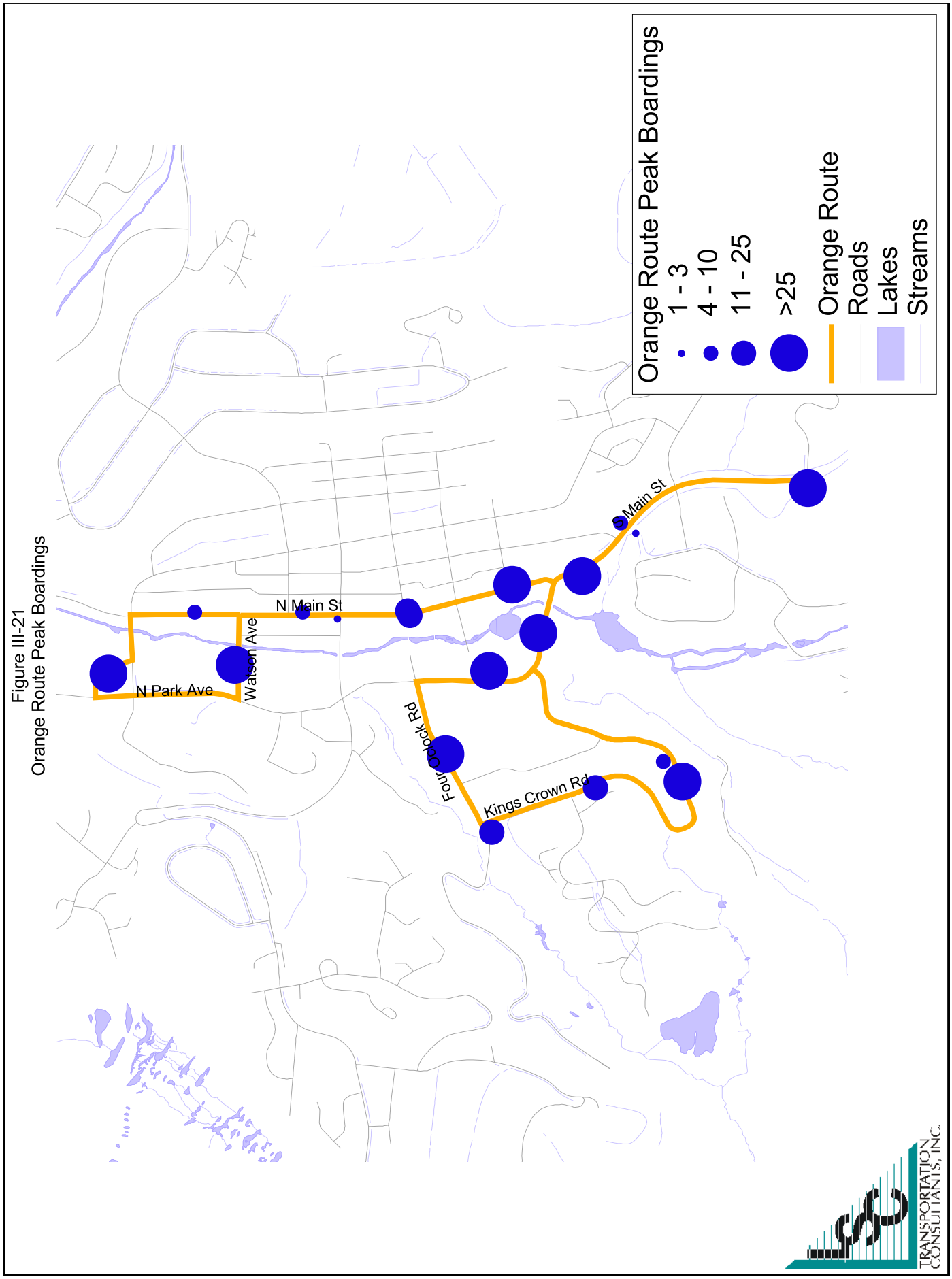

Figure III-21
Orange Route Peak Boardings

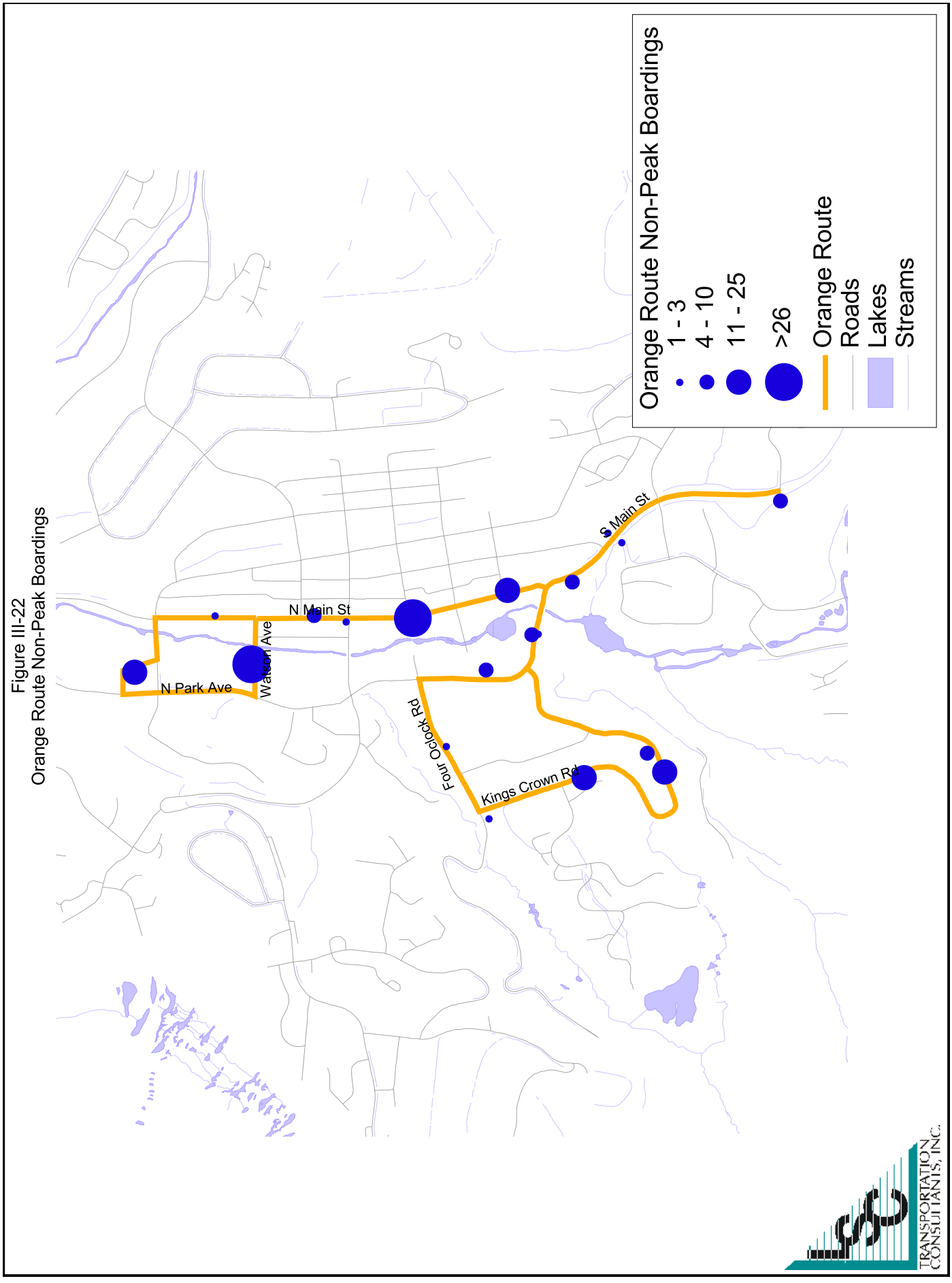

Figure III-22
Orange Route Non-Peak Boardings

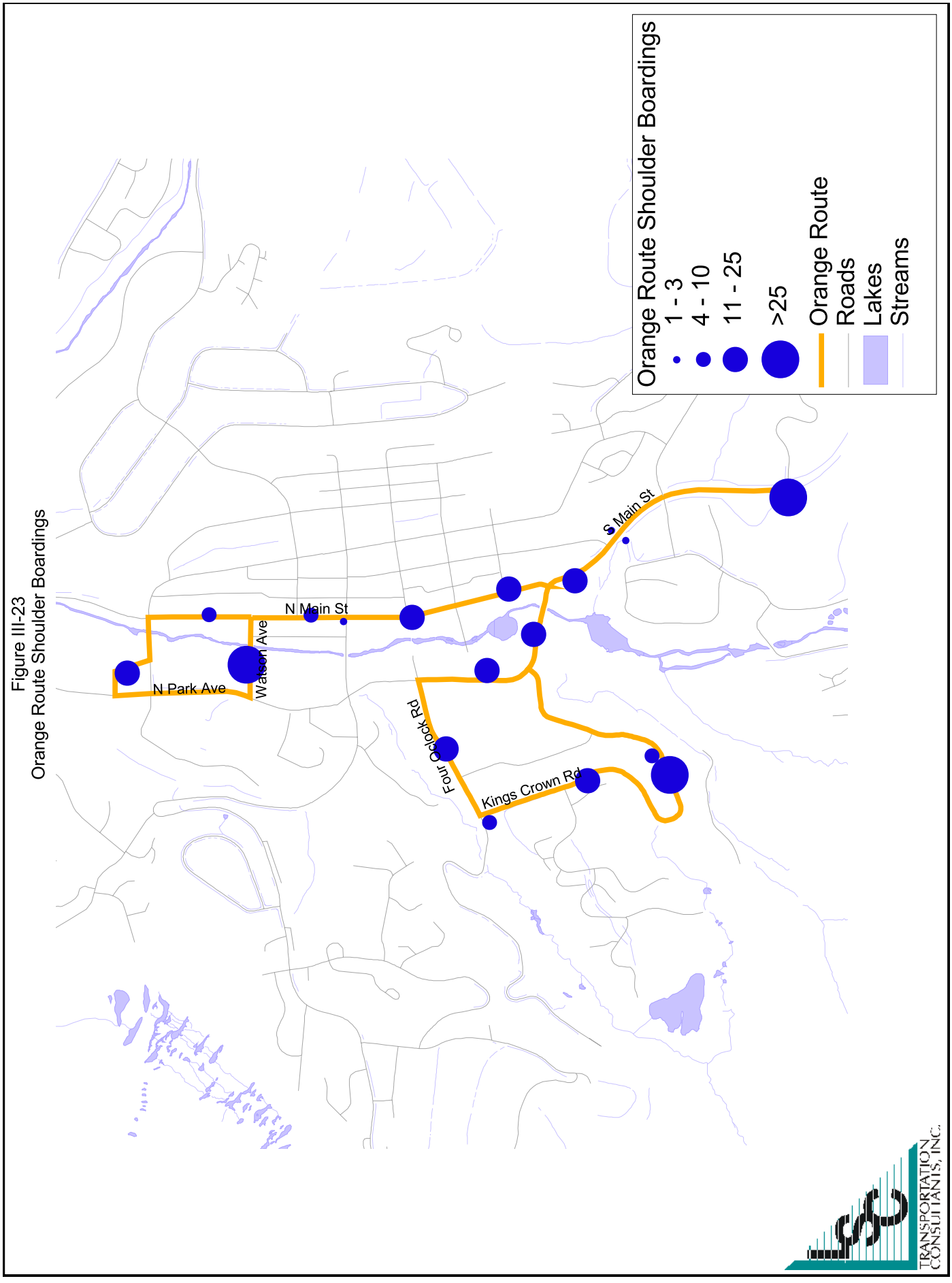

Figure III-23
Orange Route Shoulder Boardings

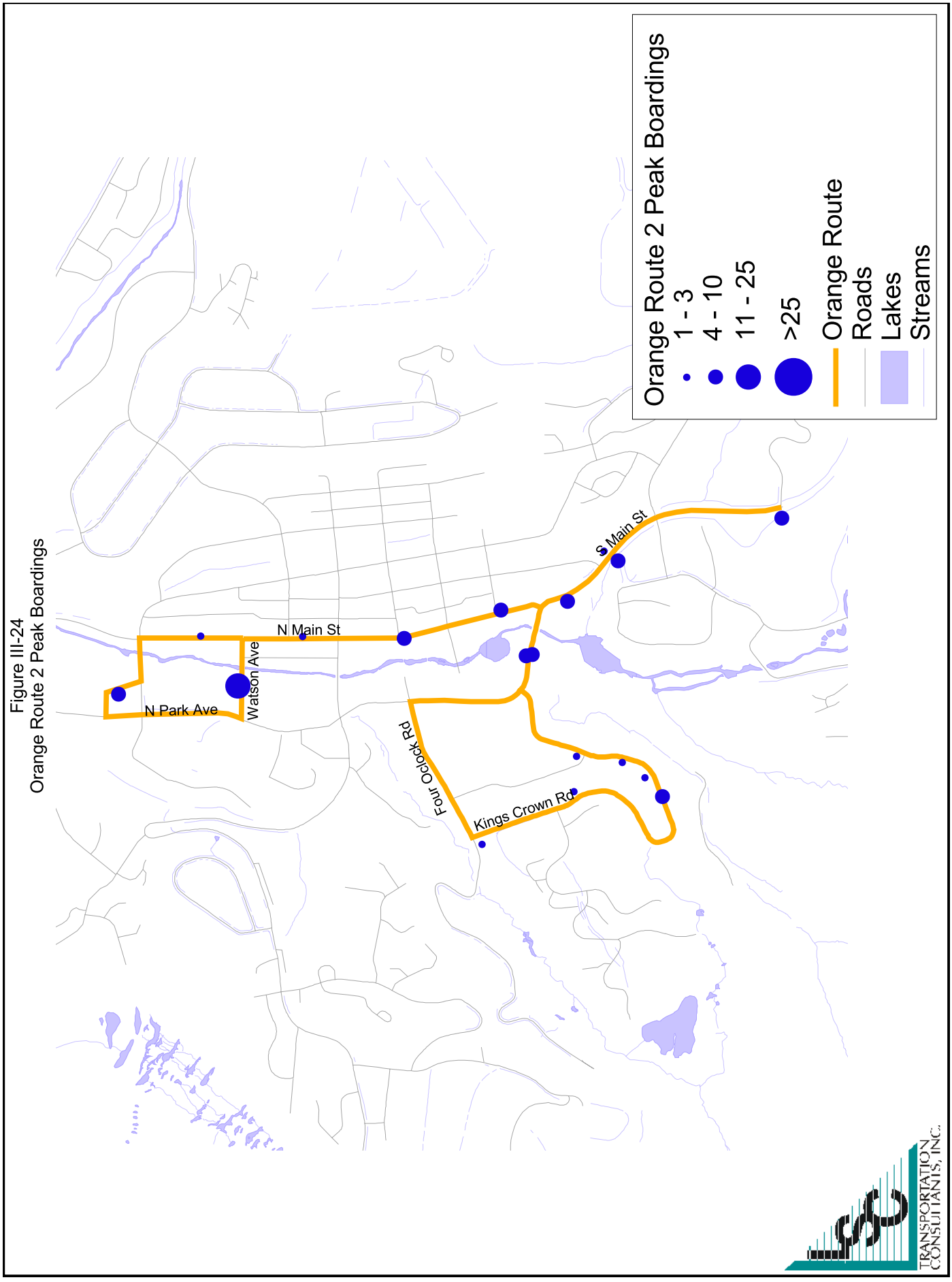

Figure III-24
Orange Route 2 Peak Boardings

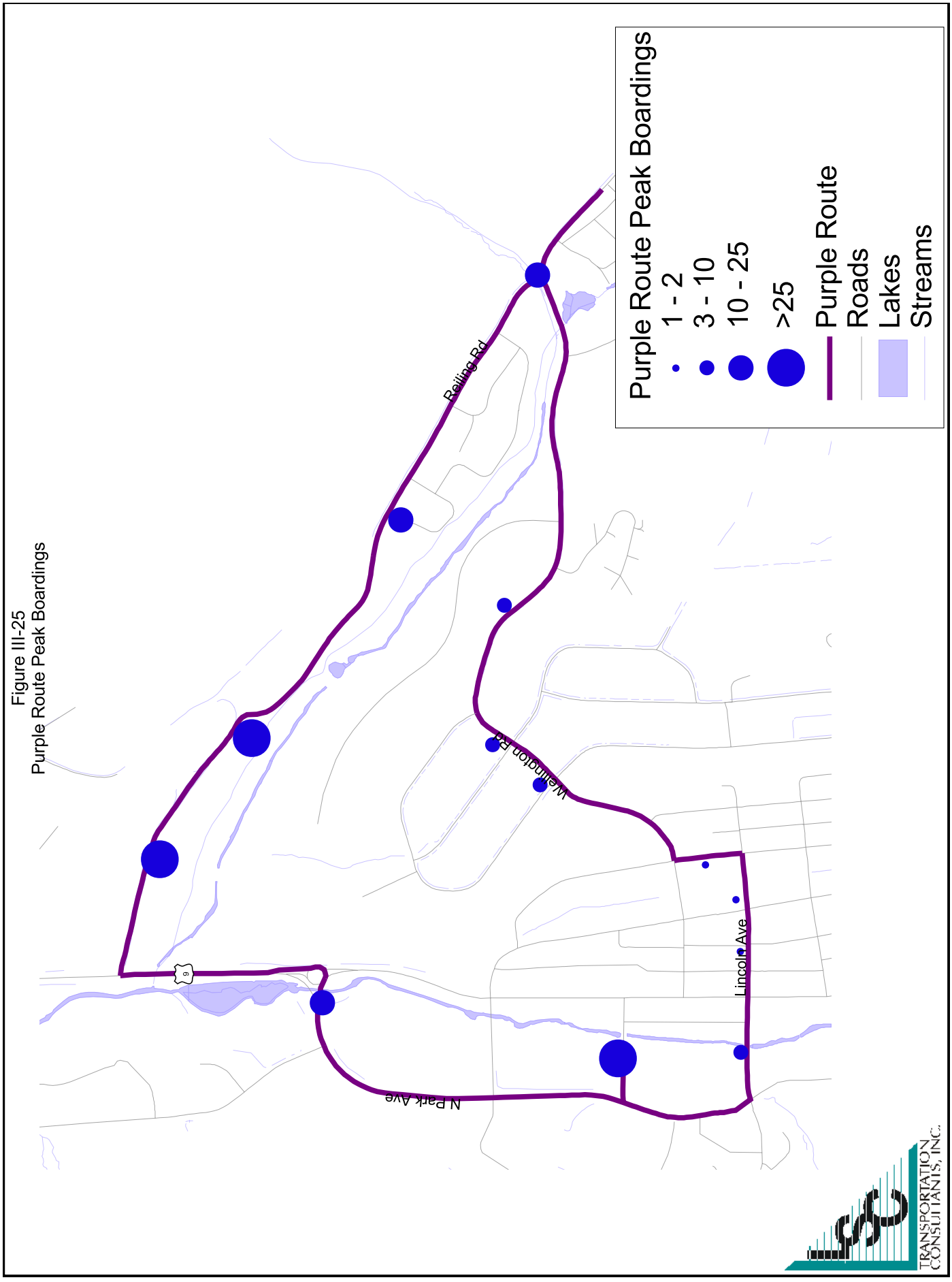

Figure III-25
Purple Route Peak Boardings

Figure III-26
Yellow Route Peak Boardings

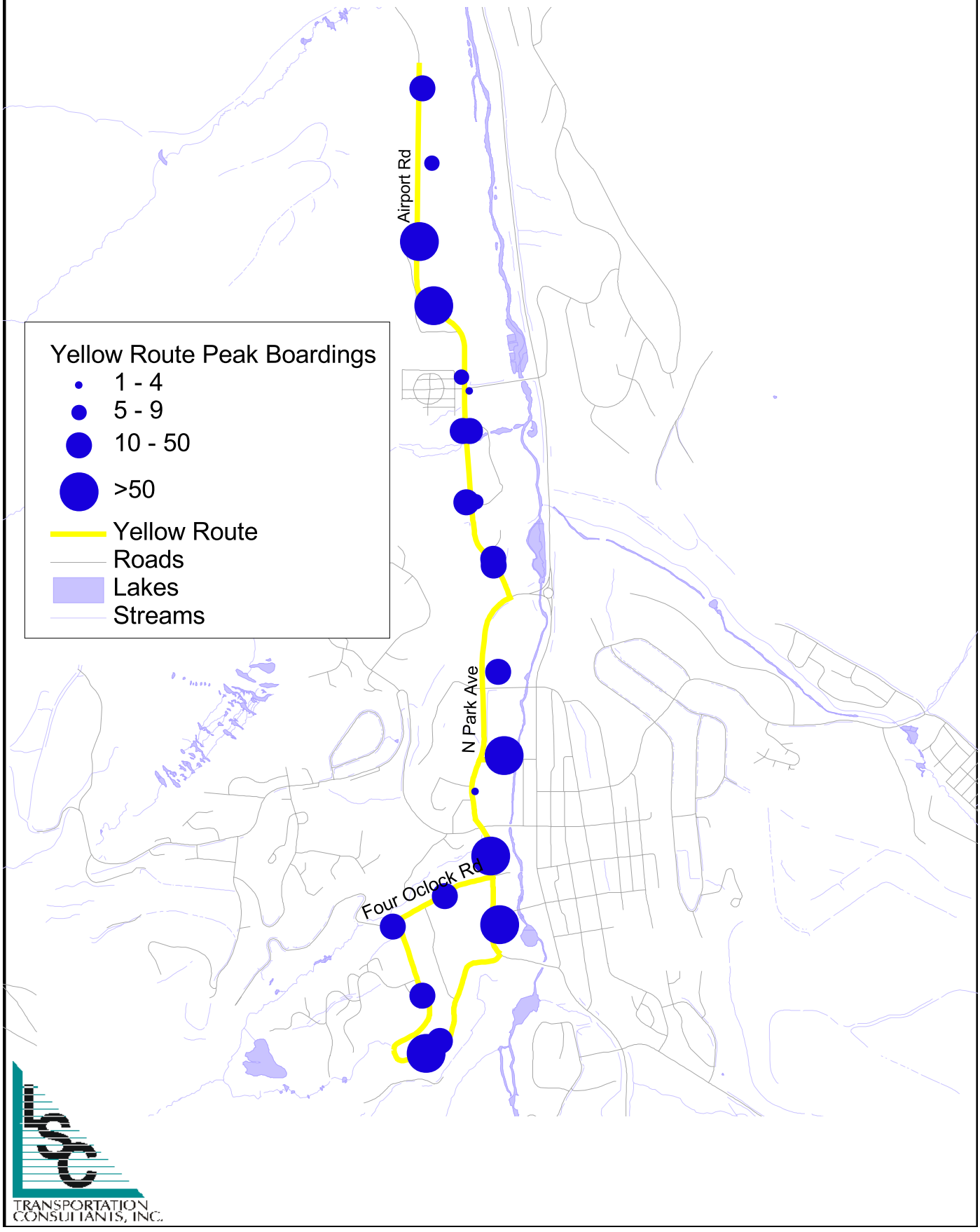

Figure III-27
Yellow Route Non-Peak Boardings

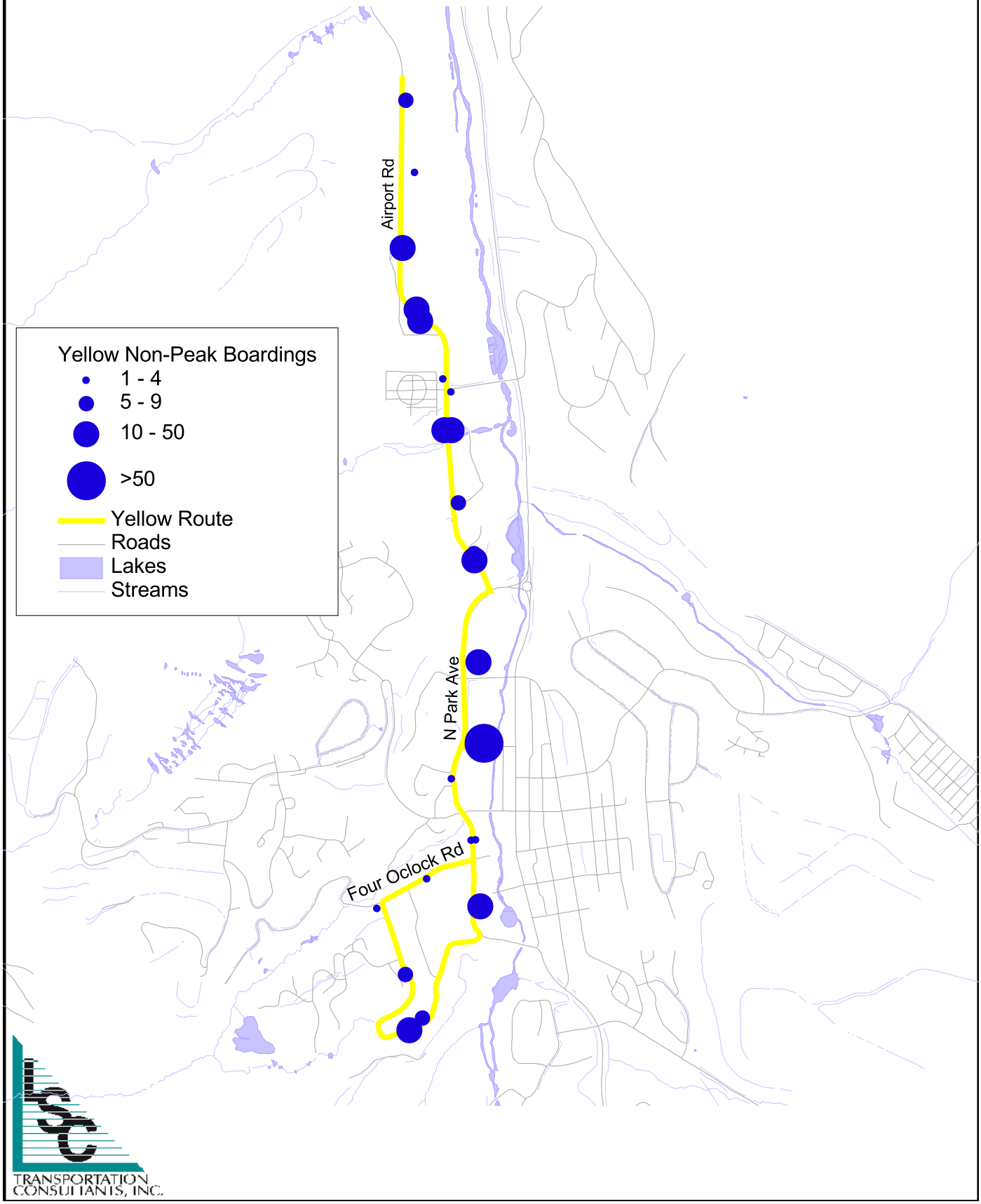

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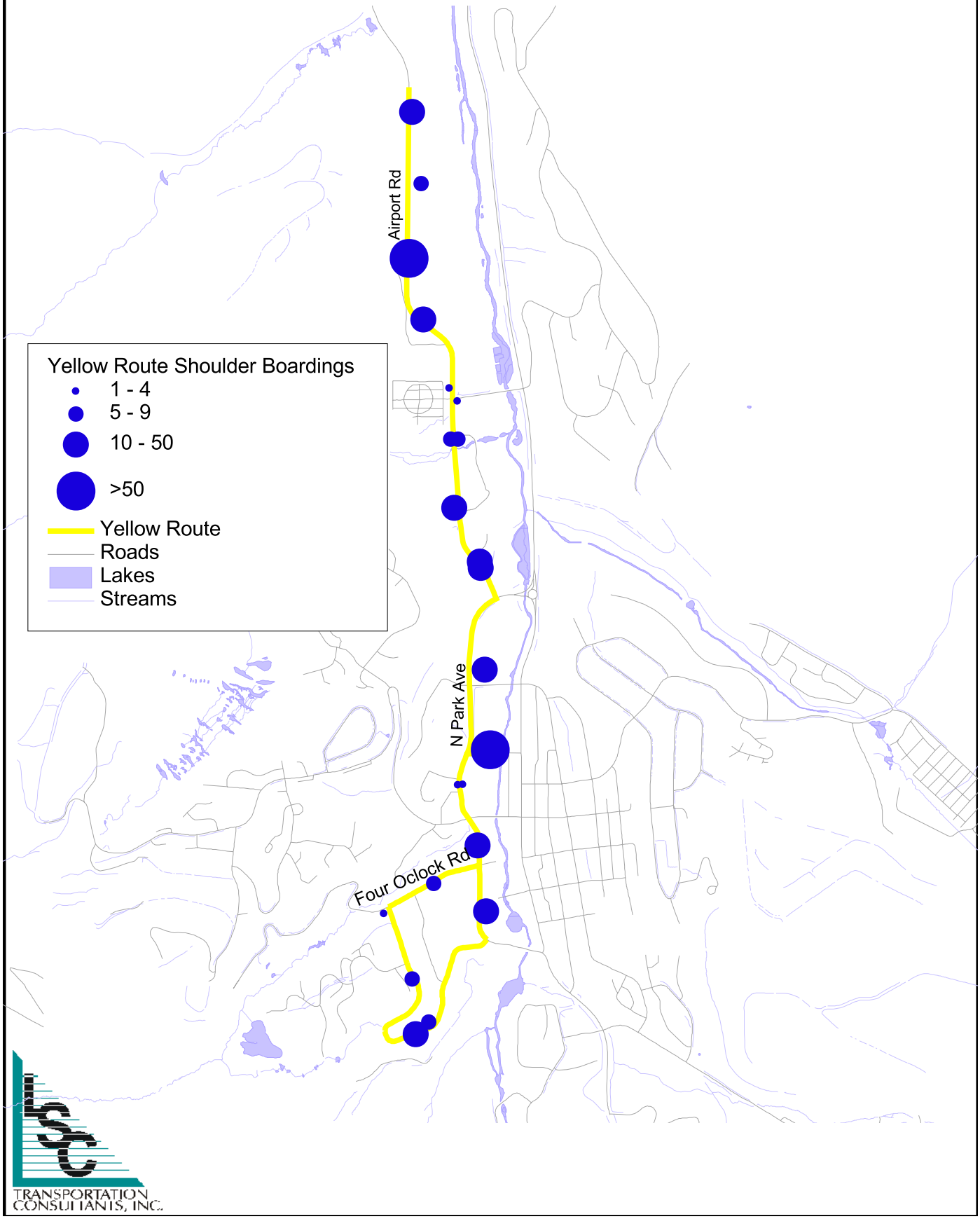
Figure III-28
Yellow Route Shoulder Boardings



Comparison of Bus Stops between Peak and Non-Peak Seasons

To determine if there are certain stops that are underused during the non-peak season or peak season, the proportion of passengers boarding at that stop was compared for the peak and non-peak season. Table III-7 presents the top five bus stops that were underused during the non-peak season when compared proportionately to the peak season. As shown in the table, Beaver Run, Village at Breckenridge, Park Avenue Lofts, Pine Ridge, and F-Lot were underused during the non-peak season. This is due to the large number of visitors that use the condos, ski areas, and parking lots in the peak seasons as compared to the non-peak season. Table III-7 also presents the top five bus stops that were underused during the peak season when compared proportionately to the boardings observed during the non-peak season. The Blue River Plaza, City Market, Grand Timber Lodge, the intersection of Main Street and Jefferson Street, and the Breckenridge Terrace West were underused compared to the proportional boardings at those stops during the peak season. Further on-site analysis is needed to determine if Breckenridge Transit needs to eliminate certain stops during certain months or seasons.

Table III-7
Bus Stop Usage

Bus stops underused during the non-peak season proportionately compared with the boardings observed during the non-peak season.	
Bus Stops	**Percent underused compared with peak season**
Beaver Run	2.0%
Village at Breckenridge	2.0%
Park Avenue Lofts	2.1%
Pine Ridge	2.5%
F-Lot	2.7%
Bus stops underused during peak season proportionately compared with the boardings observed during the peak season.	
Bus Stops	**Percent underused compared with non-peak season**
Blue River Plaza	3.2%
City Market	2.5%
Grand Timber Lodge	1.8%
Main/Jefferson	1.8%
Breckenridge Terrace West	1.5%

EVALUATION OF ORGANIZATION AND STAFFING

The Breckenridge Transit Division operates FREE RIDE and is a municipally operated transit system. In this type of institutional structure, the Town of Breckenridge provides funding and facilities for the transit service. FREE RIDE is a division of the Breckenridge Public Works Department. Currently, many of the administrative functions, such as payroll, grant writing, and budget development, are performed by the Transit Manager. The Breckenridge Town Council is the governing body for the transit service. Listed below is an evaluation of the FREE RIDE organizational structure and functions.

Management and Administration

Overall management of FREE RIDE is performed by the Transit Manager. The Transit Division does not currently have an administrative staff solely devoted to the Division. Administrative duties are handled by the Management and Supervisory staff. FREE RIDE Transit Supervisors schedule drivers, respond to any bus accidents, and assist drivers with unruly passengers. There are currently three supervisors that oversee the day-to-day operation of FREE RIDE with assistance from the Manager.

Maintenance

FREE RIDE vehicle maintenance is performed at the new FREE RIDE facility by the Fleet Maintenance Division of the Department of Public Works. This is a very efficient and effective way to use municipal resources and helps to keep costs down. Regular maintenance records are kept on each bus and routine preventative maintenance is performed. Drivers report any maintenance problems incurred during their operation of a bus to the transit supervisor who then sends the bus to maintenance for repairs.

Marketing

An important aspect of any transit organization is the marketing of the transit service. Many larger transit organizations have a department specifically for marketing. FREE RIDE has produced a ride guide that describes its service. This ride guide, which has also been printed in Spanish, is distributed in hotels and restaurants throughout the FREE RIDE service area. It is also displayed on the

Tourist Center website. FREE RIDE does not regularly survey its riders or the general public.

Chapter IV

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CHAPTER IV

Onboard Survey Results

INTRODUCTION

This chapter provides the analysis of data collected through an onboard survey. Information is provided about passenger demographics, socioeconomic data, and trip characteristics. The survey was conducted on March 26, 2008. This date was selected to provide a look at travel patterns for many visitors, residents, and employees using the Breckenridge FREE RIDE buses. Survey data in the planning process help to gauge the effectiveness of the current system and identify how to better serve the current passengers. The actual survey instrument is included in Appendix A. Comparisons between the Summit Stage onboard survey conducted in February 2008 were made wherever possible to identify similarities or differences between the two systems.

SURVEY FINDINGS

Responses from the usable questionnaires were entered into a database for analysis. In addition to the individual responses, the route was included for each response to permit detailed analysis by route. The responses are summarized in the following sections. The survey was administered in both English and Spanish. Eleven percent of the surveys responded in Spanish, and 89 percent of the responses were in English.

Total ridership for the routes which were surveyed was 4,093 passengers. There were 932 usable responses, with a survey response rate of 23 percent. This sample provides an error range of +/- 2.82 percent at the 95 percent confidence level. Table IV-1 presents the response rates by route for the March 2008 surveys. The Purple Route had the highest response rate with 38 percent of the passengers boarding the bus completing the survey, followed by the Black Route which had a 34 percent response rate. The Blue and Yellow Routes had the lowest response rates with 17 percent and 15 percent, respectively.

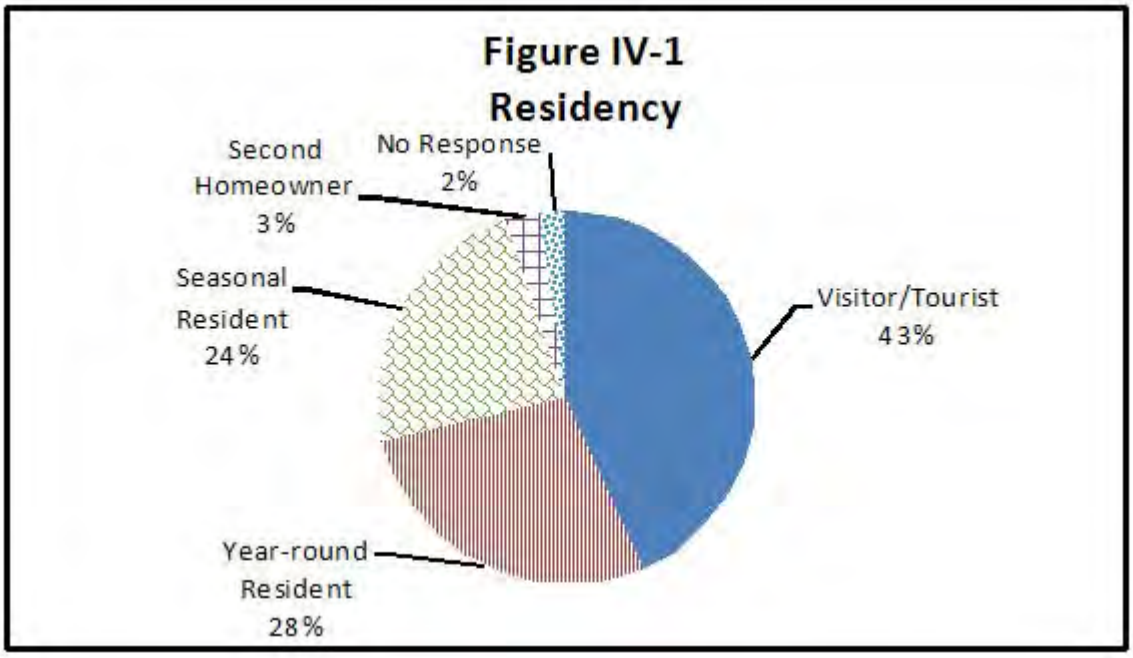
Table IV-1 Response Rate			
Route	**Total Boardings**	**Number of Responses**	**Response Rate**
Purple	343	132	38%
Black	215	74	34%
Orange	785	215	27%
Brown	984	240	24%
Blue	286	49	17%
Yellow	1,480	222	15%
SYSTEM	**4,093**	**932**	**23%**

Demographic Characteristics

There were a number of questions asked to determine demographic characteristics of transit riders on the Breckenridge FREE RIDE system.

Residency

The first consideration is the residency status of passengers. Passengers were asked to indicate whether they were a visitor/tourist, year-round resident, seasonal resident, or second homeowner. The results are illustrated in Figure IV-1. As shown, visitors or tourist were the largest group of riders in the March 2008 survey with 43 percent of the responses. Twenty-eight percent of the passengers were year-round residents, while another 24 percent were seasonal residents. Second homeowners made up only three percent of responses. When compared with the 2008 Summit Stage survey, the largest group of riders were the year-round residents with 38 percent of responses, followed by seasonal residents and visitors which each made up 30 percent of passengers. Similar to the Breckenridge FREE RIDE, two percent of the responses were from second homeowners. This indicates that while the Breckenridge FREE RIDE system carries more visitors or tourists, Summit Stage carries more year-round and seasonal residents.



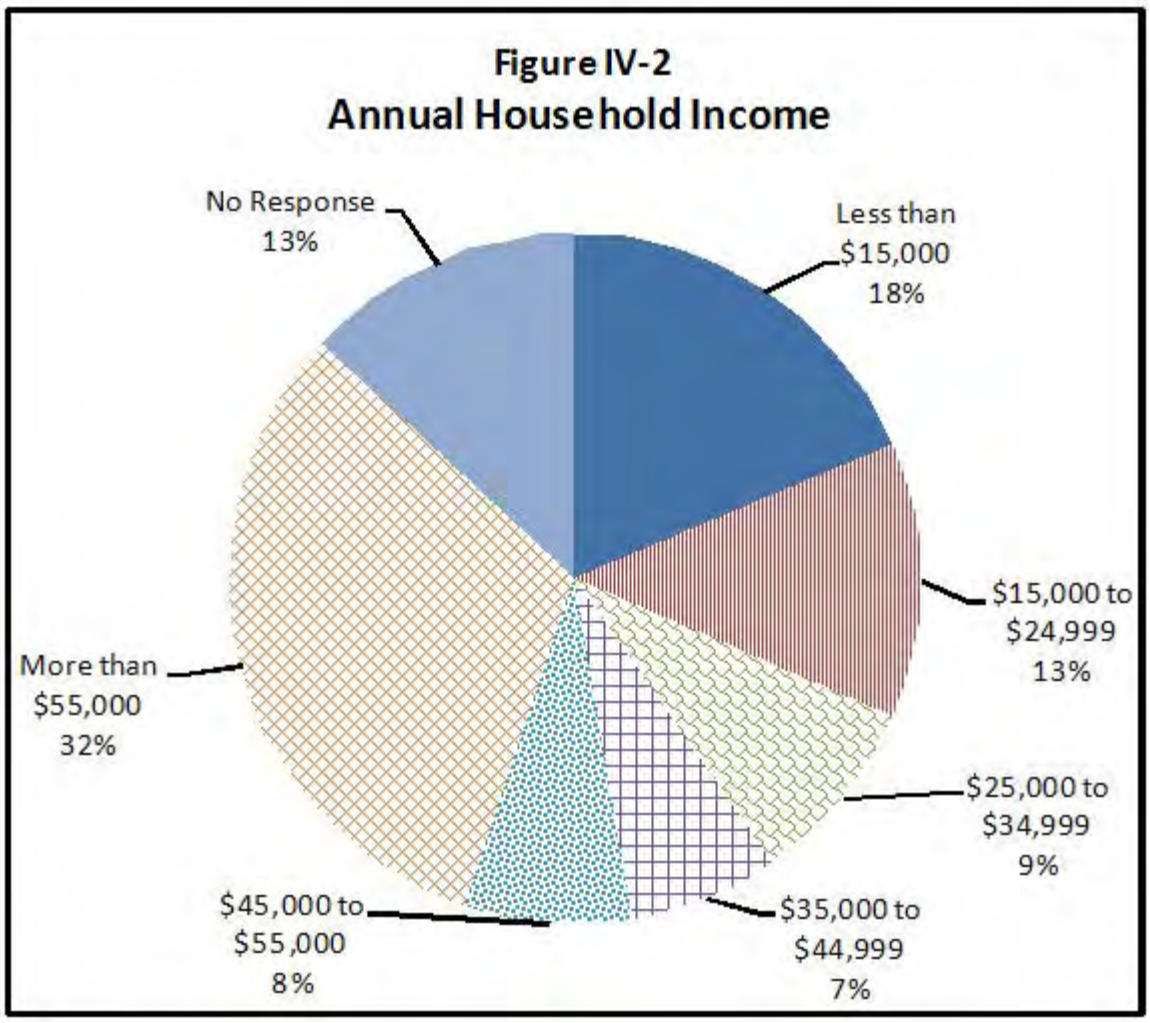
Gender

Fifty-six percent of respondents were male, and 44 percent were female. These percentages follow the same trend seen in the Summit Stage 2008 onboard survey where majority of the respondents (58 percent) were male and 42 percent were female.

Income

Income plays an important role in determining transit ridership and transit needs in the Breckenridge area. Generally, low-income market segments have a higher dependence on transit than other income groups, but high-income market segments will use the service if it is convenient and saves them time. The annual household income of respondents is shown in Figure IV-2. There was a broad spectrum of annual household income ranges with 32 percent of respondents having incomes more than $55,000. Another 32 percent of respondents reported incomes of less than $25,000 annually. In comparison to the 2008 Summit Stage onboard survey, 53 percent of Summit Stage riders reported annual household incomes of less than $25,000, while 23 percent of respondents reported incomes of more than $55,000. This indicates that while Breckenridge FREE RIDE carries

a broad spectrum of annual household income ranges, the majority of Summit Stage riders (53 percent) belong to the lower household income ranges.



Vehicle Availability

Vehicle availability for households and visitors, as well as the ability to drive play key roles in the demand for public transportation. Lack of a private vehicle or the inability to drive influence people to use public transportation. This comparison provides an indication of the number of *choice riders* compared to those who are transit-dependent.

Figure IV-3 shows the proportion of passengers with vehicles available for transportation. Surprisingly, 46 percent of the passengers had a vehicle available. This

percentage was significantly higher than the 2008 Summit Stage survey where 29 percent of passengers had a vehicle available.

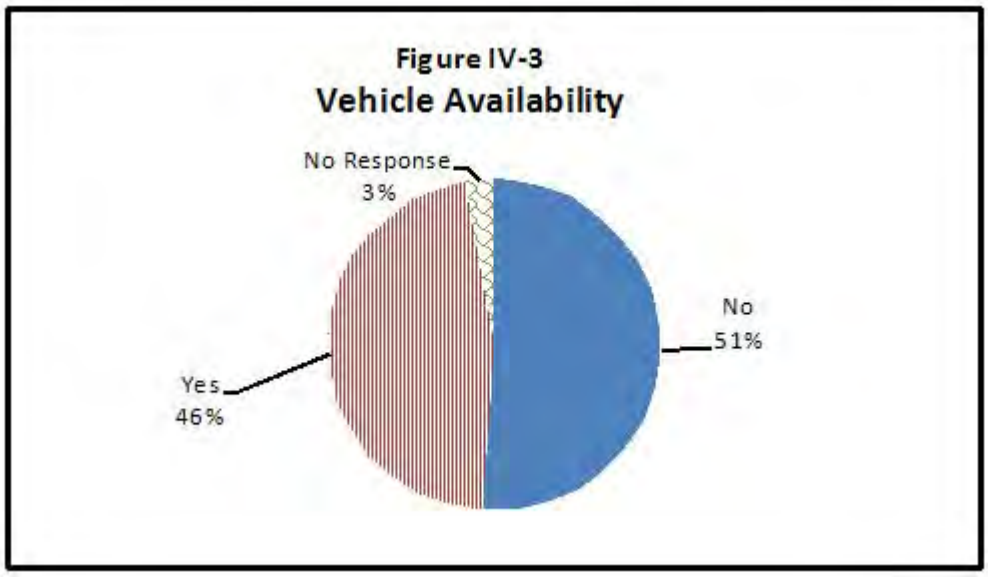
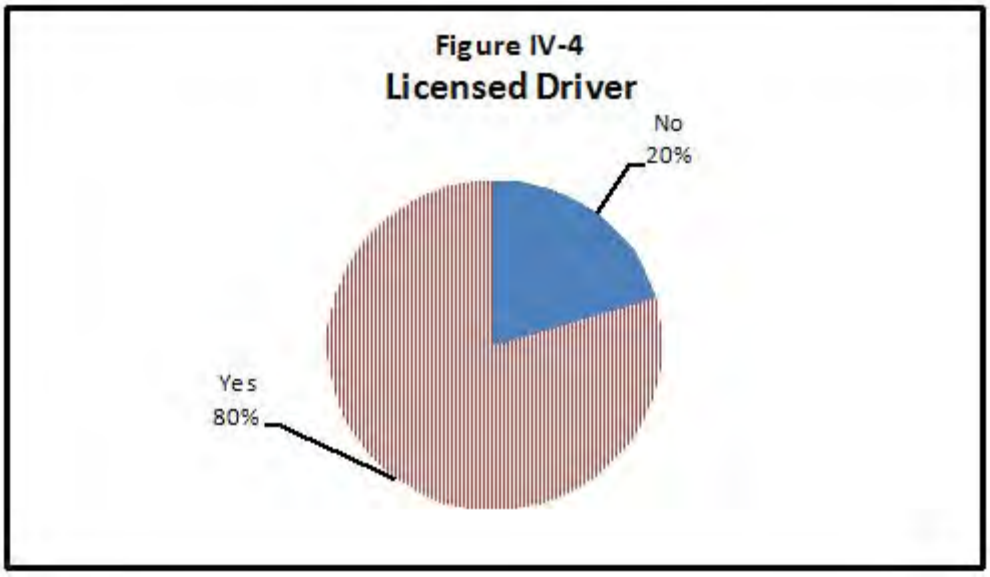


Figure IV-4 shows the proportion of passengers who are licensed drivers. The percentage of drivers with licenses is 80 percent. This was significantly higher compared to the 2008 Summit Stage onboard survey, which had 62 percent of the surveyed passengers having a license to operate a car.



This allows us to determine those "choice" riders versus those who rely upon transit for travel. The percentage of respondents on the Breckenridge FREE RIDE who indicated having a vehicle available and having a driver's license is a high percentage. These percentages indicate the percent of choice riders who choose to use the Breckenridge bus service. On the other hand, the high percentage of Summit Stage riders who do not have a vehicle (71 percent) is an indication that there may be a large percentage who depend on Summit Stage for travel in the Summit County area.

Occupation

Passengers were asked their occupation, with results shown in Figure IV-5. Passengers represent a broad spectrum of occupations. The managerial / professional industry had the highest responses (22 percent). This is followed by the laborer and service worker industry with 15 percent and 10 percent of transit riders, respectively. For the 2008 Summit Stage onboard survey, the laborer industry had the highest responses (24 percent) followed by the service worker industry (indicated by 18 percent of respondents). The managerial/professional industry was indicated by 13 percent of the Summit Stage riders. This shows the variation in occupations between the Breckenridge FREE RIDE and Summit Stage riders.

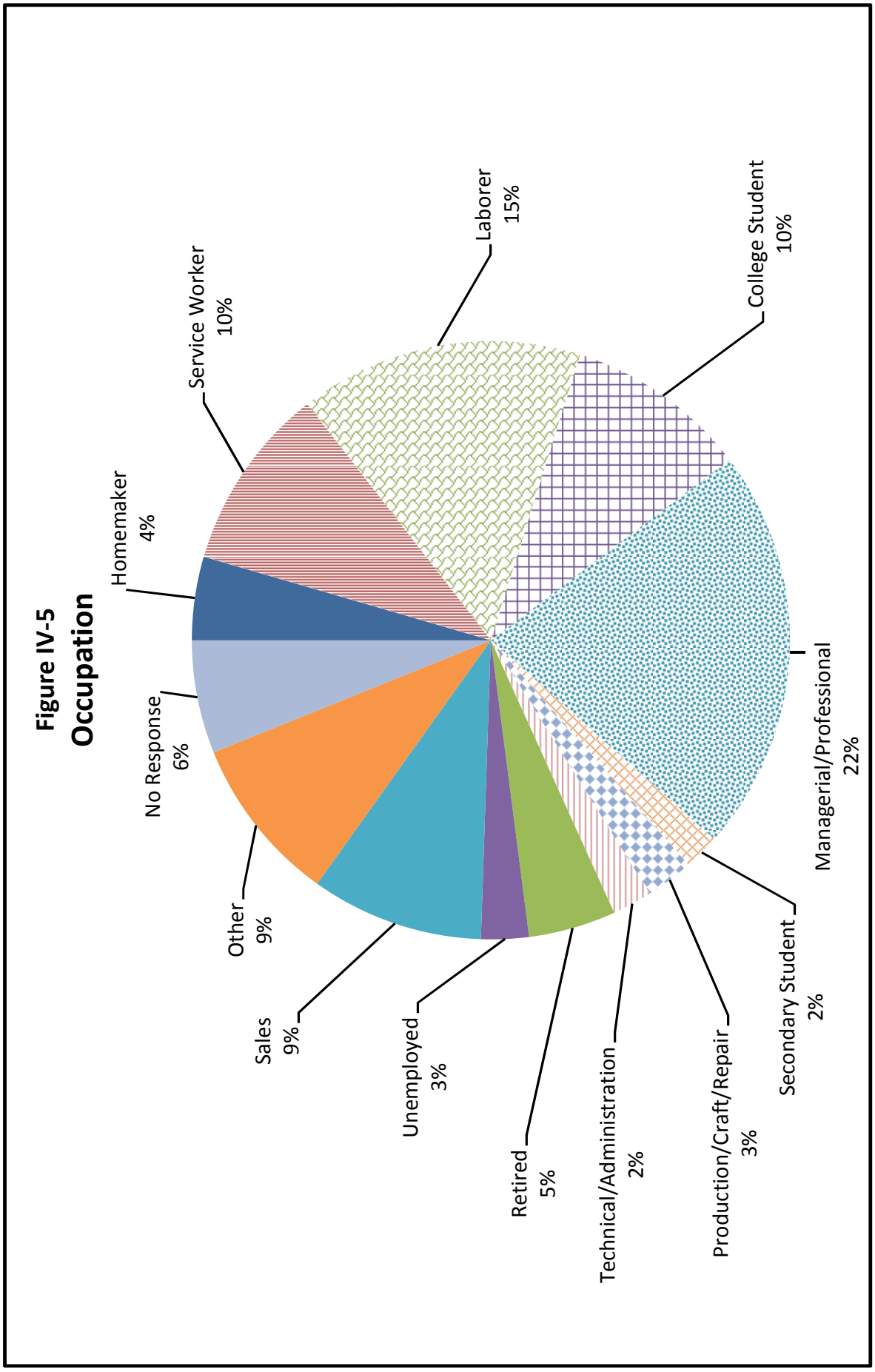
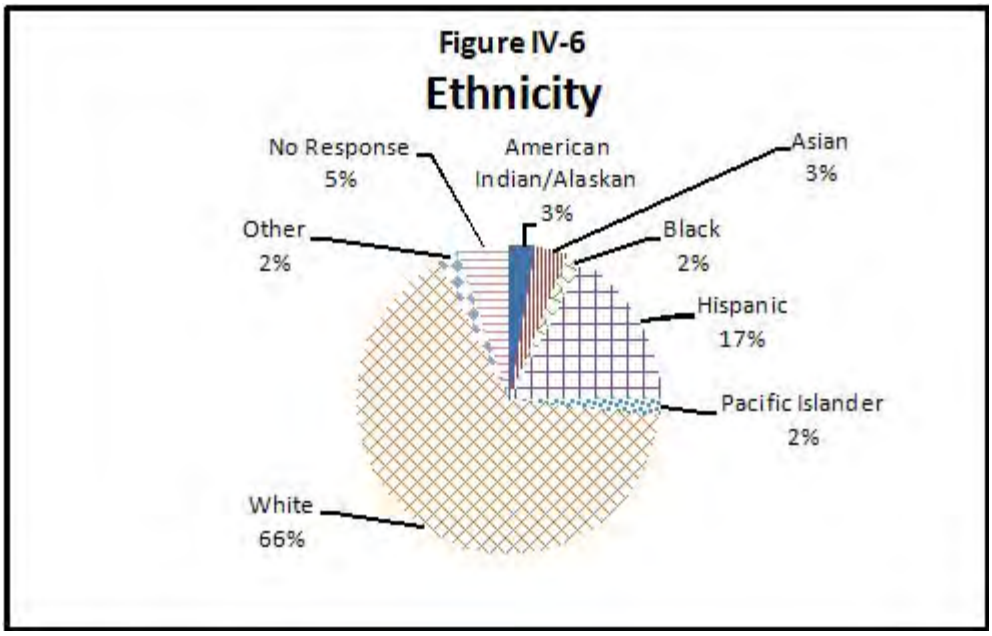


Figure IV-5
Occupation
Laborer
15%
College Student
10%
Service Worker
10%
Homemaker
4%
No Response
6%
Other
9%
Sales
9%
Unemployed
3%
Retired
5%
Technical/Administration
2%
Production/Craft/Repair
3%
Secondary Student
2%
Managerial/Professional
22%

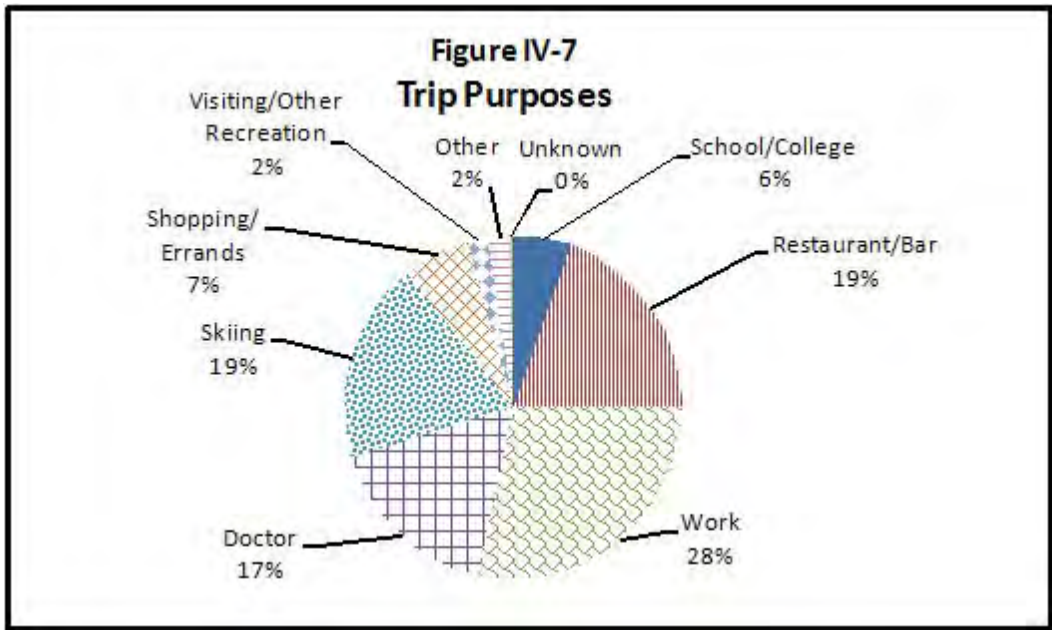
Ethnicity

Ethnicity is shown in Figure IV-6. Whites made up about 66 percent of the passengers, and Hispanics or Latinos were about 17 percent. The Summit Stage onboard survey reported a higher percentage (37 percent) of Hispanics/Latinos and lower percentage of whites (52 percent) than the Breckenridge FREE RIDE onboard survey.



Trip Characteristics

The survey asked passengers to provide information about the trip they were making on Breckenridge FREE RIDE. Trip purposes are shown in Figure IV-7. The primary trip purpose (28 percent) was to go to and from work. The second most common purposes were restaurants/bars (19 percent) and for skiing (19 percent). These results are similar to the Summit Stage 2008 findings with a higher percent of respondents traveling to and from work (43 percent) and 18 percent going to and from shopping or errands, closely followed by skiing (17 percent).



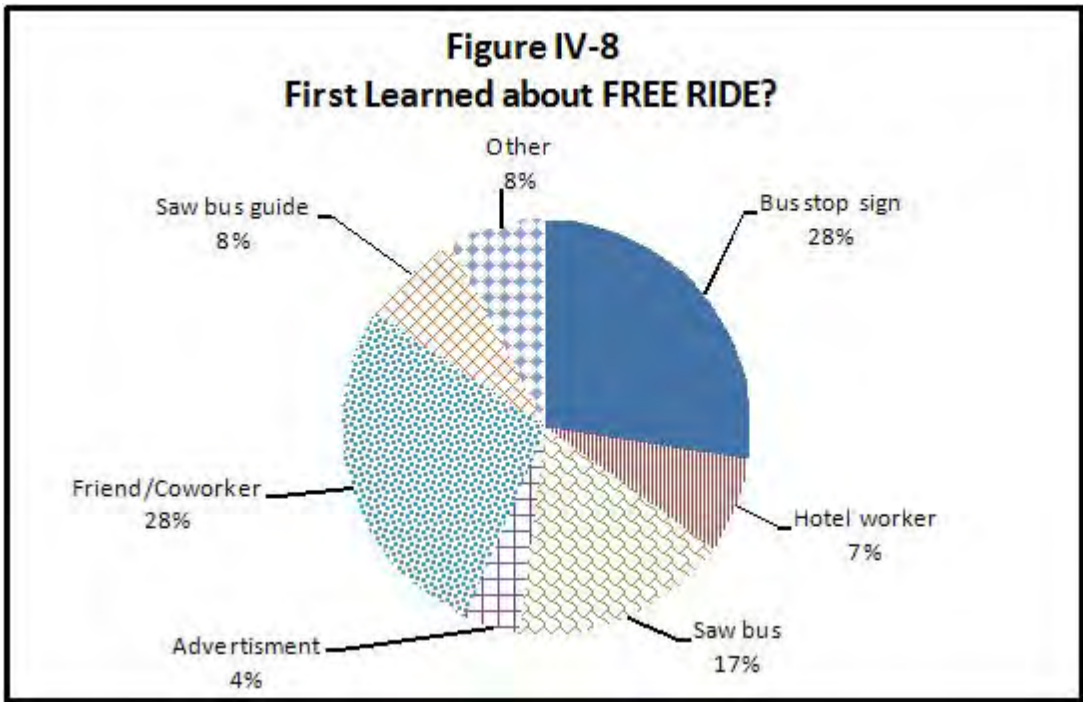
Trip Origins/Destinations

Summit Stage passengers were asked to indicate trip origins and destinations so that travel patterns might be assessed. The primary origin-destination pairs of Summit Stage passengers were Breckenridge-Breckenridge, Frisco-Breckenridge, and Breckenridge-Frisco. The origin-destination pattern reflects the pattern for locations of residence and employment. According to the 2008 Summit Stage onboard survey, cross tabulation between place of residence and place of work indicated that 16 percent of Summit Stage riders lived and worked within Breckenridge.

Source of Information

Passengers were asked to indicate how they first learned about Breckenridge FREE RIDE. The responses are shown in Figure IV-8. As the majority of passengers have been riding for two years or more (as shown later in the text), the recollection of how they first learned about Breckenridge FREE RIDE may not be completely accurate and hence these results should be used cautiously. The primary sources of information are bus stop signs and word of mouth from a friend or coworker, and visibility of buses. Other sources of information, including advertising, were identified by far fewer respondents as the way they first learned

about Breckenridge FREE RIDE. The responses are very similar to responses in the recent Summit Stage onboard survey.



Modes of Transportation

Passengers were asked if they used a private automobile, a Summit Stage bus, the Breckenridge ski area bus, transferred to or from another Breckenridge FREE RIDE bus, or used a gondola as part of their trip. Passengers were allowed to select multiple responses, hence the percentage does not sum to 100. As shown in Figure IV-9, 35 percent of passengers reported using the Summit Stage bus. This is followed by 29 percent of passengers who reported transferring to or from another Breckenridge FREE RIDE bus and 28 percent of passengers who reported using a private vehicle. Twenty-six percent of passengers reported using a Breckenridge ski area bus, and another 16 percent of respondents reported using the gondola.

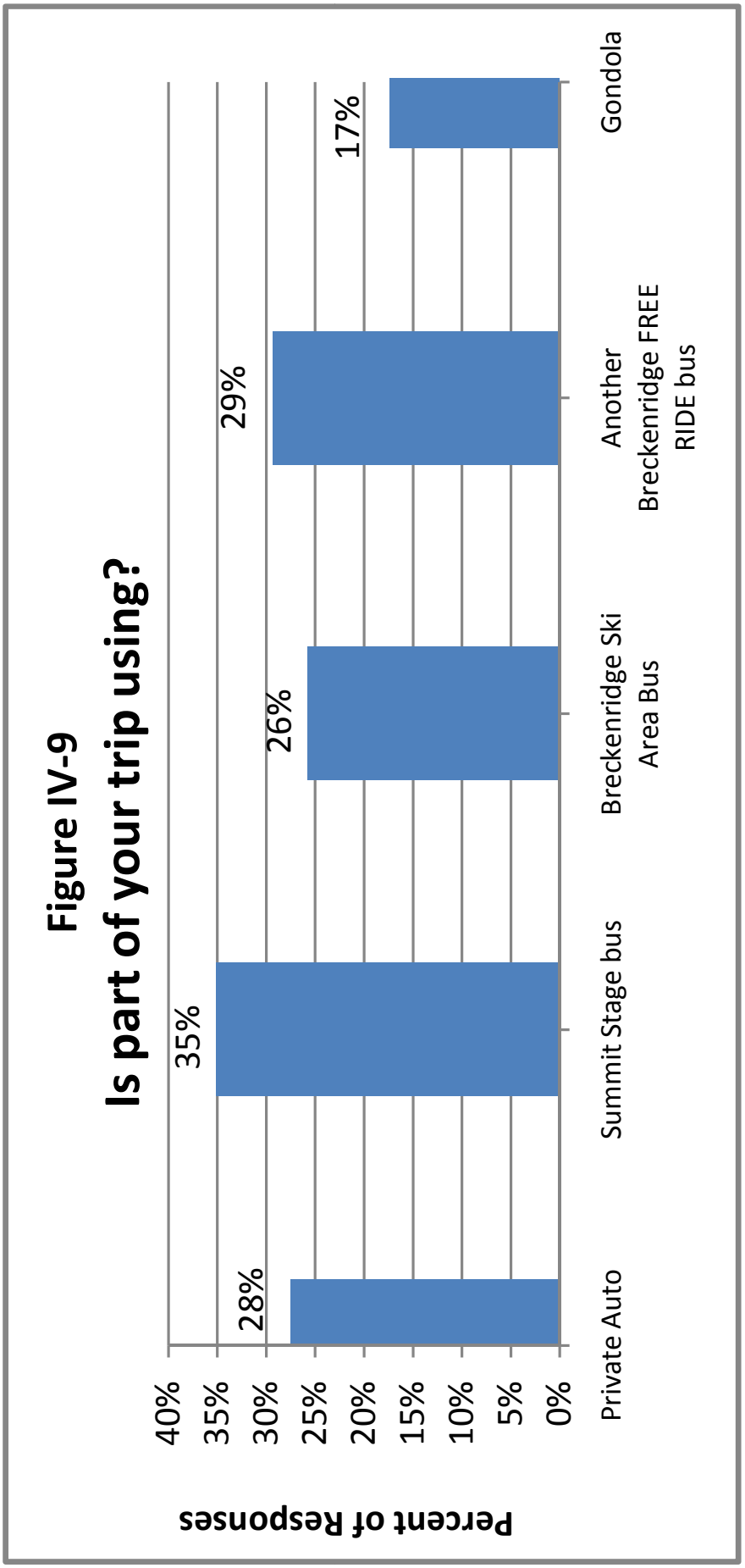


Figure IV-9
Is part of your trip using?
Percent of Responses
40%
35%
30%
25%
20%
15%
10%
5%
0%
28%
35%
26%
29%
17%
Private Auto
Summit Stage bus
Breckenridge Ski Area Bus
Another Breckenridge FREE RIDE bus
Gondola

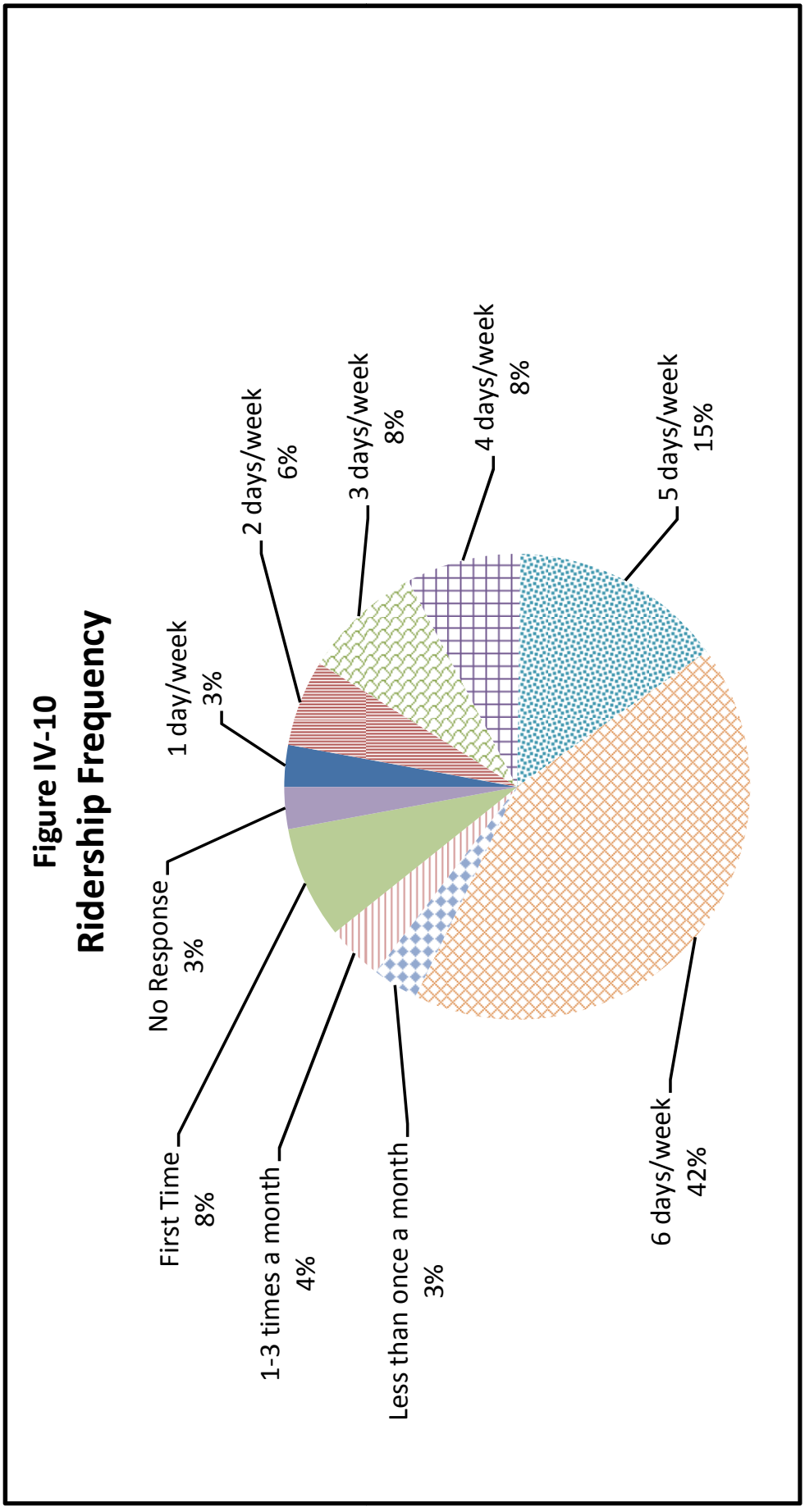
To determine the percentage of skiers that were using the Summit Stage buses, a cross tabulation between respondents who used the Summit Stage bus as part of their trip and whether the trip purpose was identified as going to and from skiing was conducted. Approximately 29 percent of respondents who used the Breckenridge FREE RIDE bus service for skiing also used the Summit Stage buses as part of their trip.

Ridership Patterns

Frequency

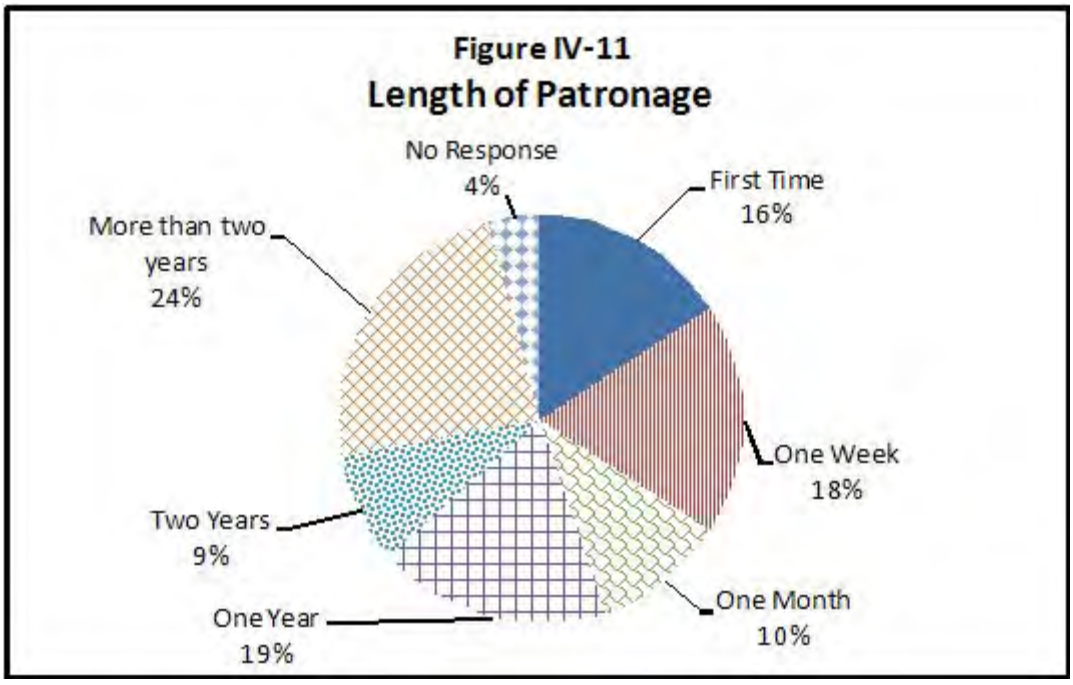
Passengers were asked how often they ride the Breckenridge FREE RIDE bus during the typical week. Figure IV-10 shows the responses. Approximately 57 percent of the passengers use the FREE RIDE service five days per week or more. This is a five percent decrease compared to the 2008 Summit Stage survey where 62 percent of respondents indicated riding Summit Stage five or more days a week.

Figure IV-10
Ridership Frequency



Length of Patronage

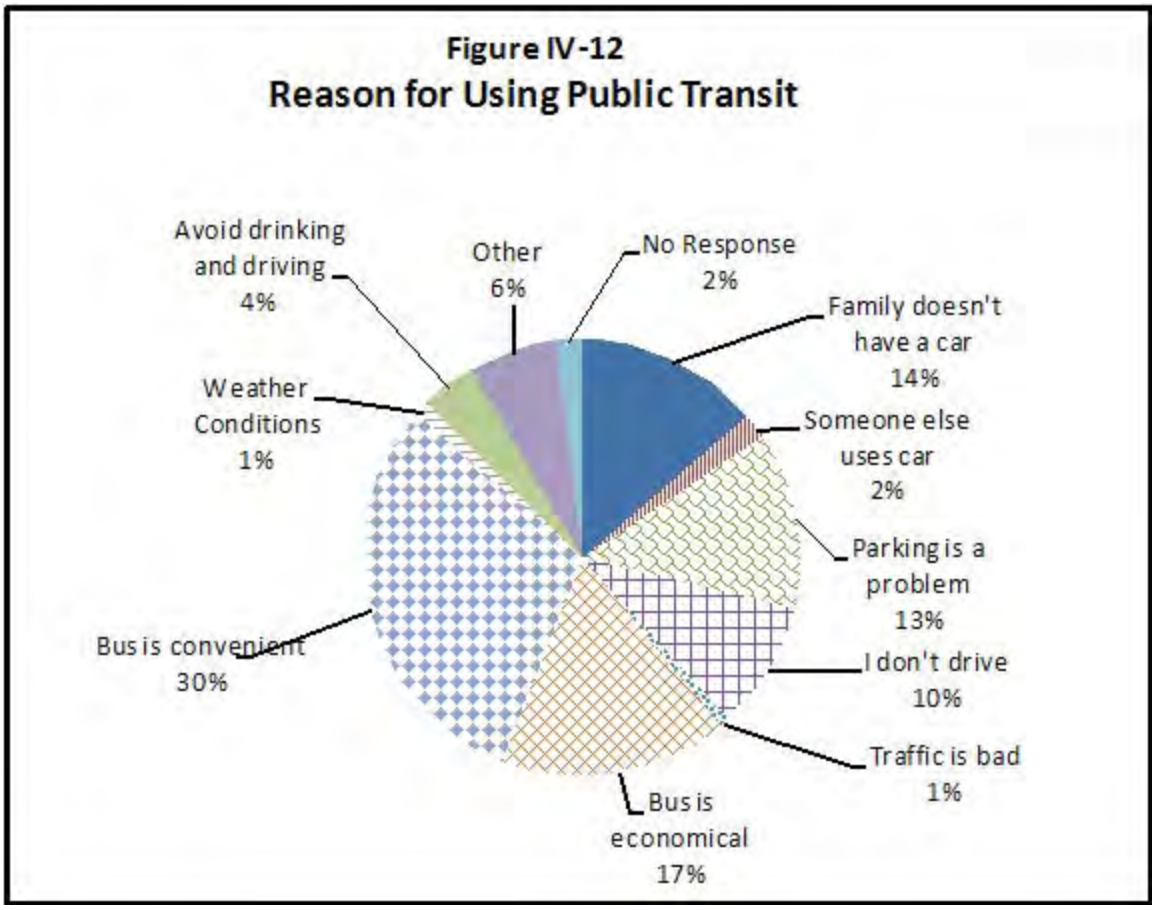
In addition to the frequency of ridership, passengers were asked to indicate how long they have been riding the Breckenridge FREE RIDE transit system. Figure IV-11 illustrates the length of patronage. Thirty-two percent indicated that they have been riding Breckenridge FREE RIDE for two or more years. Approximately 16 percent of respondents used FREE RIDE bus service for the first time. In comparison, 27 percent of Summit Stage riders have been riding the Stage buses for two or more years. There were approximately 10 percent of first time riders on Summit Stage buses. This indicates that Breckenridge FREE RIDE has a high percentage of riders using the Breckenridge bus service for two or more years and a high percentage of first time riders who are willing to use the service. To better understand how first-time riders learned about the Breckenridge FREE RIDE service, a cross-tabulation between first time riders and the how they first learned about the Breckenridge bus service was conducted. Approximately 38 percent of first-time riders learned about the FREE RIDE by bus stop signs followed 16 percent whose primary source of information was by word of mouth from a friend or coworker. Other sources of information for a first-time rider were from a hotel worker (13 percent) and the visibility of buses (12 percent).



Reason for Riding

Passengers were asked the most important reason they ride the bus. Figure IV-12 shows the information. The top reasons for riding the bus are the convenience of the bus (30 percent), the bus is economical (17 percent), passengers who do not have a car (14 percent), and parking is a problem (13 percent). The Summit Stage survey which asked the same question had 21 percent riding the bus for convenience, 21 percent because they did not drive, and 21percent of passengers did not have a car. Again, this indicates a large percentage of *choice* riders that Breckenridge FREE RIDE serves that use the service for convenience and because parking is a problem compared to reasons such as they did not drive or have a car.

Figure IV-12
Reason for Using Public Transit



To better understand parking problems with the modes of transportation used, the two questions were cross tabulated. Thirty-six percent of respondents who said that parking was the most important reason for riding the bus used a private automobile. Another 20 percent of respondents who reported parking as a problem were from the Breckenridge ski bus. This is followed by 18 percent and 14 percent of respondents who identified parking as a problem and used the Breckenridge FREE RIDE and the Summit Stage bus, respectively. Twelve percent of respondents who identified parking as a problem had used the gondola as part of their trip. This indicates, not surprisingly, that respondents who had used their private vehicle as part of their trip identified parking as the most important reason for riding the bus.

Permanent Residents versus Visitors/Seasonal Residents Comparison

The LSC Team performed additional analysis on responses between Summit County residents and visitors/seasonal residents.

Vehicle Available and Driver's License

This comparison provides an indication of the number of *choice riders* compared to those who are transit-dependent. Approximately 45 percent of permanent residents who rode the bus had a vehicle available. Forty-nine percent of visitors/seasonal residents riding the bus had a vehicle available. Seventy percent of Summit County's permanent residents have a driver's license. Visitors/seasonal resident riders reported 84 percent having a driver's license. There is a higher percentage of visitors/seasonal residents that had a driver's license and had a vehicle available compared to permanent residents. This indicates that there is a higher percentage of choice riders among visitors/seasonal residents than permanent residents.

Frequency of Ridership

Passengers were asked how often they ride the bus during the typical week. Approximately 75 percent of the Summit County permanent residents riding the bus used the FREE RIDE service at least five days per week. Fifty-two percent of the visitors/seasonal residents use the service at least five days per week. Eleven percent of the visitor/seasonal resident bus riders were using the service for the

first time. This indicates that there is a higher percentage of permanent residents that use the Breckenridge FREE RIDE at least five days a week than visitors/ seasonal residents.

Reason for Riding

Passengers were asked for the most important reason they ride the bus. Eighteen percent of permanent resident bus riders reported that they did not drive, and another 18 percent reported that the bus was economical. Seventeen percent of permanent residents reported that no vehicle was available in the family. Thirty-eight percent of visitors/seasonal resident bus riders reported Breckenridge FREE RIDE's convenience as the most important reason for riding the bus.

This indicates the difference between permanent residents versus seasonal residents/visitors and their mode choices based on their preferences, socioeconomic condition, and desired level of service.

To better understand whether parking was affecting permanent residents or visitors/seasonal residents, a cross tabulation between reasons for riding and whether the respondent was a visitor or a seasonal resident was conducted. Fourteen percent of permanent residents reported that parking was a problem and the most important reason for riding the bus compared to 13 percent of visitors/ seasonal residents. This indicates there is little difference between the two groups with respect to parking problems.

Using the Summit Stage Bus

Passengers were asked if they used the Summit Stage bus as part of their trip. Thirty-eight percent of permanent residents used the Summit Stage bus as part of the trip. In comparison, 62 percent of visitors/seasonal residents used the Summit Stage bus. This indicates that more visitors/seasonal residents used the Summit Stage bus as part of their trip than permanent residents.

Length of Patronage

The survey asked passengers to indicate how long they have been riding Breckenridge FREE RIDE. Not surprisingly, 65 percent of permanent riders have been

riding Breckenridge bus service for two years or more, compared with 21 percent of visitors/seasonal residents who have been riding Breckenridge bus service for two years or more. Twenty-two percent of visitors/seasonal residents were first-time riders. Only one percent of permanent riders were first-time riders.

Source of Information

Passengers were asked how they first learned about the Breckenridge FREE RIDE. Thirty-one percent of permanent residents reported that they first learned about Breckenridge FREE RIDE through a friend/coworker. Thirty percent of visitors/ seasonal residents reported that they first learned about the Breckenridge bus service through bus stop signs. This indicates the differences about how permanent residents compared to visitors/seasonal residents learned about the Breckenridge FREE RIDE.

Occupation/Ethnicity

The final comparison for Summit County permanent resident riders versus visitors/seasonal residents includes occupation and ethnicity. Table IV-2 shows the detailed information. Permanent residents are more in occupations such as laborer, sales, and service industry, while visitors/seasonal residents are more in occupations such as managerial/professional and were college students.

White population constitutes a higher percentage of the ethnicity among seasonal residents than permanent residents. This is followed by Hispanics/Latinos who have a higher percentage among the permanent residents than visitors/seasonal residents.

Table IV-2
Occupation/Ethnicity

Category	Summit County Permanent Resident Riders	Visitors/ Seasonal Resident Riders
Occupation		
Homemaker	4%	5%
Service Worker	15%	9%
Laborer	26%	11%
College Student	3%	14%
Managerial/Professional	11%	29%
Secondary Student	0%	3%
Production/Craft/Repair	4%	2%
Technical/Administration	2%	3%
Retired	2%	6%
Unemployed	2%	3%
Sales	17%	7%
Other	14%	8%
Ethnicity		
American Indian/Alaskan	6%	2%
Asian	1%	5%
Black	1%	2%
Hispanic	22%	15%
Pacific Islander	2%	2%
White	66%	72%
Other	2%	2%

Route Comparison

The LSC Team performed additional analysis based on the routes that patrons were riding.

Permanent Residents versus Visitors/Seasonal Residents

Passengers were asked their residency status. This comparison provides an indication of permanent residents versus visitors/seasonal residents by route. Table IV-3 shows the results. As shown, all the routes except the Purple Route have more permanent residents compared to visitors/seasonal residents.

Table IV-3
Residency Status by Route

Residency Status	Blue	Black	Yellow	Orange	Brown	Purple
Summit County Permanent Resident Riders	13%	18%	27%	17%	33%	52%
Visitors/ Seasonal Resident Riders	87%	82%	73%	83%	67%	48%

Trip Purpose

To determine their trip purpose, passengers were asked where they were coming from and going to on this trip. This comparison gives the trip purpose by route. Table IV-4 shows the results. As shown, most of the Blue and Brown Route riders used the bus for skiing followed by employment. Most of the Yellow Route riders used the bus for employment followed by skiing. Most of the Purple Route riders used the bus for employment and skiing. The Orange Route riders used the bus for shopping errands followed by trips for employment. The Black Route riders used the bus for skiing followed by work and shopping errands. Usually due to the different destinations along each route, each route serves one trip purpose more than another. However, due to overlap between routes, the trip purposes are not quite distinct from each other.

Table IV-4
Trip Purpose by Route

Trip Purpose	Blue	Black	Yellow	Orange	Brown	Purple
School/College	0%	2%	3%	3%	2%	3%
Restaurant/Bar	6%	8%	5%	12%	9%	14%
Work	20%	21%	43%	24%	34%	33%
Doctor	0%	1%	3%	0%	1%	1%
Skiing	43%	30%	22%	21%	36%	33%
Shopping/Errands	20%	21%	14%	30%	9%	10%
Visiting/Other Recreation	6%	10%	6%	8%	5%	4%
Other	6%	6%	5%	2%	5%	4%

Reason for Riding

Passengers were asked the most important reason they ride the bus. This comparison gives the most important reason for riding the bus by route. Table IV-5 shows the results. Patrons on the Blue, Black, and Yellow Routes reported that the

most important reasons for riding the bus were convenience and economical reasons. Patrons on the Orange and Purple Routes reported bus convenience and family does not have a car as reasons for riding the bus. Patrons on the Brown Route reported bus convenience and parking problems as reasons for riding the bus.

Table IV-5
Reasons for Riding the Bus by Route

Reasons for Riding the Bus	Blue	Black	Yellow	Orange	Brown	Purple
Family doesn't have a car	4%	8%	12%	20%	11%	19%
Someone else uses car	0%	3%	1%	3%	2%	2%
Parking is a problem	11%	8%	13%	11%	18%	11%
I don't drive	11%	7%	12%	7%	9%	16%
Traffic is bad	0%	0%	2%	0%	0%	0%
Bus is economical	19%	18%	22%	17%	16%	13%
Bus is convenient	40%	38%	28%	32%	34%	22%
Weather conditions	0%	1%	0%	2%	0%	2%
Avoid drinking and driving	2%	3%	5%	2%	3%	11%
Other	13%	14%	5%	7%	7%	4%

Modes of Transportation Used

Passengers were asked the different modes of transportation used as part of their trip. Table IV-6 shows the results. Most of the Blue, Yellow, and Orange Route riders transferred to or from another Breckenridge FREE RIDE bus or used the Summit Stage bus as part of their trip. Most of the Black Route riders used a private automobile or transferred to or from another Breckenridge FREE RIDE bus as part of their trip. Most of the Brown Route riders used a private automobile or a Summit Stage bus as part of their trip. Approximately 40 percent of the Purple Route riders used the Summit Stage bus as part of their trip.

Forty percent of riders on the Purple Route used the Summit Stage bus as part of their trip. Twenty-six percent of Yellow Route riders used the Summit Stage bus as part of their trip. Table IV-6 shows the results.

Table IV-6 Modes of Transportation Used as Part of the Trip by Route						
Modes of Transportation	**Blue**	**Black**	**Yellow**	**Orange**	**Brown**	**Purple**
Private auto	17%	28%	16%	19%	26%	14%
Summit Stage bus	25%	17%	26%	23%	24%	40%
Breckenridge Ski Area Bus	20%	19%	21%	21%	18%	14%
Another Breckenridge FREE RIDE bus	22%	21%	24%	24%	20%	17%
Gondola	16%	15%	12%	12%	11%	15%

Licensed Driver and Vehicle Availability

This comparison provides an indication of the number of choice riders compared to those who are transit-dependent by route. All the routes had a higher percentage of licensed drivers. Table IV-7 shows the results. The Blue Route had the highest percentage of licensed drivers (83 percent). Compared to the other routes, the Purple Route had the lowest percentage of licensed drivers (69 percent).

Table IV-7 Licensed Driver by Route						
Licensed Driver	**Blue**	**Black**	**Yellow**	**Orange**	**Brown**	**Purple**
Yes	83%	93%	73%	81%	85%	69%
No	17%	7%	27%	19%	15%	31%

Table IV-8 shows the vehicle availability by route. The Black and Brown Routes had a higher percentage of vehicle availability compared to the Blue, Yellow, Orange, and Purple Routes.

Table IV-8 Vehicle Availability by Route						
Vehicle Availability	**Blue**	**Black**	**Yellow**	**Orange**	**Brown**	**Purple**
Yes	46%	55%	42%	45%	54%	44%
No	54%	45%	58%	55%	46%	56%

Annual Household Income

Table IV-9 shows the annual household income by route. The majority of riders on the Blue and Black Routes reported earning incomes more than $55,000. The majority of riders on the Yellow Route reported annual household incomes of less

than $25,000. The highest percentage of responses on the Orange and Brown Routes were riders who reported earning incomes of more than $55,000. On the Purple Route, the highest percentage of responses were from respondents who reported earning incomes less than $25,000.

Table IV-9
Annual Household Income by Route

Annual Household Income	Blue	Black	Yellow	Orange	Brown	Purple
Less than $15,000	12%	13%	39%	14%	15%	23%
$15,000 to $24,999	5%	10%	23%	8%	13%	22%
$25,000 to $34,999	15%	10%	8%	9%	13%	10%
$35,000 to $44,999	5%	6%	7%	12%	8%	7%
$45,000 to $55,000	10%	10%	5%	9%	11%	13%
More than $55,000	54%	52%	19%	48%	41%	25%

Occupation/Ethnicity

The final breakout by route is by occupation and ethnicity. Table IV-10 shows the detailed information. As shown in the table, the Blue and Black Routes had a large number in the managerial/professional category, followed by college students. The Yellow Route had a high number of laborers, followed by college students. The Orange and Brown Routes had a high number in the managerial/professional category, followed by laborers. The Purple Route had a high number of laborers, followed by managerial/professional occupations.

All the routes had a higher percentage of white population, followed by Hispanic population. The Black Route had the highest percentage (83 percent) of white population and the lowest percentage (8 percent) of Hispanic/Latino population with a similar pattern on the Blue Route. The Yellow Route had the lowest percentage of white population (56 percent) and the highest percentage of Hispanic/Latino population (29 percent).

Table IV-10
Occupation/Ethnicity by Route

Occupation	Blue	Black	Yellow	Orange	Brown	Purple
Homemaker	4%	4%	4%	7%	4%	4%
Service Worker	2%	7%	13%	8%	11%	15%
Laborer	11%	10%	24%	14%	13%	19%
College Student	13%	13%	14%	10%	8%	7%
Managerial/Professional	35%	29%	10%	28%	31%	17%
Secondary Student	2%	3%	1%	2%	2%	2%
Production/Craft/Repair	4%	4%	3%	2%	2%	2%
Technical/Administration	7%	1%	1%	4%	1%	3%
Retired	2%	7%	2%	10%	5%	2%
Unemployed	2%	4%	3%	3%	2%	2%
Sales	4%	7%	13%	5%	11%	13%
Other	13%	7%	11%	6%	9%	12%
Ethnicity	**Blue**	**Black**	**Yellow**	**Orange**	**Brown**	**Purple**
American Indian/Alaskan	0%	0%	4%	4%	3%	3%
Asian	2%	0%	6%	6%	2%	2%
Black	4%	1%	3%	1%	1%	0%
Hispanic	8%	8%	29%	15%	14%	18%
Pacific Islander	2%	6%	2%	1%	3%	1%
White	77%	83%	56%	70%	75%	71%
Other	6%	1%	0%	3%	1%	5%

Suggestions to Improve FREE RIDE

Passengers were asked for suggestions on how to improve the FREE Ride service. The actual suggestions by route are included in Appendix B. Many of the suggestions/comments received were very positive and grateful for the excellent service. Some of the suggestions on the Blue Route relate to providing service to Blue River, provision for putting ski racks on the city buses, and coordinating with bus service to the ski areas. Suggestions on the Black Route include frequent service after 5:00 p.m. (especially to Peak 8), later service to Ski Hill Road, and better coordination with the buses that go to the resort. Suggestions on the Yellow Route include being on time, later hours of service, and providing more buses and more service on this route. Suggestions on the Orange Route include being on time, coordinating with the free county bus service, and increasing service to the ski and racquet club. Suggestions on the Brown Route include late evening service until 2:00 a.m., frequent service especially to and from Beaver Run, and better coordination with the Summit Stage buses. Suggestions on the Purple Route include

adding stops and routes to serve the Breckenridge Elementary School, Breckenridge Golf Course, and the recreation center; better coordination with the Summit Stage Frisco bus; and later hours of service.

Additional Comments

Passengers were given the opportunity to include additional comments regarding Breckenridge FREE RIDE service. The actual comments are included in Appendix C. Many of the comments were grateful for the great service. The major comments were to have more service on busy routes, later hours of service, and time adherence to schedules.

Chapter V

CHAPTER V
Current Issues

The Town of Breckenridge recognizes the need to conduct a thorough operational analysis of current transit services. The resort is expected to grow significantly in terms of peak visitors, as well a growing permanent population. It is important to realize that current services may not meet future needs. This study addresses the issues brought forth through the initial stages of the process. Each of these issues were addressed through the course of the study.

ISSUES AND CONCERNS

The following issues have been identified for inclusion in the operational analysis. Many deal with personnel and staffing issues, specific bus operations in town, how to deal with future growth, and seeking efficiencies. These concerns were identified through two drivers' meetings in April and a "kick-off" meeting in June. Other issues were identified from the passenger onboard survey results. A public meeting was held on June 27 which provided another opportunity for community residents to provide input and identify issues which should be addressed in this effort. The following issues and concerns are in no particular order of importance, and many represent questions for the Planning Team to address:

- What should the level of service on Main Street be in the future? Is it served appropriately or is more service warranted. Should the Express continue to operate in future years?
- Routes may need to be restructured due to timing, congestion, service areas, and stops, as well as future growth. One route in particular which should receive attention is the Yellow Route.
- Drivers are concerned with left turns, particularly onto Four O'Clock Road.
- Safety is a growing issue. With increasing congestion of both personal vehicles and pedestrians, how can safety increase? Additionally, safety for passengers at bus stops is a concern. Poor lighting, heavy snow, and ice make many stops very difficult to access.
- There are road grade issues which need to be addressed. Many times the grades are icy or even too steep to serve with a fixed-route bus. The identifi-

cation of service criteria will help planners to define roads which are "unserviceable" due to grade issues.

- Should the Town look at reducing speed limits in certain areas?
- Weather conditions continue to affect operations, from snow removal and sight distance issues, to ice and extreme cold for passengers at stops.
- Increasing congestion on many of the roads has hampered on-time performance. This issue continues to be a challenge for the area, and even the bypass has created its own set of issues.
- The current operations at the Breckenridge Station continue to be of great concern. There may be the possibility of warranting a signal to access Park Avenue.
- Pedestrian access to stops is of concern. Additionally, what are the identified bus stop amenities, placement, distance, and thresholds for new stops?
- What should the level of service during the peak and summer months look like? Is service different during different times of the year?
- What technology can be put into place to increase the usability of the FREE RIDE for passengers and the ease of operations for drivers and supervisors?
- What are the coordination or consolidation possibilities and the advantages and disadvantages for both the Town and the ski resort?
- Many times there are missed connections with the Summit Stage buses at the transfer point as well as missed transfers between FREE RIDE buses.
- Bus parking at several lodges has been an issue. What is the appropriate threshold for parking and pullouts?
- Is the current bus routing effective for passengers? Passengers are sometimes confused about which route to take to get to their destinations in the shortest time.
- There has been discussion on the personnel structure and staffing which is appropriate for the operations of the FREE RIDE. Are there enough supervisors, too many overtime hours, too many drivers, and not enough drivers? How should staff be structured and scheduled?
- How does the operation of "kickers," call-a-ride, and demand-response services fit into the mix of fixed-route operations, and what advantages and disadvantages does each serve the community?
- Is the frequency of service enough to meet needs during the peak? Is service provided too often during the summer and shoulder season?
- There is duplication of service areas.
- What should the fleet makeup look like, and what is an appropriate number of buses to cover breakdowns, frequency established, and special events?
- A concern that there needs to be a more consistent schedule for routes.
- There is a need for a direct route to Beaver Run and Kings Crown (40-minute loops on Orange and Brown currently).

- The Brown Route should go up 4 O'Clock, and not make a left turn.
- Brown 1 and 2 should be looked at closely to determine if they should be reversed in how they currently operate.
- More layover time needed at the transfer point to accommodate late buses.
- There are future expansion issues on Airport Road to include Colorado Mountain College campus and housing.
- There is a need for traffic control at Beaver Run.
- Operations through City Market are difficult.
- There is a need for more marketing.

Chapter VI

TRANSPORTATION
CONSULTANTS, INC.

CHAPTER VI

Demand Analysis

INTRODUCTION

This chapter presents an analysis of the demand for transit services in Breckenridge based on quantified estimation techniques. The transit demand identified in this chapter was used throughout the study process. It is important to recognize a few key terms which help to frame the demand analysis.

- *Wants:* A desire by an individual to partake of some service or engage in some activity. Wants may also relate to the character of transportation such as the type of service, type of vehicle, or frequency of service. Wants are highly individualized and not quantifiable on an aggregate basis.

- *Needs:* A requirement that transportation be used by an individual so that he or she may engage in or partake of an activity, program, or service. A community transport need is the sum of individual needs.

- *Demands:* The number of passenger-trips making use of a transportation service (or other service or resource). Demand will vary with changes in the inclusive cost (time, money, inconvenience, frequency of service, and other factors).

This chapter specifically focuses on developing a sense of demand for existing services. The uniqueness of the Breckenridge area is such that few existing transit demand models have been developed for resort areas with the characteristics of the Breckenridge area. There are obvious demands on the existing transit system that fluctuate greatly with the summer, shoulder, and peak periods of the year. This demand affects the level of service which is delivered to both permanent and resident populations. Therefore, it is critical to develop a forecasting tool for future development in the area, as build-out is likely to add several thousand more housing units. A *stop-level demand forecasting tool* has been developed specific to the Breckenridge area and the analysis is presented in the following.

FIXED-ROUTE DEMAND MODEL

In order to analyze whether the existing transit service is meeting the community's needs based on the type of service, LSC developed a stop-level fixed-route demand model. The model has been calibrated to existing ridership levels by each of the three specific seasons, as well as using survey data. This model was used to provide estimates of transit ridership for the service alternatives.

The fixed-route model is based upon several key elements such as:

- Average walk distance to a stop
- Headways
- Housing type and occupancy
- Seasonal changes to residency

LSC used either 15 or 30-minute headways on all routes and calibrated the walking distance by census block to the route stops. Additionally, a percentage of households (including both those which are permanent residences and those that are seasonal) served by transit is calculated using a one-quarter-mile buffer from all existing routes.

For clarification, a housing unit is a house, an apartment, a group of rooms, or a single room occupied or intended for occupancy as separate living quarters. Separate living quarters are those in which the occupants do not live and eat with other persons in the structure and which have direct access from the outside of the building or through a common hall. Living quarters of the following types are excluded from the housing unit inventory: dormitories, bunkhouses, and barracks; quarters in predominantly transient hotels, motels, and the like, except those occupied by persons who consider the hotel their usual place of residence; quarters in institutions, general hospitals, and military installations except those occupied by staff members or resident employees who have separate living arrangements. Seasonal housing units are those intended for occupancy only during certain seasons of the year and are found primarily in resort areas.

Existing Demand Results

As mentioned, three separate scenarios were developed based upon seasonal changes in residency. Residency was used as the factor which affects all other

services provided in the town. The higher the residency, the more demand for services. The shoulder season, defined as April and November, was used to develop a base model. This model does not include those trips for people who would still need to ride the ADA paratransit service due to the FTA's ADA requirements. This was calibrated to the demographic information of the area during the shoulder season and existing ridership by changing the trip rates and percentage of those residencies which are occupied during that time. Additionally, models were run for both summer and peak winter seasons. Appendix D provides the calibrated demand models.

Future demands were calculated using existing transit trip rates using multiple regression techniques. The regression yields a trip rate for permanent versus seasonal housing units based upon an estimate of type of rider, i.e., a recreational trip as part of being a second/seasonal homeowner or rental. The transit demand accounts for daily visitor trips to the area, as the model is only based upon housing; however, it is compared to existing ridership at the stop level. This stop level ridership accounts for existing parking areas. The average trip rate for new developments is as follows:

*Ridership = 6.8 + 0.22 * Permanent Resident Households + 0.51 * Seasonal Resident Households*

Chapter VII

TRANSPORTATION
CONSULTANTS, INC.

CHAPTER VII

Land Use and Stop Consideration

INTRODUCTION

This chapter presents an overview of existing stops and future service criteria for determining improvements to the existing stops and to determine where future services can operate. A full inventory of existing FREE RIDE stops was conducted. This section details those stops and point out existing deficiencies. Additionally, service criteria have been developed which will help to evaluate future service requests. These criteria will aid in responding to requests for service based upon safety, ridership estimates, and bus maneuvers. This chapter also includes how land use and design supports transit and travel patterns.

GENERAL STOP GUIDELINES

In order for a bus stop to be usable, the design must incorporate various elements that relate to safety and accessibility. The recommended design provides an unimpeded pathway from the building or sidewalk being served by the transit stop and the transit vehicle. This entails positioning street furniture, landscaping, and other obstacles so that they do not protrude into the path of travel. Grade-level changes in sidewalks and platforms should also be avoided. Flat, stable surfaces and seating adjacent to pathway routes are also important. The path of travel from the designated waiting area to the vehicle must have a simple and consistent layout. The design should include unbroken travel paths from the sidewalk to the bus boarding platform as well as adequate illumination where necessary.

Bus Stop Area, Bus Landing Pads, and Accessible Paths

The recommended design encompasses the baseline requirements of the Americans with Disabilities Act and allows patrons to have direct access to the transit vehicle. Sidewalks are common in Breckenridge, and it should be feasible to have a concrete landing pad at each stop. The recommended bus stop, as illustrated, provides an accessible and comfortable waiting area for all transit users. Wheel-

chair users in particular require a stable, level, and unobstructed landing pad for the wheelchair lift or ramp to be deployed when boarding and alighting the bus. With respect to the waiting area, wheelchair users also require adequate spacing at the stop to wait, as well as adequate space to maneuver from the waiting area to the landing pad. Anecdotal experience throughout the country shows that a curb of some sort is usually necessary in order for a wheelchair user to be able to easily get on or off a bus with a ramp, even if the ramp is allegedly "ADA compliant." As virtually all transit passengers are also pedestrians on one or both ends of their trip, well-planned access ways that provide direct, safe, and attractive access to bus stops can significantly encourage transit use.

Accessible path design should include the following:

- Access to and from bus stops should be as direct as possible.
- The site design process for new developments should strive to reduce the length and inconvenience of pedestrian access ways between destinations and transit stops.
- A sidewalk should be provided from the nearest intersection to the bus stop to provide a minimum level of access, if possible.

Minimum ADA design implications for bus stop areas, bus landing pads, and accessible pedestrian access ways include the following:

- A minimum clear passage width of 48 inches is recommended by the Access Board's guidelines for the public right-of-way. This is especially important next to a curb drop-off.
- An accessible route from the public transportation stops to the route that is accessible for people with disabilities as well as for the general public.
- The running slope of the accessible pathway shall not be steeper than 1:20 while the cross slope shall not be steeper than 1:48 (two percent).
- Parallel to the roadway, the slope of the boarding and alighting area shall be the same as the roadway (to the maximum extent practicable). The maximum slope perpendicular to the roadway shall not exceed 1:48 (two percent).
- The bus landing pad, when installed alone on a shoulder in a rural area, must be elevated six inches above road grade for safety and accessibility purposes.
- Stable, firm, and slip-resistant ground and floor surfaces.

- Grating spaces, or drainage grates, which are necessary for water drainage, should be no greater than 9.5 inches long in one direction. Spaces longer than this would impede the use of a wheelchair.

Bus Stop Spacing

Bus stop spacing should depend on ridership. Ridership, in turn, is typically affected by surrounding land use type, such as residential, commercial, or Central Business District. It is recommended that the range of spacing between each stop in Breckenridge be between 600 and 1,000 feet on all routes in developed areas. This measurement is a guideline only, and other factors should be considered when planning the actual location of bus stops, including the availability of pedestrian access and the location of major trip generators. Bus stops shall be placed close to subdivision access points and within one block of activity centers such as shopping centers, schools, health care facilities, social service offices, apartment complexes, and mobile home parks. Studies have shown that transit use begins to drop off when potential users have to walk more than 1,000 feet. It has also been found that too many stops can impede performance of the transit system by making it unnecessarily slow.

Carefully placed stops have the potential to improve bus service for patrons. Bus stop spacing can range from 300 to 1,000 feet in Central Business Districts (CBD) or from 650 to 2,600 feet in rural areas. Typical spacing standards are established by each transit agency, but should be evaluated regularly to determine if the spacing is adequate or changes need to be made.

Spacing Standards

Determining the level of pedestrian access to these stops is an important function in spacing. It would not make sense to have stops every 800 feet if there are no adequate pedestrian facilities to access these stops. Table VII-1 presents the recommended spacing.

Table VII-1
Typical Bus Stop Spacing

Land Use	Range of Spacing	Typical Spacing
Central Business District	300 to 1,000 feet	600 feet
Urban Areas	500 to 1,200 feet	750 feet
Suburban Areas	600 to 2,500 feet	1,000 feet
Rural Areas	650 to 2,640 feet	1,250 feet

Source: TCRP Report 19, Guidelines for the Location and Design of Bus Stops.

Bus Stop Placement (Far-Side, Near-Side, and Mid-Block Stops)

For the purpose of this report, the bus stop placement design guidelines have been based upon the design standards used in other areas across the country. Most of the recommended bus stop improvements are within either the jurisdictions of the city or the state, depending upon who owns the right-of-way (ROW). Therefore, any new or improved bus stop facility that is to take place along a state highway would be obligated to review the state design standards and involve Colorado Department of Transportation representatives. Bus stops can be located far-side, near-side, or mid-block.

Far-side bus stops are recommended at intersections where sight distance or signal capacity problems exist, where parking conditions are critical, where right or left turns by general traffic are heavy, and where buses make left turns. In general, transit agencies and traffic engineers prefer far-side stops as the standard unless conditions indicate that near-side or mid-block stops are required. Near-side bus stops shall be the preferred alternative where buses make right turns, and shall also be an alternative at intersections where transit flows are heavy, but traffic and parking conditions are not critical.

Mid-block bus stops shall be an alternative in strip commercial areas where the block faces are longer, with multiple destinations served within the block, in downtown areas where multiple routes require long loading areas that might extend an entire block, or where traffic, physical, or environmental conditions prohibit near or far-side stops.

When choosing among near-side, far-side, and mid-block locations, the following factors should also be considered:

- Intersection geometry and impact on intersection operations.
- Potential need for future passenger amenities.
- Adjacent land use and activities.
- Bus signal priority (e.g., an extended green suggests far-side placement).
- Bus routing (e.g., does the bus turn at the intersection? Are there intersecting routes?).
- Parking restrictions and requirements.
- Pedestrian access, including accessibility for persons with disabilities.
- Physical roadside constraints (e.g., trees, poles, driveways).
- Ridership potential.
- Presence of bus bypass lane.
- Traffic control devices.

Passenger Amenities

Passenger amenities are significant elements in attracting public transportation users. Shelters provide protection from the elements and benches add comfort; trash receptacles, lighting, bicycle parking facilities, and other amenities add convenience and safety. Table VII-2 presents the recommended standards with respect to the need for furniture at a bus stop. Note that these standards consider only boarding activity, as passengers alighting from a bus usually do not use the street furniture. Other considerations may include the potential of a bench or shelter to attract additional riders based on surrounding activities.

Table VII-2
Transit Facility Furniture Needs

Activity	Furniture
Less than 25 Passenger Boardings per Day	None
Between 25 and 80 Passenger Boardings per Day	Bench
81 or more Passenger Boardings per Day	Shelter

Shelters

A bus shelter provides protection from the elements as well as seating. Typically, a shelter is constructed of clear side panels for visibility and safety. Standardized shelters are available that accommodate various site demands and passenger volumes. Existing shelters are typically 10 feet by 5 feet and installed at stops with 10 or more passenger boardings per day (based on prevailing standards). In a few locations, such as transfer points, larger shelters, or multiple shelters are used. Minimum ADA design implications apply to the installation of new or replacement bus shelters and include the following:

- A minimum clear floor area of 30 inches by 48 inches, entirely within the perimeter of the shelter.
- Maintain shelter openings to be a minimum of 36 inches to allow a wheelchair to pass through.
- Bus stop shelters should be connected by an accessible route to the bus stop landing pad.
- Bus stop shelters should not be placed on the wheelchair landing pad.
- General ADA mobility clearance guidelines should be followed around the shelter and between the shelter and other street furniture.

In addition to the number of boardings per day, other factors that Breckenridge may wish to consider when evaluating the installation of a shelter include:

- Climate (wind, rain, heat, etc.), which may lead to recommendations regarding whether or not to have side panels or the need for air circulation, heating, or cooling systems.
- Vandalism (broken or scribed glazings).
- The number of transfers at a stop.
- The availability of space to construct a shelter and waiting area.
- The number of elderly individuals or people with disabilities in the area.
- The proximity to major activity centers.
- The frequency of service.
- Adjacent land uses.

Benches

Minimum ADA design considerations apply to the installation of new or replacement benches and include the following:

- Clear floor or ground space for wheelchairs.
- 20 inches minimum to 24 inches maximum in "overall" depth for benches with backrests.

- Seat height: 17 inches minimum to 19 inches maximum above the floor or ground.
- Structure supporting vertical or horizontal forces of 250 pounds applied at any point on the seat, fastener, mounting device, or supporting structure.
- Exposed benches should be slip-resistant and designed to shed water.

Trash Receptacles

Litter at a bus stop is a negative image for the transit agency as well as the community. The installation of trash receptacles at bus stops can alleviate this problem. Not all bus stops require trash receptacles; the decision to include a receptacle at a stop is typically based on boarding counts. If litter is a problem at a particular stop (due, perhaps, to the presence of a fast-food outlet or a convenience store near the stop), a trash receptacle should be installed regardless of boarding counts. Trash receptacles should only be placed at those stops that the transit agency can reliably schedule for trash pickup. In some instances, communities require maintenance of transit receptacles as a condition of nearby development. There is a mutually beneficial relationship between businesses and transit, and the need to work together with the community, particularly fast-food restaurants, to service trash receptacles.

Lighting

The lighting at a bus stop affects the safety of patrons and the use of the stop by patrons and non-patrons in the hours after sunset. A well-lit bus stop enhances the waiting passengers' comfort and security, while a dimly lit or unlit stop encourages non-patrons to loiter at the stop. It is recommended that from two- to five-foot-candles of illumination be provided at all bus stops that will be in use after daylight hours. Lighting fixtures should be vandal-proof and easily maintained; the use of exposed bulbs and other elements that can be easily tampered with or destroyed should be avoided. When possible, bus stops should be located near existing streetlights as this is a cost-effective method of providing adequate lighting. Another option is the use of solar power to illuminate bus shelters. Typically, the power system mounts to a pole which makes it compatible with any shelter and maximizes the solar energy harvest.

Bicycle Parking

It is appropriate to provide bicycle parking at some bus stops. The provision of bike parking facilities discourages bicycle riders from locking their bikes to the bus stop structures or to adjacent structures and reduces visual clutter by locating bikes together in one area. Bicycle parking facilities should be located away from other activities to reduce congestion and improve safety. At lighted stops, the bike parking should be located near the lighting to offer protection from theft. The bike parking should not restrict views into the bus stop area. It is recommended that racks for bike parking be provided at bus stops where there is the potential for a high level of patrons access by bike, such as near educational facilities.

Park-and-Ride/Multimodal Facilities

Multimodal, or intermodal, centers are facilities designed to encourage the transfer between travel modes. Multimodal centers for the purposes of this study are those that facilitate the transfer to buses of users of other modes of transportation. Typically, park-and-ride lots and transit transfer facilities meet this criterion. Amenities that should be provided at these facilities include one or more shelters and benches, adequate lighting, an auto drop-off area, bicycle parking, motorcycle parking, toilet, kiosks, and appropriate landscaping.

BUS STOP PLACEMENT

The decision regarding the placement and spacing of bus stops and their amenities needs to be carefully analyzed to ensure that placement meets the needs of residents and patrons. This should be based upon passenger requirements, services provided, and the interaction of stopped buses with traffic. The boarding patterns in Breckenridge suggest that benches should be placed throughout the downtown corridor, with shelters at popular fringe locations, with only signs everywhere else.

Industry Standards

Standards for bus stops include, but are not limited, to the following:

- Stops should meet minimum ADA standards.
- Bus parking pads should be a minimum of eight feet in width, preferably ten feet. Stop pads should be constructed of concrete, especially if they are served by four or more buses per hour.
- If asphalt is to be used, a minimum of three inches of asphalt over a minimum of five inches of base materials is recommended; concrete bus pads should be a minimum of eight inches of reinforced concrete.
- Curb heights should be no less than four inches and no more than eight inches to minimize passenger falls when alighting from a bus.
- A minimum horizontal clearance of two feet should be provided between the curb and any obstruction (bench/sign).

EXISTING STOPS

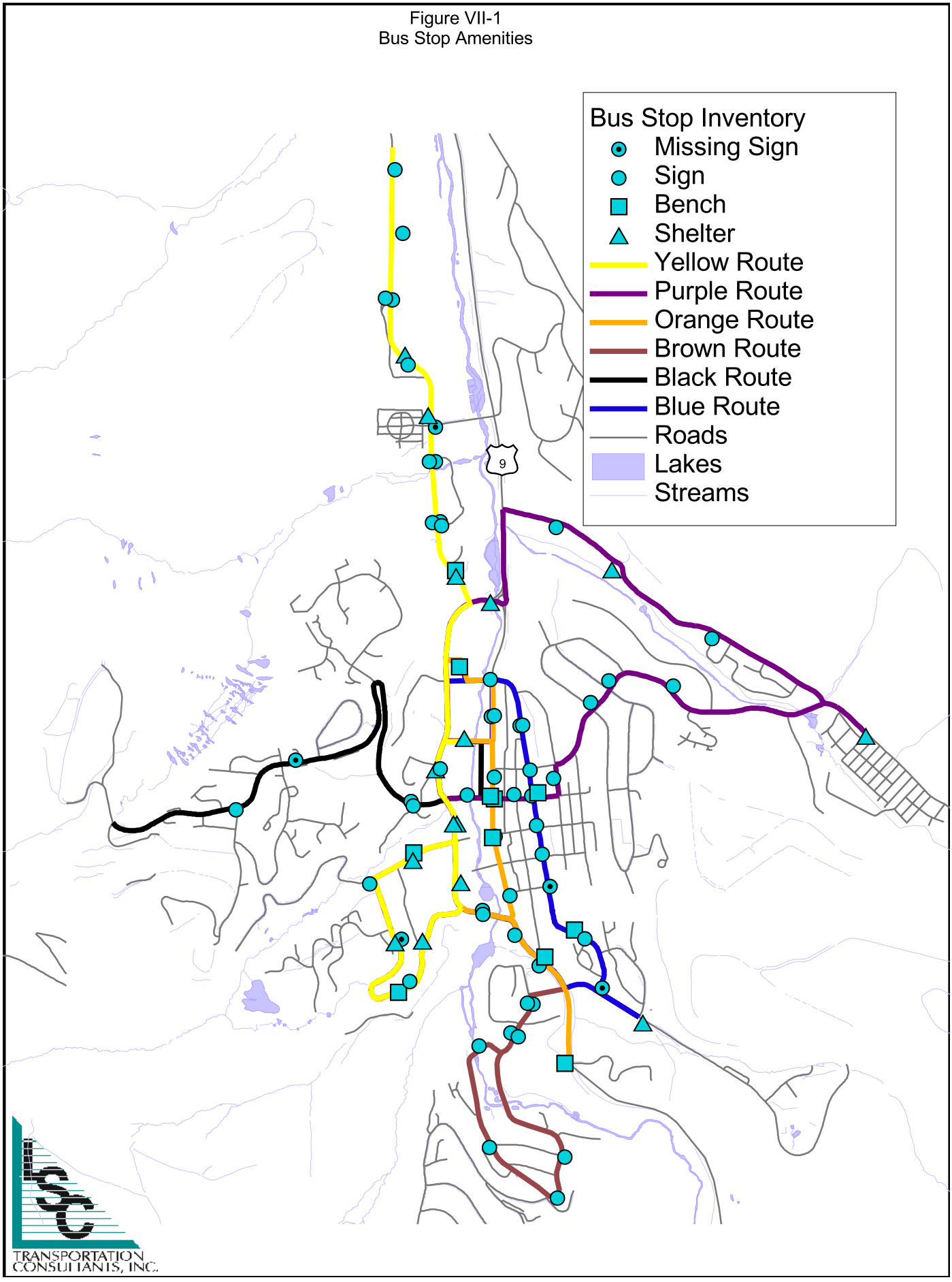
The Town of Breckenridge currently has 108 fixed bus stops along ten bus routes. Many of the stops—especially in the downtown area—are shared by numerous routes. Sharing bus stops allows the system to be easily understood by riders, and is also cost-effective.

All of the bus stops were inventoried to determine the existing amenities as well as the types of surrounding land uses. These data, which are summarized in the following, were used with boarding and alighting trends to determine the most appropriate amenities for each current and planned stop.

Of the 108 stops, only one was unable to be located. The Peak 8 stop was not inventoried due to construction during the time of the site visit. It should be noted that the ski are will have a new bus stop where the mid-lot is currently located. Of the 80 stops that were analyzed, all but eight were equipped with Breckenridge FREE RIDE signs. The other eight had metal poles that had only the name of the stop and a schedule, mounted approximately four feet high. The pedestrian conditions were generally good. For the existing stops, 55 of them had sidewalks that led up to the bus stop, while others were located near shoulders and turnouts for buses. Overall, the pedestrian environment surrounding the stops was consistent with the surrounding amenities.

There were a total of 16 sheltered stops in the Town of Breckenridge. The shelters that are being used are designed to be welcoming and blend in with the surrounding environment. They are made of decorative wood and have benches and schedules in the interior. In addition to the shelters, there were 11 other stops that had unsheltered benches. Figure VII-1 provides the current inventory of stops.

Figure VII-1
Bus Stop Amenities



BUS STOP IMPROVEMENTS

Boarding data for the peak season were used to determine the stops that need to be enhanced through the addition of shelters or benches. Recommendations regarding the placement of these amenities are listed below. One limitation of the recommendations is related to the amount of right-of-way that is available, especially downtown. All of the stop amenities will have to be evaluated for the required amount of right-of-way that is needed to accommodate both shelters and benches.

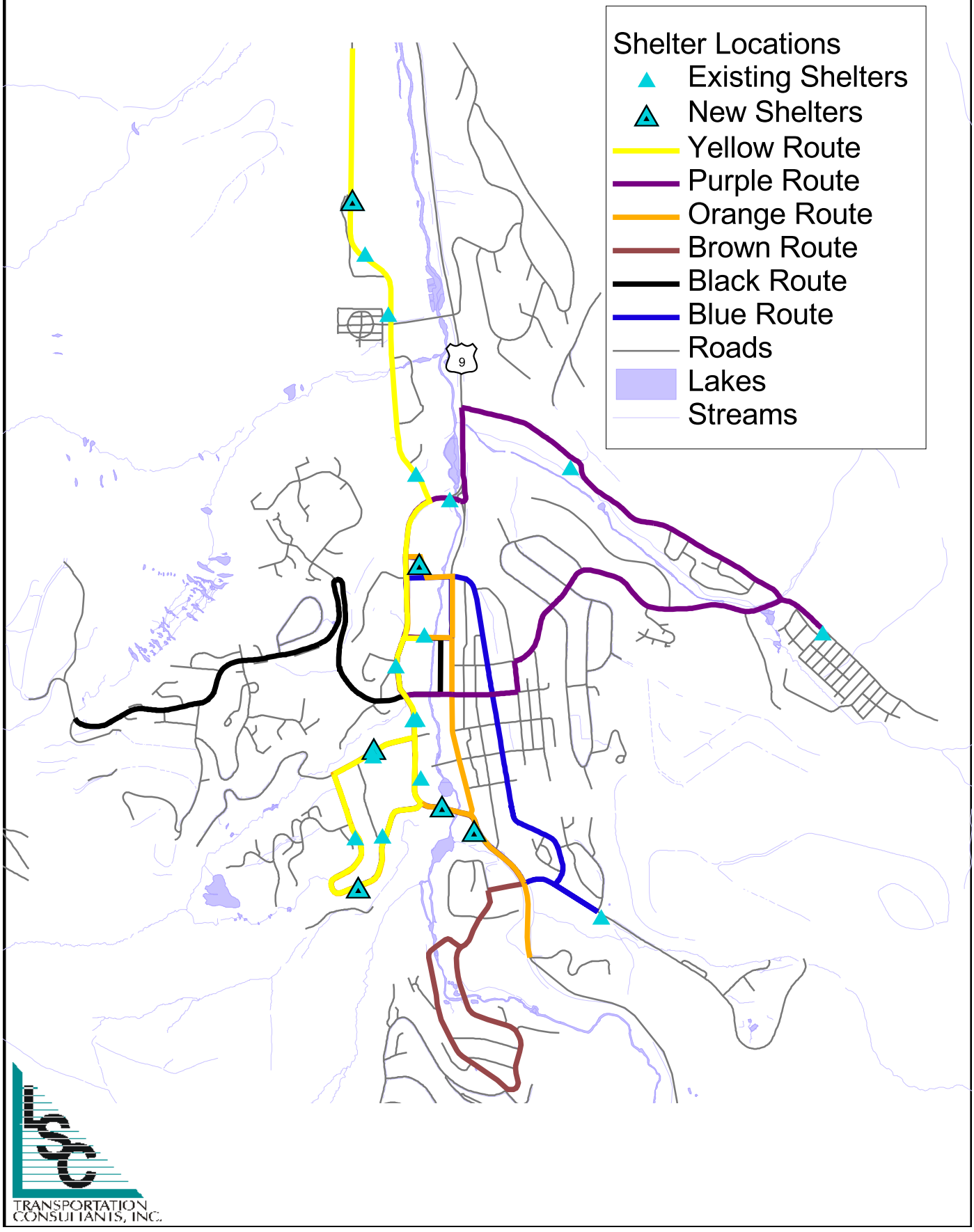
Shelter Recommendations

After analyzing the data, it was determined that the nine stops with the highest boardings should have shelters. The nine stops with the highest boardings range from 96 to 779 passengers per day, including Breckenridge Station. Of these nine stops, four of them currently have shelters, thus five would have to be added. Please note that the City Market stop is being relocated closer to the store and will include a shelter. The stops where shelters would need to be added are listed below

- Beaver Run
- Main Street Station
- City Market (located on Highway 9)
- Pine Ridge
- Park Avenue Lofts

Figure VII-2 provides the locations of those stops which should have a shelter placed at them.

Figure VII-2
Shelter Locations



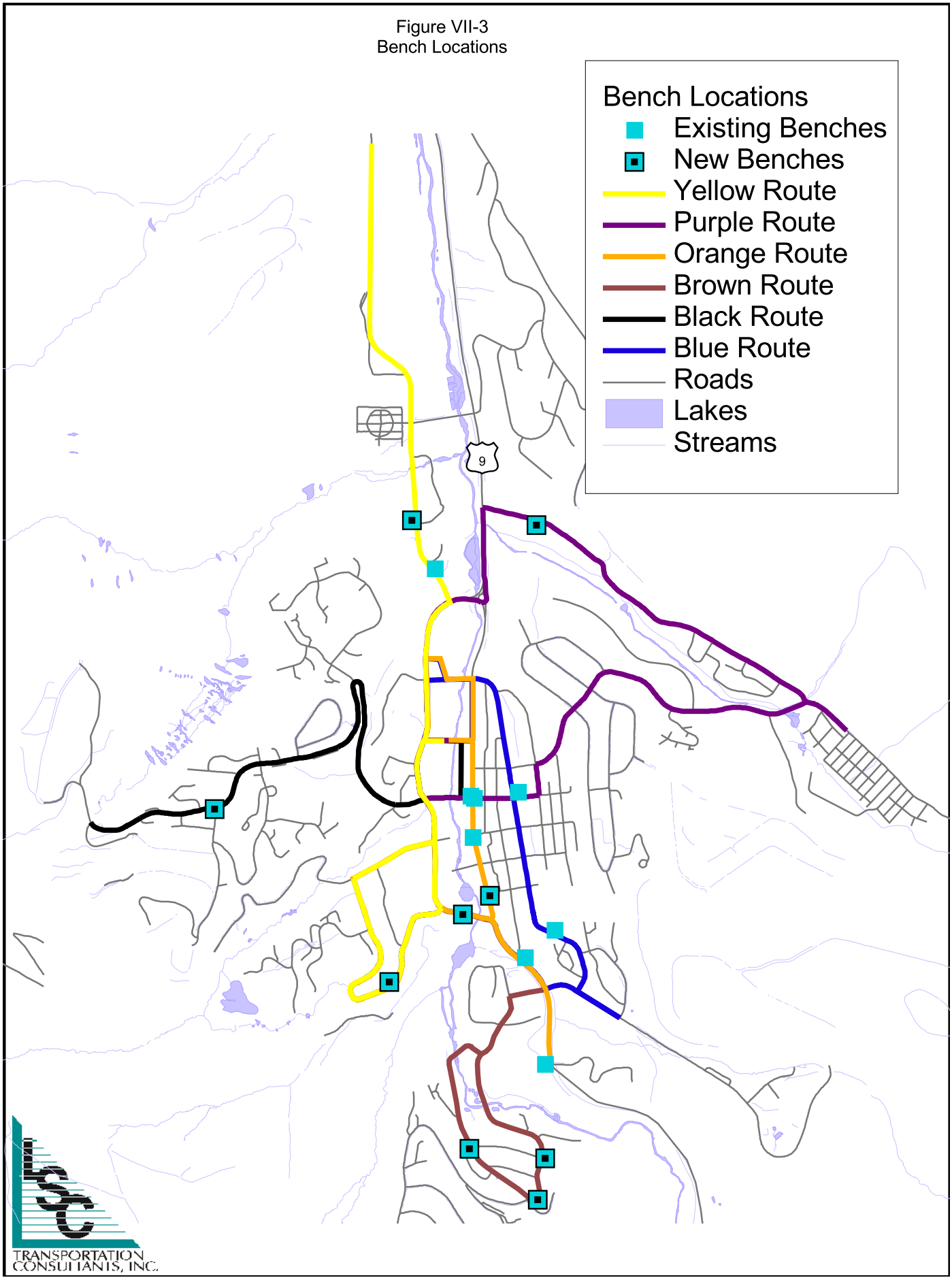
Bench Recommendations

In addition to the shelters, there are 10 stops that should have at least a bench to accommodate passengers. These stops represent a range of 32-80 passengers boarding per day. The 10 locations that need benches installed are listed below.

- Flintstone Lane
- Village at Breckenridge
- Now Colorado
- Claimjumper
- Great Divide
- Main/Jefferson
- Trafalgar
- Gold Camp
- Kennington Place
- Woods Manor

Figure VII-3 provides the locations of those stops which should have at least a bench placed at them.

Figure VII-3
Bench Locations



Signage Recommendation

The last improvement that should be made deals with signage. As stated above, there were seven stops that had only a schedule, but no FREE RIDE sign. The absence of the FREE RIDE sign made these stops difficult to locate. Since the sign is an easily identifiable symbol of the transit system, it should be present at all stops.

It is recommended that signs be posted at all bus stops. Signed stops are a key element in informing passengers where service is available. In addition, bus stop signs provide a permanent "presence" on the street that substantially increases public awareness of the transit program among riders and non-riders alike. The most common type of sign is a flag sign displaying route and passenger information. The design of bus stop signs should be standardized throughout the system so they are instantly recognizable. It is useful for signs to be double-sided (so they can be read from both directions) and reflectorized (for easy night reading). It is recommended that bright colors be used for easy bus stop identification. Characters and background of signs should have a non-glare finish; however, with characters and symbols contrasting from their background. The design elements on the sign should include the logo, a phone number for transit information, and, optionally, the major destination of the routes available at the stop. The bus stop sign should, wherever possible, be placed even with where the operator is trained to stop the front door of the bus, to let patrons know where to stand. Signs closer to the curb should be positioned to face toward the sidewalk to prevent bus mirrors from hitting the signs. Placement within an existing sidewalk of four feet or less width should be avoided wherever possible. Signs can be located on existing poles, such as streetlights or other traffic information signs. Unprotected sign posts should be of the break-away type to minimize injuries and damage resulting from motor vehicle accidents.

Metal poles at bus stops should be easily recognized, especially for persons with visual disabilities. There are a few methods that can be used in order to distinguish a bus stop pole from other street poles commonly used by a public works department:

- Erect metal poles with a distinctive pattern and shape, such as a square or hollowholed pole.

- Enhance existing poles with a band of distinctive adhesive at a minimum height of four feet. This marking should be brightly colored (ideally, the band would be the same color as the transit system), waterproof, and should possess a distinctive texture.

Minimum ADA design implications apply to the installation of new or replacement signs and include the following.

- The bottom of the sign should be at least seven feet from the ground, and the sign should not be closer to the curb than three feet. In areas where there are sidewalks, allow at least 36 inches of clear path on the sidewalk.
- Letters and numbers should be a width-to-height ratio between 3:5 and 1:1 and a stroke-width-to-height ratio between 1:5 and 1:10.
- Characters and numbers sized according to the viewing distance from which they are to be read.
- Minimum height is measured using an upper case X. Lower case characters are permitted.
- Accompany pictograms with the equivalent verbal description placed directly below, with a border dimension of six inches (152 millimeters) minimum in height.
- Follow protruding objects requirements (described in the Accessible Path section).

SERVICE CRITERIA

In response to service requests, the Town of Breckenridge should put specific criteria in place to effectively evaluate these requests. These guidelines help to determine the feasibility of service requests using both specific quantifiable criteria as well as general qualitative measures. The following defines these guidelines, while Table VII-3 provides a tool for evaluation.

Table VII-3 Service Criteria			
Criteria	**Characteristic**	**Mechanism**	**Minimum Standard**
Performance *	Performance based upon demand for service	Passengers/Hour	At least 9 passengers per hour
Safety	Safety issues including intersection safety, snow/ice issues, accident history, potential for accident	Accident history/rate and known safety issues	No known accident history
Turning Radii *	Turning movement consideration for bus	Appropriate turning radii of corner	27' minimum inside turning radius 45' minimum outside turning radius
Bus Movement *	Unsafe bus movements	Prevent unsafe bus movements (backing)	No backing/unsafe bus movements
Pedestrian Access *	Accessibility of stops	Accessibility rating of stop	Access directly to housing/employment
Street Width *	Width of street from edge of pavement to edge of pavement (curb-to-curb)	Total width of travel lanes and parking	30' of pavement, one-side parking 24' of pavement, no parking
Plowing Priorities	Road prioritiy for snow plowing	Low priority routes will be given least consideration for service	Plowed by 5:00 a.m.
Road Surface	Surface type and condition of road	Road rating and condition will dictate services	Limited ice/snow accumulation, hard surface, no gravel, no speed bumps
Note: * indicates absolute criteria			

Performance

Minimum performance standards should be established by the Town of Breckenridge. Not only do these standards help planners and management evaluate route productivity and efficiency, but easily identify deficient routes or areas of service which should be reviewed regularly. The following performance measures should be incorporated into any monitoring program and used to gauge future potential and feasibility for new services. The following present industry standard performance measures and terminology appropriate for use by the Town.

Revenue-Hours and Miles – Those vehicle-hours and miles during which the transit vehicle is actively providing service to passengers. For fixed-route service, this includes all the time spent on routes when passengers may board the vehicle. For demand-response service, this includes all time spent in actively providing passenger service. It includes the time and miles between dropping off one passenger and picking up another even though there may be no passengers onboard at the time.

Cost per Passenger-Trip (One-Way) – Total system costs (all operating expenses plus administrative costs plus capital costs on a depreciation schedule) divided by the number of passenger-trips. Costs and trips must be recorded over the same period of time.

Cost per Vehicle-Hour – Total system costs divided by the sum of the number of hours that each vehicle is operated in service. The typical usage is vehicle revenue-hours.

Effectiveness – For a transportation system, the effect is that people are moved from one place to another (i.e., trips). Measures of the effectiveness of a transportation system are, for example, the number of trips taken on it, or the number of individual persons that it serves. Or, a transportation system can be evaluated in terms of its effectiveness toward a social goal; for example, the number of persons who can take advantage of a particular social service because of the transportation system.

Efficiency – The efficiency of a transportation system will be some measure of the relationship of system inputs to system outputs. Transit planning has generally expressed this efficiency measure in terms of the ability to minimize an input (i.e., costs) to produce a unit of output. The most often used measures are cost per passenger or cost per vehicle-mile.

One-Way Passenger-Trips – Refers to the total number of boarding passengers carried on all routes.

Productivity – The basic performance parameter that describes transit and paratransit service, defined as the number of passenger-trips per vehicle-hour

of operation. It is possible to also define productivity in terms of revenue-hours once the utilization ratio is known.

Productivity = Passenger-Trips/Vehicle Service-Hours

Vehicle-Hour – Either the time the engine is running, or the time a driver is assigned to a vehicle; the operating time for a vehicle. Useful in measuring operating costs. Revenue-hours are the hours when the vehicle is operating and available for passenger service.

Vehicle-Miles – The total number of miles driven on all vehicles used to provide passenger service. Revenue-miles are the miles operated by vehicles available for passenger service.

Performance Standard

Routes should perform at nine passengers per hour. Routes which do not perform at or above nine passengers per hour should be examined for changes. Only one route operates below this standard—the Black Route.

Road Grade

While road grade issues can certainly affect bus speeds and safety, there are no areas with a grade greater than that accessing Peak 8, other than some remote housing areas in the county. Therefore, while grade issues can certainly slow a transit route's operating speed, no grades in the immediate Breckenridge area where a bus could potentially serve would inhibit such future growth.

Safety

Safety is typically measured on highways as crashes/100 million vehicle-miles traveled. The standard for the FREE RIDE should be less than 2.5 accidents per 100,000 bus miles traveled. The Warrior's Mark area is an area with concern for accidents. Several crashes have been experienced due to weather-related conditions. This area is prone to having ice buildup on the road and represents an area where drivers should practice extremely careful bus operations. Safety is more difficult to quantify; however, a standard of examining areas where previous crashes have occurred to determine if stop changes, bus pullouts, or traffic control is warranted is a prudent approach. Additionally, in those areas deemed as a high probability of experiencing an accident, additional route time should be allotted so drivers are afforded the comfort of not having to make a tight schedule.

Turning Radius

Though the importance of the design of turning radii may not be at first apparent, it is of the utmost importance that at any given corner the turning radius be such that the largest vehicle expected to navigate the corner will to be able to turn safely, without damaging either the vehicle or the curb. Inadequate curb radius can also require vehicle travel paths to swing into additional travel lanes, creating potential safety problems. Excessive requirements, however, can increase pedestrian exposure to traffic, thereby increasing potential pedestrian safety problems.

A design template for the standard 30-foot bus operated by the FREE RIDE is presented in Figure VII-4. Copying these figures over a clear plastic sheet allows them to be easily laid onto site plans. Each of these templates can be used for either a right-turn design (used face up, as shown) or a left turn (by using face down).

The turn radius template for a 30-foot bus presented in Figure VII-4 is recommended for design of street intersections and other locations where transit vehicles can be expected to travel at speeds greater than five miles per hour (mph). The minimum radius template for a 30-foot bus presented is recommended as a minimum feasible design for locations (such as within intermodal centers) where vehicles can be expected to operate at very low speeds, and where space is at a premium. As shown, the minimum turning radii for a standard 30-foot transit bus operating in Breckenridge is 32 feet and is recommended for the Town.

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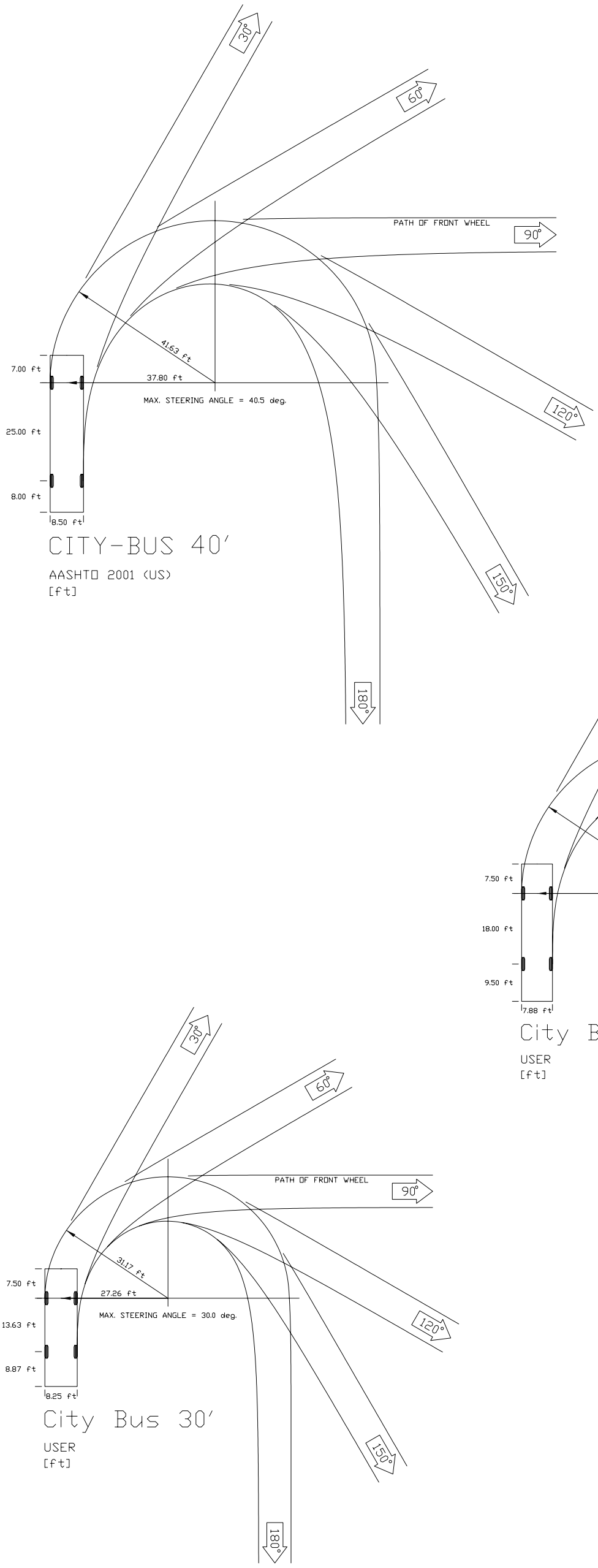
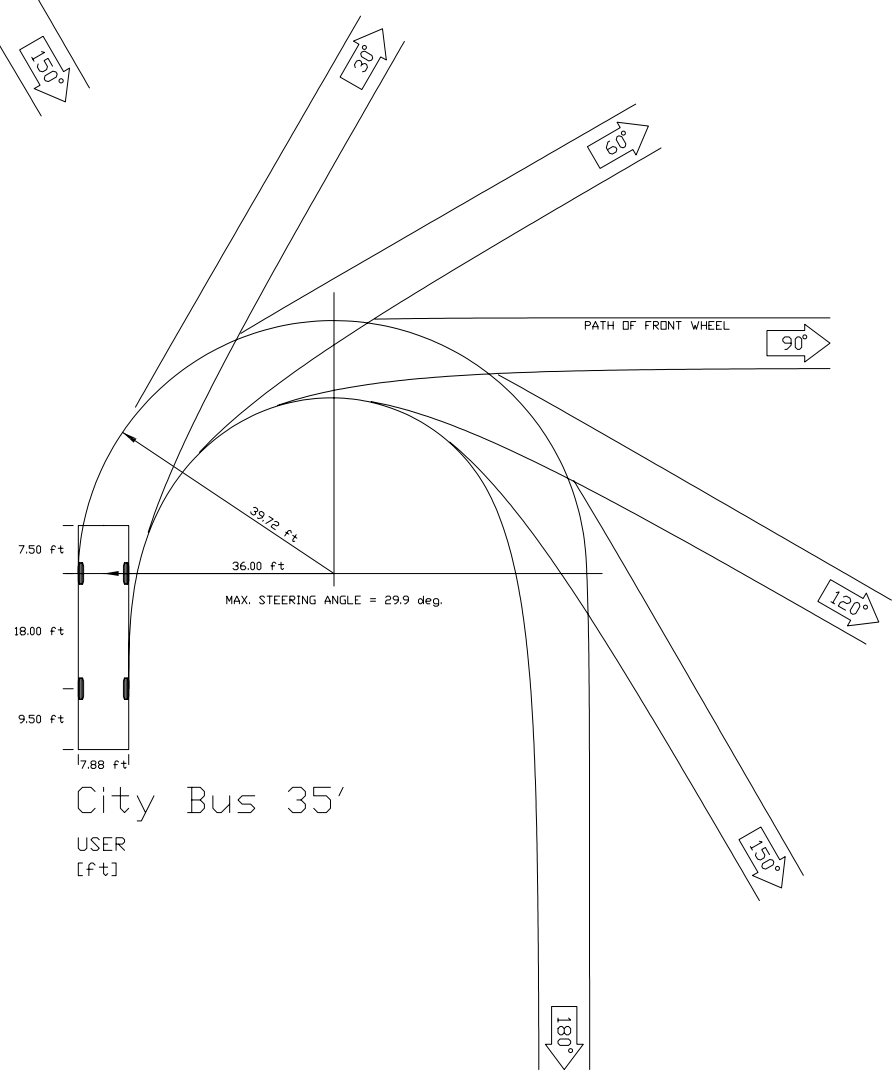
Figure VII-4

Standard Local Bus Turning Radii



CITY-BUS 40′

AASHTO 2001 (US)
[ft]



City Bus 35′

USER
[ft]

City Bus 30′

USER
[ft]

1′ = 30′

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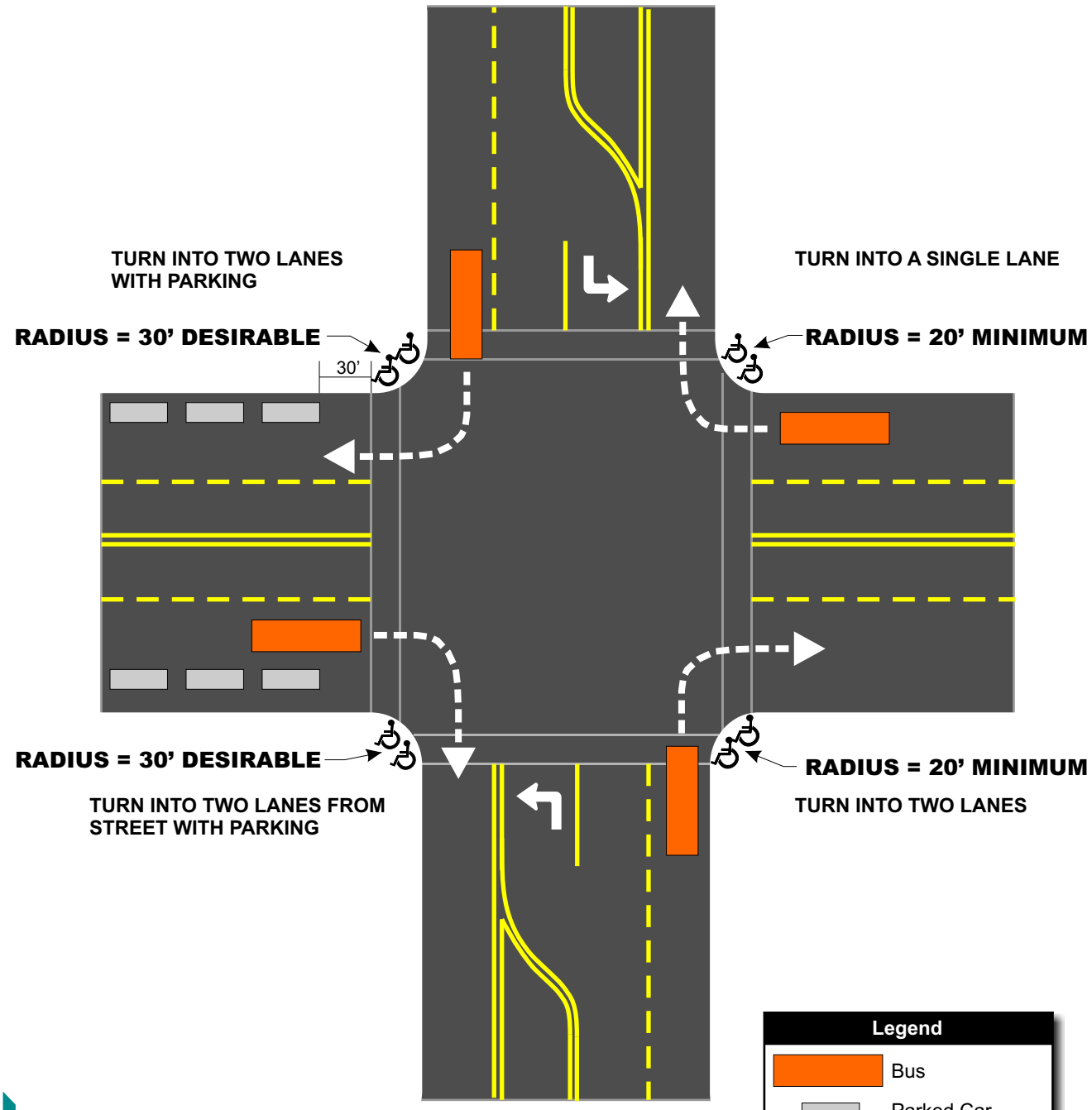
Simple radius curves are adequate for street intersections in urban, low-speed operations, and avoid the higher design and construction cost associated with more complex curves. The minimum curb radius needed to accommodate transit buses depends upon the presence of on-street parking in the approaching and departing legs of the intersection, and on the number of lanes provided on the departure leg, as shown in Figure VII-5:

- When turning onto a two-lane street where parking lanes are provided, a 25-foot minimum curb radius is required, so long as no parking is allowed within 30 feet from the point of tangency of the departure leg.
- When turning onto a two-lane street from a street where parking lanes are provided, a 25-foot minimum curb radius is required, so long as no parking is allowed within 30 feet from the point of tangency of the departure leg.
- When turning onto a two-lane or four-lane street where parking lanes are not provided, a 30-foot minimum curb radius is required.

Figure VII-5

Intersection Design for Bus Turns
(with no encroachment in adjacent lanes)



**Assuming Minimum of 12' travel lanes*

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Bus Movements

No transit bus should ever be required to back up. This should never occur at any point in operations, except in an emergency situation. Any bus turnaround point should provide ample right-of-way to accommodate a bus without having to back up to make a turn.

Pedestrian Access

Pedestrians should be able to access bus stops via sidewalks, trails, or shoulders. Snow plowing should allow the safe accessibility of all stops during the winter so that the pedestrian is not accessing the stop by walking in the roadway right-of-way.

Street Width

A minimum street width is essential to effective bus operations. A bus having to go out of the lane of traffic to allow other oncoming vehicles to pass is not acceptable. A minimum street width of approximately 30 feet is advised. This allows parking on at least one side of the street/road and provides for a 12-foot travel lane in either direction. The 30 feet is from outside edge to outside edge of pavement or curb and gutter.

Snow Removal Priorities

In many areas with extreme snowfall, a municipality sets priorities for snow removal and plowing. Breckenridge routes should operate on those areas with the highest priority for plowing and snow removal. Any road not on this high priority list should be considered for changes.

Road Surface Condition

Road surface conditions affect the quality and safety of transit operations. Road should be paved with concrete or asphalt as a minimum. No fixed-route transit vehicles should operate on gravel or substandard roads. Transit vehicles should not operate on streets with speed bumps or speed humps. Recommendations in reports by the Transit Cooperative Research Program and the Institute of Transportation Engineers do not support speed bumps or humps on transit routes.

Additional Considerations

In addition to the specified criteria, requests for new service will also be evaluated based on the following considerations:

- Available resources (staffing, equipment, operating funds) to add to an existing route or create a new one.
- Analysis of residential impact of any of the proposed service.
- Request is within regulations (such as within the legal operating zone).
- Analysis of any additional operational impact(s) to Public Works.
- Grant potential for capital and operational funding.
- Consideration of turning radii must meet transit equipment general specifications.

Process

Staff should review new service or expansion requests objectively using the established service criteria. While the request may not meet every criterion—for instance, such as snow plow priority—the request must meet the "Absolute" criteria and the resources must be available to provide the new service.

When evaluating new developments, the number of housing units will be taken into account in determining the plausible performance rate. For existing areas, staff will conduct a resident survey with which to evaluate the demand and plausible performance rate. New service additions will also be evaluated during the first year to determine the viability of continuing the service.

LAND USE

Land use planning is a critical element in the function of any transportation system— whether it involves automobiles, buses, bicycles, or pedestrians. While land use planning is often associated with governmental entities, land use planning should more appropriately be viewed as the process of setting goals and pursuing these goals in order to achieve certain ends from the use of parcels of land. Private developers often use such words as "access" and "amenities" to describe the manner in which they want their parcels of land to relate with the transportation system.

The goal of land use planning as it relates to transportation is to make sure the supply of transportation (the number and size of roads, the frequency of transit service, etc.) is adequate to meet the demand (the number of people going from one point to another). Without having a "plan" or a knowledge of what to expect from any given parcel of land, it is very difficult to achieve the balance where supply meets demand. Since governments are being pushed by citizens to be more efficient and frugal with taxpayer money, there is seldom excess supply. Thus, unplanned development results in congestion and more accidents. These conditions compromise all modes of travel, creating a situation where people's preferred mode of travel (auto) and many of the alternatives (transit, bicycling, and walking) all fail at the same time.

When combining land use planning and transit, many people remember only the transit advocate's point of view—which is more buses, fewer cars. In some cases, this point of view may be appropriate, but it is not the only point of view. The cost-conscious taxpayer should consider the argument that land use planning can help minimize the cost of providing essential public transit service. In addition, public transit can play a role in preserving the character of the historic downtown and reducing the need for costly parking structures.

In Breckenridge, changes in residential development and commercial businesses are occurring very rapidly. Residential subdivisions are scattered throughout the area, and commercial development is growing. This area is experiencing extreme growth and should be reviewed for transit-friendly design prior to it becoming fully developed.

Design Strategies

In recent years, there has been a strong interest in the planning profession regarding the strategies by which rural and urban development can be shaped to maximize the efficiency of alternate transportation modes, particularly transit. This field of study has taken on different names in various parts of the country. On the East Coast, this field of study is commonly referred to as the "Neo-Traditional Neighborhood Development" (TND) movement. This movement has been championed by academics such as Andreas Duany and Elizabeth Plater-Zyberk. It is evidenced in

such places as the new town of Seaside, Florida and the extensive Kentlands development near Washington, DC.

In the West, this field of study has typically been labeled "Transit Oriented Design" (TOD). The leading figure in this field is Peter Calthorpe, who has been instrumental in the development of the extensive Laguna West project on the southern edge of the Sacramento metropolitan area. There are a number of similarly planned new towns in the San Diego, San Francisco, Portland, and Seattle metropolitan areas. The TOD concept is the focus of this discussion as it is most common to the western United States.

There are a number of common design strategies that have been identified through this field of planning research. A key element in the design strategies presented below is an acceptance that automobile use will remain a key part of our transportation system. To that end, the strategies do not strive to eliminate all auto traffic. Rather, the goal is to make transit and other alternative transportation modes as attractive as possible. Each strategy is discussed below.

Cluster Land Use Densities Close to Major Transit Stops

A vital rule of thumb in transit planning is that the potential for transit ridership drops off dramatically with increased distance from the nearest transit stop. Research consistently shows that the proportion of persons willing to use transit drops dramatically beyond a one-quarter mile walking distance to the bus stop (7.5-minute walk at two mph). It therefore follows that the more trip origins and destinations that can be concentrated within approximately one-quarter mile of a major transit stop, the greater the potential for transit usage. Within the constraints of the real estate market and local housing preferences, therefore, is a benefit in developing standards to ensure that the greatest number of dwelling units, employment opportunities, and institutional/commercial centers are located near major transit stops. Transit service will not likely drive development, but quite the contrary, that development will drive where future services are needed.

The Calthorpe school of planners has dubbed this land use cluster a "pedestrian pocket." The leading proponent defines this term to mean "a simple cluster of housing, retail space, and offices within a quarter-mile walking radius of a transit system" *(The Pedestrian Pocket Book: A New Suburban Design Strategy).* Other characteristics of a "pedestrian pocket" include a residential density of approximately 12 dwelling units per acre and a commercial development at a floor-to-area ratio of at least 0.25. Other studies have found that the recommended minimum densities of development to support public transportation are seven dwelling units per acre for residential developments and a floor-area-to-property-area ratio of 1.0 for commercial and office development *(Guidelines for Transit-Sensitive Suburban Land Use Design,* US DOT, p. 42: 1991).

Street Network Should Be Developed to Allow Efficient Transit Service

In order to reduce traffic volumes near residences and avoid the potential for "cut-through" traffic, traffic and land use planners in the period since roughly World War II have commonly designed residential areas with a curvilinear, disconnected street system so common today in suburban areas. While a bus can be routed along the curvilinear collector or arterial street close to the residences within a subdivision, the walking distance may be excessive because there is no direct access. Connected streets should be provided to permit bus routes into residential neighborhoods. This is difficult to accomplish because many of the areas being developed have only one access/egress road. The topography and geographical constraints do not allow interconnectedness of streets. Many streets wind through residential neighborhoods and then end or reverse direction in a cul-de-sac.

Convenient Pedestrian and Bicycle Connections to Transit Stops

A key strategy in the TOD design is to ensure that transit passengers can quickly access a bus stop from their trip origin or destination. This strategy recognizes the fact that transit patrons are pedestrians—or in some cases, skiers—as soon as they leave the bus. To this end, special emphasis is placed upon providing direct and attractive pedestrian and bicycle ways between residential and employment areas and the transit stops, often including pedestrian paths linking cul-de-sacs with nearby transit stops on collector and arterial streets.

Site Design That Serves Both Auto and Transit Users

A quick drive to the nearest Wal-Mart or other big box retailer shows the result of current commercial site design practices. Auto drivers are provided with a relatively short walk to the front door after parking. The transit passenger is typically dropped off at the street edge, enduring a long walk to and across the parking lot, unprotected from the weather. Current site design of this type rewards auto use and penalizes transit use. Redesigned to cluster the commercial uses near major intersections, however, both auto and transit users could be provided with convenient walking access to the site. In addition, the "clusters" formed by this site plan would encourage increased walking between buildings for meals, business, errands, etc.

Other site design issues relate to the geometry of streets, bus turnouts, shelters, and park-and-ride facilities. Streets which will be designated as bus routes must have adequate turning radii at the intersections. Bus turnouts should be designed with a pavement composition that resists damage by buses. In addition, bus turnouts should be sited in locations that minimize traffic flow interruptions (especially at intersections) and maximize pedestrian access. Bus shelters should be placed approximately four to five feet from the curb edge and should be located where there is efficient pedestrian access and/or neighborhood commercial nodes. When possible, turnouts and shelters should not be sited on major arterials with high travel speeds. Instead, a nearby collector should be used. Park-and-ride facilities should provide an adequate number of bus berths, easy pedestrian access from the parking lots, and a separation of bus and automobile traffic flows.

Buildings—especially commercial and institutional ones—should be constructed to provide access for transit vehicles. Common examples of such buildings are hospitals and local hotels/condominiums. The access that is needed consists of overhead clearance and pull-through driveways. Without these, the transit vehicle must either stop further from the front door of such buildings or be at risk of backing out of dead-end driveways. Poor vehicle access also contributes to a loss of efficiency.

Actions To Be Addressed in Breckenridge

Land use planning and design has a strong relationship with transportation demand and travel patterns. It plays an important role in determining the viability of public transportation and the feasibility of serving portions of the community. Recognizing this important relationship, below is a list of particular enhancements to existing design and land use planning concepts. These enhancements positively impact land use decisions on transportation needs within the local area and support transit within the community.

1. Adopt transit-oriented development design guidelines. Each transit patron is a pedestrian as soon as the individual leaves the bus, so the pedestrian facilities should be emphasized. There should be a relatively small setback from the transit corridor. Ordinances should require that parking be provided at the rear or side of buildings. The front of the buildings should be oriented to the street with maximum setbacks which are close to the street and oriented to transportation corridors and pedestrians. Incorporate pedestrian-friendly design guidelines in street design manuals for all new developments. Pedestrian access (paths, trails, or sidewalks) should be provided in the proximity of bus stops to residential developments. Bus stops and sidewalks should connect with other walkways or paths to provide easy access to the residential and commercial development.

2. Promote mixed-use development in development areas.

3. Emphasize pedestrian orientation with minor or no building setbacks.

4. Focus new development into town centers or areas already served by transit.

5. Provide comfortable transit facilities. Make bus stops and bus waiting areas attractive through high-quality design and construction and pedestrian amenities such as lighting, seating, and weather protection.

6. Promote a complete network of sidewalks throughout the area.

7. Require all public and private development projects in the area to include sidewalks on both sides of the roads.

8. Encourage in-fill and redevelopment by designating underdeveloped areas for public or private investment.

9. Provide incentives such as density bonuses or reduced parking requirements for developers who design pedestrian-friendly projects.

10. Recognize transit-friendly planning and design by sponsoring an annual awards program.

11. In area master plans, prioritize new and maintenance road projects based upon how well they serve in-filling development and include transit-friendly infrastructure (bike lanes, sidewalks, bus pullouts, bus pads, and bus stops).

Chapter VIII

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CHAPTER VIII

Transit Service Alternatives

INTRODUCTION

This chapter presents a detailed description of public transportation options for the Breckenridge area. Passenger needs, travel patterns, and funding often dictate the type of service to be provided in an area. However, it is always helpful to research realistic transit service alternatives and costs for transit services. Capital requirements, financial plans, and management options can then be developed to support the planned transit service. The following discussion evaluates the various transit service alternatives and the ability to meet the transportation needs of local residents.

TRANSIT SERVICE ALTERNATIVES

The following section reviews the possible transit service alternatives. Table VIII-1, at the end of this chapter, details the two alternatives reviewed in this analysis. Each alternative is divided into winter and summer seasons. The number of vehicles required for each route by season and operating costs are estimated by alternative. Each alternative is presented with a description of the transit service alternative.

Alternative 1

Alternative 1, as illustrated in Figure VIII-1, has eight routes in the winter season (November though April) and as illustrated in Figure VIII-2 has seven routes in the summer season (May through October). This alternative recommends identifying routes by the destinations served. Service on these routes operates similar to the current hours of operation from 6:30 a.m. to 12:00 midnight. Each of the routes have schedules with time points indicating the departure time at key bus stops. In cases where the routes have different summer and winter season schedules, both are presented. This alternative would require a total of eleven vehicles—nine vehicles for operation and two spare vehicles. This alternative would operate for a total of 45,448 revenue-hours per year.

Route Structure

The ***Airport Route*** operates similar to the northern portion of the Yellow Route that serves Airport Road, while the ***Four O' Clock Route*** operates the southern portion of the Yellow Route that serves Four O' Clock Road. In this alternative, the Airport Route will be interlined with the Four O' Clock Route year-round. Interlining means when a bus arrives at the Breckenridge Station after completing the Airport Route, it will then resume traveling on the Four O' Clock Route. This allows passengers to travel longer distances without having to change buses. So if a passenger is boarding on the Airport Route and needs to reach a destination on the Four O' Clock Route, the passenger stays on the same bus to reach his destination. The Airport Route and the Four O' Clock Route each have a cycle time of 20 minutes. The cycle time—which is measured in minutes—is the time it takes to make a round-trip on a route including the layover or recovery time at the transfer point.

Advantages:

- The existing Yellow Route will be divided into the Airport Route and Four O' Clock Route eliminating confusion as to which direction the bus is departing at the Breckenridge Station.
- The two routes are interlined so that passengers who are traveling in the north-south direction along North Park Avenue would continue to do so without transferring between buses.

The ***Beaver Run Route*** operates similar to the Four O' Clock Route, but operates in the reverse direction along King Crown Road. This route departs the Breckenridge Station, takes a left turn from Watson Avenue to North Park Avenue, travels south on North Park Avenue to make a loop on Village Road, King Crown Road, and Four O' Clock Road back to North Park Avenue and then heads back to the Breckenridge Station. This route has a 30-minute cycle time. This route will not operate during the summer season. The Beaver Run Route will be interlined with the Peak 8 and Peak 7 Route during the day until 5:00 p.m. The disadvantage with the Beaver Run Route would be the left turn from Four O' Clock Road onto North Park Avenue.

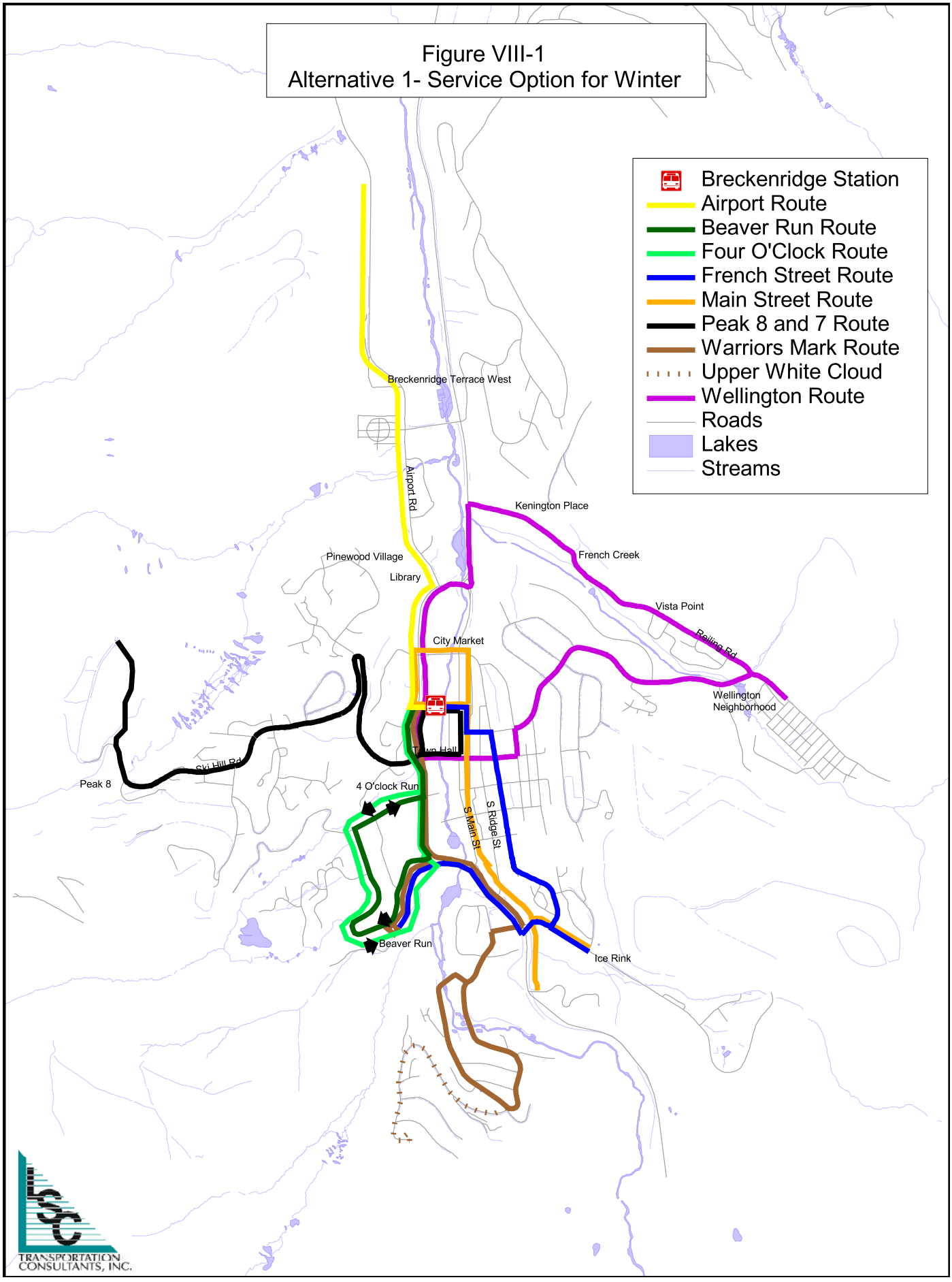
Figure VIII-1
Alternative 1- Service Option for Winter
Breckenridge Station
Airport Route
Beaver Run Route
Four O'Clock Route
French Street Route
Main Street Route
Peak 8 and 7 Route
Warriors Mark Route
Upper White Cloud
Wellington Route
Roads
Lakes
Streams
Breckenridge Terrace West
Airport Rd
Kenington Place
French Creek
Pinewood Village
Library
Vista Point
Reiling Rd
City Market
Wellington
Neighborhood
Ski Hill Rd
Peak 8
4 O'clock Run
S Main St
S Ridge St
Beaver Run
Ice Rink
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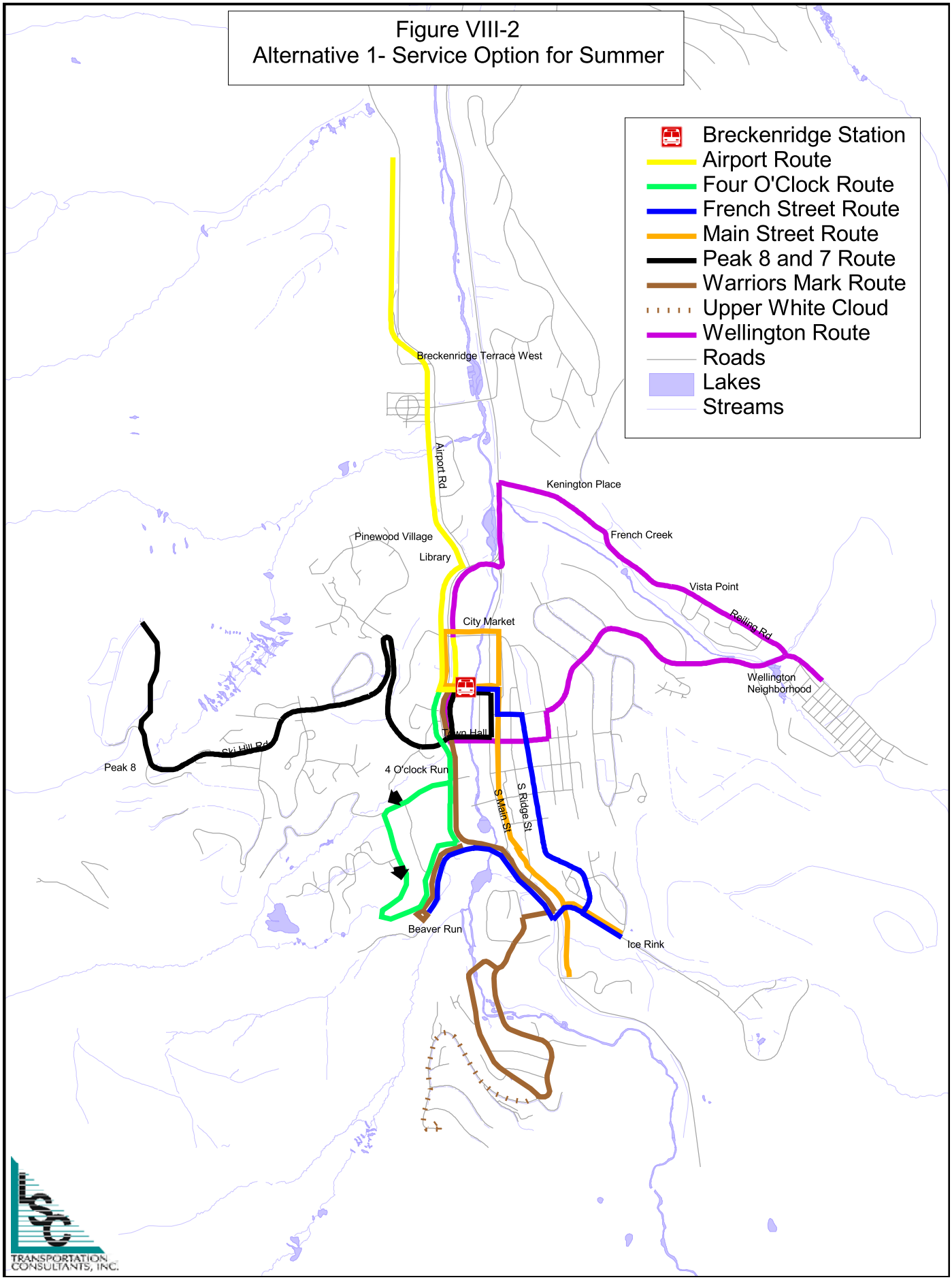
Figure VIII-2
Alternative 1- Service Option for Summer
Breckenridge Station
Airport Route
Four O'Clock Route
French Street Route
Main Street Route
Peak 8 and 7 Route
Warriors Mark Route
Upper White Cloud
Wellington Route
Roads
Lakes
Streams
Breckenridge Terrace West
Airport Rd
Kenington Place
French Creek
Pinewood Village
Library
Vista Point
Reiling Rd
City Market
Wellington
Neighborhood
Ski Hill Rd
Peak 8
4 O'clock Run
S. Main St
S. Ridge St
Beaver Run
Ice Rink
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Advantages:

- To avoid confusion as to which direction the bus goes along King Crown Road and whether it first serves Four O' Clock Run or Beaver Run Transfer Point, the routes were named after the first place it serves. If passengers want to go to Beaver Run, they would take the Beaver Run Route as opposed to the Four O' Clock Route that will take passengers a slightly longer time to get there.
- With the Four O' Clock Route and the Beaver Run Route, there is a headway of approximately 15-20 minutes at the Beaver Run.

The ***French Street Route*** operates similar to the Blue Route with minor modifications. This route starts at Breckenridge Station, turns right from Watson Avenue to Main Street, then takes a left turn at Wellington Road, a right turn at French Street, a right turn at Boreas Pass Road to Beaver Run, and then back along the same route. Since this route does not go to the Ice Arena and does not do the loop around City Market, the cycle time on this route is reduced to 30 minutes. In the summer season, the French Street Route will interline with the Peak 8 and Peak 7 Route. One bus will serve both these routes in the summer, reducing both routes to a one-hour headway. Under this alternative, the Breckenridge FREE RIDE will operate the entire service on this route, as opposed to the current service which is operated partly by the Breckenridge FREE RIDE and partly by Breckenridge Ski Resort.

The ***Main Street Route*** leaves the Breckenridge Station, takes a right turn at Watson Avenue to North Park Avenue, turns right at French Street to Main Street, travels south to the Ski and Racquet Club, then loops around and heads back north on Main Street, and takes a right turn onto Boreas Pass Road to the Ice Arena. At the Ice Arena, the route loops back to Boreas Pass Road, takes a right turn onto Main Street, and a left turn at Watson Avenue back to Breckenridge Station. The Main Street Route has a 30-minute cycle time. In the winter season, the Main Street Route will interline with the Peak 8 and Peak 7 Route after 5:00 p.m. so passengers/skiers getting back from Peak 8 base and guests from the new Peak 7 hotel can directly access restaurants in downtown Breckenridge without getting off the bus.

Advantages:

- The Main Street Route provides easy access to downtown Breckenridge and dining and shopping activities located along Main Street.

The ***Peak 8 and Peak 7 Route,*** as the name suggests, serves Peak 8 and the hotel at Peak 7 which is to open in December 2008. This route operates similar to the current Black Route with minor modifications. This route starts at the Breckenridge Station, takes a left on Watson Avenue to Main Street, takes a right at Ski Hill Road, and then heads west to serve Peak 8 and the new hotel at Peak 7. The route comes back along the same route and returns to Breckenridge Station by North Park Avenue. This route has a cycle time of 30 minutes. In the winter season, this route interlines with the Beaver Run Route during the day (until 5:00 p.m.) and with the Main Street Route in the evening (after 5:00 p.m.). As mentioned previously, the Peak 8 and Peak 7 Route will interline with the French Route in the summer season. Similar to the service on the French Street Route, the Breckenridge FREE RIDE will operate the entire service on this route, as opposed to the current service which is operated partly by the Breckenridge FREE RIDE and partly by Breckenridge Ski Resort.

Advantages:

- The Peak 8 and Peak 7 Route interlines with the Beaver Run Route during the day (until 5:00 p.m.) providing direct service between the Peak 8 base area, F-Lot, and the Snowflake Lift. This route interlines with the Main Street Route in the evening (after 5:00 p.m.) so that there is a direct service between the Peak 7 hotel and the restaurants along Main Street in the evenings.

The ***Warriors Mark Route*** operates similar to Brown Routes #1 and #2 with some modifications. The route departs from the Breckenridge Station, takes a left turn at Watson Avenue to North Park Avenue, takes a right turn at Village Road and serves Beaver Run, then loops around and travels back along Village Road and South Park Avenue, takes a right turn at South Park Avenue to Main Street, and then takes a right turn on Main Street to Broken Lance Drive. The route stays on Broken Lance Drive through Warrior's Mark and loops back to connect with Main Street. The route then serves Beaver Run on its way back, travels along Village Road, then takes a left at North Park Avenue, and a right at Watson Avenue back to Breckenridge Station. This route has a 30-minute cycle time. In the summer season, the Warriors Mark Route will interline with the Wellington Route. Both these routes—the Warriors Mark Route and the Wellington Route—will be served by one bus reducing the headways in summer on these routes to one hour. This

alternative also includes service to the Upper Warriors Mark area. Please note that the preliminary schedule on the Warriors Mark Route does not include service to the Upper Warriors Mark area because of difficulty in pulsing the service to the rest of the system. The primary concern is that the only place for a bus to turn around is in a cul-de-sac. The cul-de-sac at the end of White Cloud does not have an adequate radius. This was checked using one of the smaller vehicles operated by the Town. The ridership estimated at Upper Warrior's Mark is approximately 30 passengers per day.

The ***Wellington Route*** would continue to operate as the Purple Route currently does. Since this route is partly funded by Summit Stage, it is listed as a separate line item in Table VIII-1. This route has a cycle time of 30 minutes.

Saturday Service for Special Events

This alternative also considers the same level of winter service on Saturdays for special events held in the months of June, July, and August. The operation cost for that Saturday service would be approximately $86,400.

A summary of operating characteristics is shown in Table VIII-1 in Transit Alternative 1.

Operated by the Town of Breckenridge (Breckenridge FREE RIDE):

Winter Schedule:

- Winter operational cost: $1.2 million
- Hours of service: 21,070
- Average cost per hour: $58.78

Summer Schedule:

- Summer operational cost: $806,280
- Hours of service: 15,015
- Average cost per hour: $51.03

Total Annual Service:

- Annual operational cost: $2 million
- Annual hours of service: 36,085
- Average cost per hour: $54.90

Capital Requirements:

- Winter season: Seven vehicles for operation and two spare vehicles.

- Summer season: 4.5 vehicles (one vehicle will be shared with the Wellington Route—partly funded by Summit Stage) for operation and one spare vehicle.

Operated by the Breckenridge Ski Resorts (BSR):

Winter Schedule:

- Winter operational cost: $182,540
- Hours of service: 3,010
- Average cost per hour: $60.64

Capital Requirements:

- Winter season: One vehicle for operation and one spare vehicle.

Partly Funded by Summit Stage:

Winter Schedule:

- Winter operational cost: $172,600
- Hours of service: 3,010
- Average cost per hour: $57.34

Summer Schedule:

- Summer operational cost: $83,090
- Hours of service: 1,715
- Average cost per hour: $61.32

Total Annual Service:

- Annual operational cost: $255,690
- Annual hours of service: 4,725
- Average cost per hour: $59.33

Capital Requirements:

- Winter season: One vehicle for operation and one spare vehicle.
- Summer season: 1.5 vehicles (one vehicle will be shared with the Breckenridge FREE RIDE service) for operation and one spare vehicle.

Total Operation:

Winter Schedule:

- Winter operational cost: $1.6 million
- Hours of service: 27,090
- Average cost per hour: $58.92

Summer Schedule:

- Summer operational cost: $889,370
- Hours of service: 16,730
- Average cost per hour: $56.17

Total Annual Service:

- Annual operational cost: $2.5 million
- Annual hours of service: 43,820
- Average cost per hour: $57.55

Capital Requirements:

- Winter season: Nine vehicles for operation and two spare vehicles.
- Summer season: Six vehicles for operation and two spare vehicles.

Alternative 2

This alternative was developed by the Parking and Transit Assistant Manager. Alternative 2, as illustrated in Figure VIII-3, has seven routes in the winter season (November though April) which includes the Green Route presently operated by the Breckenridge Ski Resort (BSR). Figure VIII-4 illustrates the six routes in the summer season (May through October). This alternative is based on the assumption that in the winter season, the modified Green Route, the modified Blue Route, and the modified Black Route are to be operated by the Breckenridge Ski Resort (BSR). Starting at 5:15 p.m., the Town of Breckenridge FREE RIDE system would operate the Black Route service. Each of the routes have schedules with time points indicating the departure time at key bus stops. The route times are in the process of being verified by supervisors. Similar to the previous alternative, in cases where the routes have different summer and winter season schedules, both are presented. This alternative would require the Breckenridge FREE RIDE to have a total of ten vehicles—eight vehicles for operation and two spare vehicles. This alternative would require the Breckenridge FREE RIDE to operate a total of 37,116 revenue-hours per year.

Route Structure

The ***Green Route*** operates similar to the service currently operated by the BSR with modifications to include service to Breckenridge Station. The route will leave Peak 7 and Peak 8, head to the Breckenridge Station, then do the F-Lot, go back north on Park Avenue, and turn left at Four O' Clock Road and Kings Crown Road to do the Beaver Run along Village Road. The route then returns to Breckenridge Station along the same route, loops around, and goes to Gold Camp using Park Avenue and Ski Hill Road. The cycle time for the Green Route will be 30 minutes. This route will operate from 8:00 a.m. through 5:00 p.m.

The ***Blue Route*** operates similar to the current service with minor modifications. The route will depart Breckenridge Station using Watson Avenue to Main Street.

The route will take a right at Watson Avenue to Main Street, turn left at Main Street to Wellington Avenue, and then turn right at French Street. The route will then continue as the current Blue Route to Beaver Run byway of the Ice Rink, and then comes back by the same route. The route then turns left at Wellington Avenue, right at Main Street, and left at Watson Avenue back to Breckenridge Station. This route will have a cycle time of 30 minutes. This alternative assumes that in the winter season, one of the buses on the Blue Route will operate between the hours of 8:00 a.m. and 5:00 p.m. and be operated by BSR, while the other bus from 6:30 a.m. to 12:00 midnight will be operated by Breckenridge FREE RIDE.

The ***Black Route*** operates similar to the current service with modifications to include service to the hotel at Peak 7 and modifications when the route comes back into town. The route would operate as currently operated, except Peak 7 would be added. When the route comes back into town, the route would go along Lincoln Avenue, turn right at Ridge Street, turn right at Jefferson Avenue (there is a pull in for a bus stop by Michaels), turn right at Main Street, and turn left at Watson Avenue back to Breckenridge Station. This alternative assumes that this route will be operated by BSR, and in the evenings after 5:15 p.m., the route would be operated by the Breckenridge FREE RIDE. The cycle time on the Black Route will be 30 minutes.

Advantages:

- Service on the Black Route, in combination with service on the Orange Route, would make service on Main Street a 15-minute headway.

The ***Orange Route*** would operate the same route to the Ski and Racquet Club as currently operated. The route will take a right turn at Boreas Pass Road to the Ice Rink, loop around, and take a right turn back to Main Street. The route will then head north on Main Street to City Market and return to Breckenridge Station by way of North Main Street. The cycle time on the Orange Route will be 30 minutes.

Advantages:

- Since the modified Orange Route now operates to the Ice Rink in addition to the Blue Route, the Ice Rink can be a potential park-and-ride.

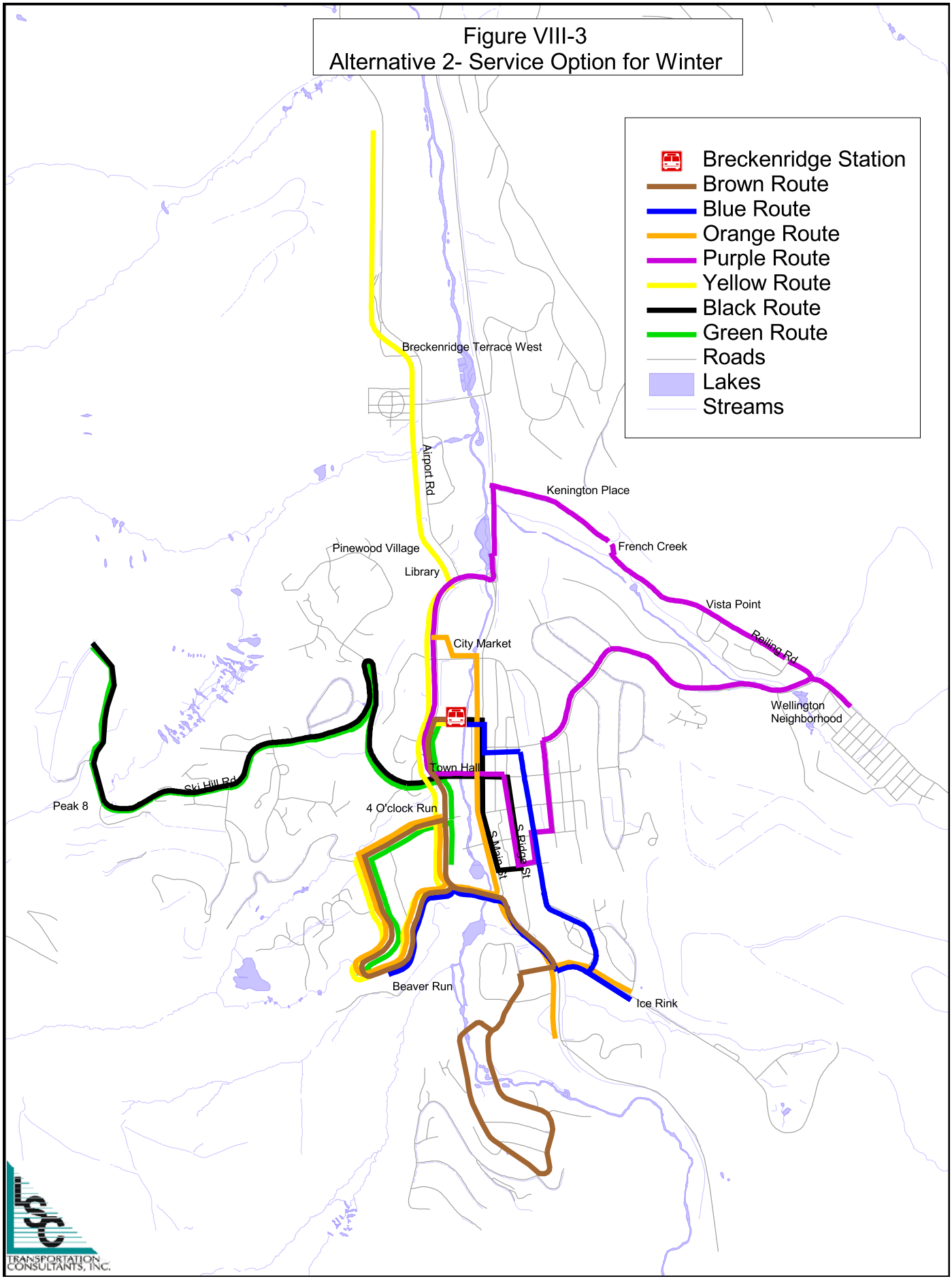
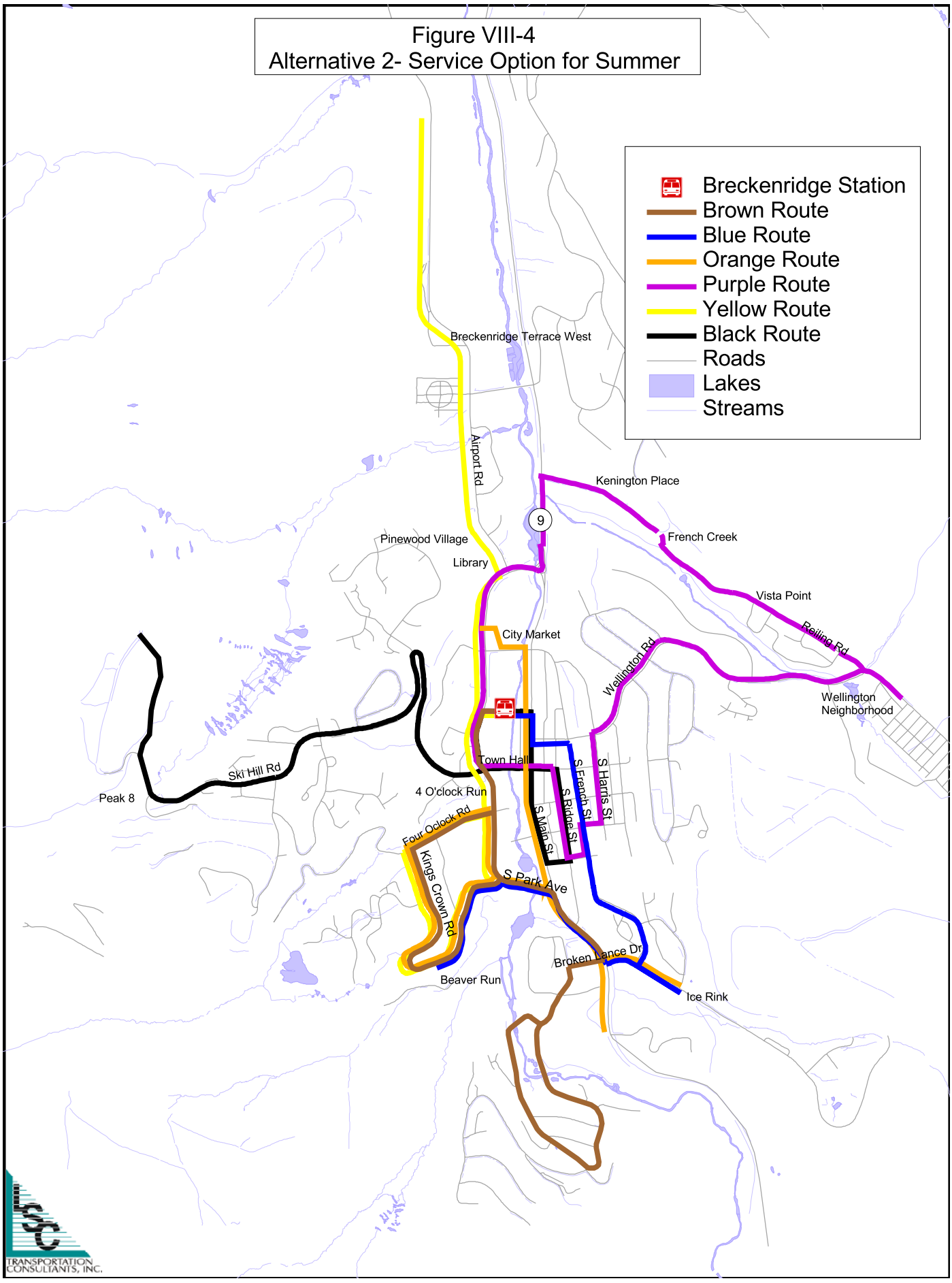


Figure VIII-3
Alternative 2- Service Option for Winter
Breckenridge Station
Brown Route
Blue Route
Orange Route
Purple Route
Yellow Route
Black Route
Green Route
Roads
Lakes
Streams
Breckenridge Terrace West
Airport Rd
Kenington Place
French Creek
Pinewood Village
Library
Vista Point
Reiling Rd
City Market
Wellington
Neighborhood
Town Hall
Ski Hill Rd
Peak 8
4 O'clock Run
S Main St
S Ridge St
Beaver Run
Ice Rink
TRANSPORTATION CONSULTANTS, INC.

Figure VIII-4
Alternative 2- Service Option for Summer



The ***Yellow Route*** will operate the same as currently operated. The only change will be renaming the Satellite Lot stop to 'End of Line' stop. In the winter season, there will be two buses on the Yellow Route, while in the summer season there will be one bus on this route. The cycle time on this route will be 30 minutes.

The ***Brown Route*** would depart Breckenridge Station, take a left at North Park Avenue, and turn right at Four O' Clock Road through Kings Crown Road, Beaver Run, and Village Road. The route then turns right at South Park Avenue, right at Main Street, and right at Broken Lance Drive through Warriors Mark. The route then turns left at Main Street, left at Park Avenue, F-Lot, and heads back to Breckenridge Station. This route has a cycle time of 30 minutes. During the winter season, this route has two buses. One bus operates all day while the other bus operates during the peak hours from 7:15 to 10:15 a.m. and from 2:15 a.m. to 5:45 p.m.

The ***Purple Route*** would include a bus stop after the 7-Eleven store. The route would operate as is currently done with service along Park Avenue and Reiling Road. The route then loops around at the Wellington neighborhood and travels along Wellington Road. The route takes a left turn from Wellington Road to Harris Street. The route runs south on Harris Street and takes a left turn at Adams Street. This alternative adds a bus stop near the intersection of Adams Street and Harris Street for the Carter Park and Breckenridge Elementary School. The route then turns left at French Street, right at Jefferson Avenue, right at Ridge Street, left at Lincoln Avenue, and right at Park Avenue back to Breckenridge Station. The Purple Route has a cycle time of 30 minutes.

Advantages:

- Since the Breckenridge FREE RIDE will operate service on the Black Route after 5:15 p.m., the bus will now be available during the day in case there is a need for an extra bus to take care of the overflow capacity on buses during the winter season.

A summary of operating characteristics is shown in Table VIII-1 in Transit Alternative 2.

Operated by the Town of Breckenridge (Breckenridge FREE RIDE):

Winter Schedule:

- Winter operational cost: $1.3 million
- Hours of service: 16,607
- Average cost per hour: $79.32

Summer Schedule:

- Summer operational cost: $868,460
- Hours of service: 14,122
- Average cost per hour: $61.50

Total Annual Service:

- Annual operational cost: $2.2 million
- Annual hours of service: 30,729
- Average cost per hour: $70.41

Capital Requirements:

- Winter season: Seven vehicles for operation and two spare vehicles.
- Summer season: Five vehicles for operation and one spare vehicle.

Operated by the Breckenridge Ski Resorts (BSR):

Winter Schedule:

- Winter operational cost: $574,060
- Hours of service: 8,371
- Average cost per hour: $68.58

Summer Schedule:

- Summer operational cost: $125,470
- Hours of service: 1,978
- Average cost per hour: $63.43

Total Annual Service:

- Annual operational cost: $699,530
- Annual hours of service: 10,349
- Average cost per hour: $66.00

Capital Requirements:

- Winter season: Four vehicles for operation and one spare vehicle.
- Summer season: One vehicle for operation and one spare vehicle.

Partly Funded by Summit Stage:

Winter Schedule:

- Winter operational cost: $188,650
- Hours of service: 3,168
- Average cost per hour: $59.56

Summer Schedule:

- Summer operational cost: $191,780

- Hours of service: 3,222
- Average cost per hour: $59.56

Total Annual Service:

- Annual operational cost: $380,430
- Annual hours of service: 6,388
- Average cost per hour: $59.56

Capital Requirements:

- Winter season: One vehicle for operation and one spare vehicle.
- Summer season: One vehicle for operation and one spare vehicle.

Total Operation:

Winter Schedule:

- Winter operational cost: $2 million
- Hours of service: 28,146
- Average cost per hour: $69.15

Summer Schedule:

- Summer operational cost: $1.2 million
- Hours of Service: 19,320
- Average cost per hour: $61.50

Total Annual Service:

- Annual operational cost: $3.2 million
- Annual hours of service: 47,466
- Average cost per hour: $65.32

Capital Requirements:

- Winter season: Twelve vehicles for operation and two spare vehicles.
- Summer season: Seven vehicles for operation and one spare vehicle.

SUMMARY

This chapter has provided information on the two service alternatives for the Breckenridge area. Table VIII-1 provides a comparison of the service alternatives.

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Table VIII-1
Transit System Alternatives in Breckenridge

Routes	Description	Headways	Total Daily # of Veh.	Total Daily Rev. Hrs.	Total Daily Rev. Miles	Total Season Rev. Hrs.	Total Season Rev. Miles	Total Season Days	Total Operating Cost	Performance Measure Cost/Hr.
ALTERNATIVE 1:										
Winter Schedule (Nov.- April)										
Airport Route	Operates similar to the northern portion of the Yellow Route that serves Airport Road	20 minutes	1 *	17.5	196	3,010	33,748	172	$196,420	$65.26
Beaver Run Route	Operates similar to the proposed Four O'Clock Route but operates in the reverse direction along King Crown Road	30 minutes	1 *	17.5	70	3,010	12,040	172	$142,930	$47.49
Four O'Clock Route	Operates similar to the southern portion of the Yellow Route that serves Beaver Run	20 minutes	1 *	17.5	106	3,010	18,242	172	$158,210	$52.56
French Street Route	Continue operating this route the same as the Blue Route done today with minor modifications	15 minutes	2	35	514	6,020	88,374	172	$444,280	$73.80
Main Street Route	This route serves Main Street, Ski & Racquet Club, and Ice Arena	30 minutes	1 *	17.5	107	3,010	18,481	172	$158,800	$52.76
Warriors Mark Route	Combines Brown Routes #1 and #2 with modifications	30 minutes	0.5 *	8.75	44	1,505	7,525	172	$75,180	$49.95
*Upper Warriors Mark****	Serves the Warriors Mark Route and then the area along White Cloud Drive	30 minutes	0.5 *	8.75	14	1,505	2,408	172	$62,570	$41.57
Subtotal (operated by the Town of Breckenridge):		varies	7	122.5	1,051	21,070	180,819	172	$1,238,390	$58.78
Peak 8 and 7 Route	Continue operating this route the same as the Black Route done today, with modifications to include hotel at Peak 7	30 minutes	1 *	17.5	163	3,010	28,113	172	$182,540	$60.64
Subtotal (operated by the Breckenridge Ski Resorts):		30 minutes	1	17.5	163	3,010	28,113	172	$182,540	$60.64
Wellington Route	Continue operating this route the same as the Purple Route done today	30 minutes	1	17.5	140	3,010	24,080	172	$172,600	$57.34
Subtotal (partly paid for by Summit Stage):		30 minutes	1	17.5	140	3,010	24,080	172	$172,600	$57.34
Winter Subtotal:		varies	*9*	*157.5*	*1,355*	*27,090*	233,012	*172*	*$1,593,530*	*Average $58.92*
Summer Schedule (May- Oct.)										
Airport Route	Operates similar to the northern portion of the Yellow Route that serves Airport Road	20 minutes	1 *	17.5	196	3,010	33,748	172	$196,420	$65.26
Four O'Clock Route	Operates similar to the proposed Four O'Clock Route but operates in the reverse direction along King Crown Road	20 minutes	1 *	17.5	106	3,010	18,242	172	$158,210	$52.56
French Street Route	Continue operating this route the same as the Blue Route done today with minor modifications	60 minutes	0.5 *	8.75	32	1,505	5,523	172	$70,240	$46.67
Peak 8 and 7 Route	Continue operating this route the same as the Black Route done today, with modifications to include hotel at Peak 7	60 minutes	0.5 *	8.75	40	1,505	6,828	172	$73,460	$48.81
Main Street Route	This route serves Main Street, Ski & Racquet Club, and Ice Arena	30 minutes	1	17.5	107	3,010	18,481	172	$158,800	$52.76
Warriors Mark Route	Combines Brown Routes #1 and #2 with modifications	60 minutes	0.25 *	4.375	11	753	1,881	172	$32,950	$43.79
*Upper Warriors Mark****	Serves the Warriors Mark Route and then the area along White Cloud Drive	60 minutes	0.25 *	4.375	4	753	602	172	$29,800	$39.60
Saturday Service for special events (June, July, and August)	Provides the same service as the winter season on Saturdays	varies	7	122.5	1,051	1,470	12,615	12	$86,400	$58.78
Subtotal (operated by the Town of Breckenridge):			4.5	78.75	496	15,015	97,921	184	$806,280	$51.03
Wellington Route	Continue operating this route the same as the Purple Route done today	60 minutes	0.5 *	8.75	34	1,505	5,848	172	$71,040	$47.20
Saturday Service for special events (June, July, and August)	Same service as the Wellington Route in the winter season will be provided on Saturdays		1	17.5	140	210	1,680	12	$12,050	$57.38
Subtotal (partly paid for by Summit Stage):			1.5 *	26.25	174	1,715	7,528	184	$83,090	$61.32
Summer Subtotal:			*6* **	*105* **	*670* **	*16,730*	*105,449*	*184*	*$ 889,370*	*Average $56.17*
Alternative 1: TOTAL SYSTEMWIDE:			**9**	**262.5**	**2,025**	**43,820**	**338,462**	**356**	**$2,482,900**	**$57.55**
Alternative 1: TOTAL SYSTEMWIDE:*(operated by the Town of Breckenridge)*			**8**	**201.25**	**1,547**	**36,085**	**278,740**	**356**	**$2,044,670**	**$54.90**
Alternative 1: TOTAL SYSTEMWIDE:*(paid for by Summit Stage)*				**43.75**	**314**	**4,725**	**31,608**	**356**	**$255,690**	**$59.33**
Alternative 1: TOTAL SYSTEMWIDE:*(operated by the BSR)*			**1**	**17.5**	**163**	**3,010**	**28,113**	**172**	**$182,540**	**$60.64**
ALTERNATIVE 2:										
Winter Schedule *(Nov.- April)*										
Orange Route	Operate this route the same as done today with modifications to include service to Ice Arena	30 minutes	1	17.5	167	3,168	30,281	181	$193,800	$61.18
Yellow Route	Continue operating this route the same as done today	15 minutes	2	35	773	6,335	139,877	181	$583,050	$92.04
Brown Route	Operate this route the same as done today with modifications to include service to Columbine Road	30 minutes (non-peak); 15 minutes (peak)	2	23.5	471	4,254	85,316	181	$370,280	$87.05
Blue Route	Operate this route the same as done today with minor modifications	30 minutes (non-peak); 15 minutes (peak)	1	9	71	1,629	12,902	181	$93,090	$57.15
Black Route	Operate this route the same as done today with modifications to include hotel at Peak 7	30 minutes	1	6.75	70	1,222	12,612	181	$77,050	$63.07
Subtotal (operated by the Town of Breckenridge):			*7*	*91.75*	*1,552*	*16,607*	*280,988*	*181*	*$1,317,270*	*$79.32*
Purple Route	Operate this route the same as done today with modifications to include downtown Breckenridge	30 minutes	1	17.5	156	3,168	28,191	181	$188,650	$59.56
Subtotal (partly paid for by Summit Stage):			*1*	*17.5*	*156*	*3,168*	*28,191*	*181*	*$188,650*	*$59.56*
Black Route (assumed to be operated by BSR)	Operate this route the same as done today with modifications to include hotel at Peak 7	30 minutes	1	10.75	113	1,946	20,373	181	$123,420	$63.43
Green Route (continue to operate by BSR)	Operate this route the same as done today with modifications to include service to Breckenridge Station	15 minutes	2	18	330	3,258	59,676	181	$269,640	$82.76
Blue Route (assumed to be operated by BSR)	Operate this route the same as done today with minor modifications	30 minutes (non-peak); 15 minutes (peak)	1	17.5	139	3,168	25,087	181	$181,000	$57.14
Subtotal (operated by the Breckenridge Ski Resorts):			*4*	*46.25*	*581*	*8,371*	*105,136*	*181*	*$574,060*	*$68.58*
Winter Subtotal:			*12*	*155.5*	*2,289*	*28,146*	*414,314*	*181*	*$2,079,980*	*Average $69.15*
Summer Schedule *(May- Oct.)*										
Orange Route	Operate this route the same as done today with modifications to include service to Ice Arena	30 minutes	1	17.5	167	3,220	30,783	184	$197,020	$61.19
Yellow Route	Continue operating this route the same as done today	30 minutes	1	17.5	196	3,220	36,064	184	$210,030	$65.23
Brown Route	Operate this route as the same as done today with modifications to include service to Columbine Road	30 minutes	1	17.5	172	3,220	31,620	184	$199,080	$61.83
Blue Route	Operate this route as the same as done today with minor modifications	30 minutes	1	17.5	139	3,220	25,502	184	$184,000	$57.14
Black Route	Operate this route as the same as done today with modifications to include hotel at Peak 7	30 minutes	1	6.75	70	1,242	12,821	184	$78,330	$63.07
Subtotal (operated by the Town of Breckenridge):			*5*	*76.75*	*743*	*14,122*	*136,791*	*184*	*$868,460*	*$61.50*
Purple Route	Operate this route as the same as done today with modifications to include downtown Breckenridge	30 minutes	1	17.5	156	3,220	28,658	184	$191,780	$59.56
Subtotal (partly paid for by Summit Stage):			*1*	*17.5*	*156*	*3,220*	*28,658*	*184*	*$191,780*	*$59.56*
Black Route (assumed to be operated by BSR)	Operate this route as the same as done today with modifications to include hotel at Peak 7	30 minutes	1	10.75	113	1,978	20,711	184	$125,470	$63.43
Subtotal (operated by the Breckenridge Ski Resorts):			*1*	*10.75*	*113*	*1,978*	*20,711*	*184*	*$125,470*	*$63.43*
Summer Subtotal:			*7*	*105*	*1,012*	*19,320*	*186,160*	*184*	*$ 1,185,710*	*Average 61.50*
Alternative 2: TOTAL SYSTEMWIDE:		**varies**	**12**	**260.5**	**3,301**	**47,466**	**600,475**	**365**	**$3,265,690**	***Average $65.32***
Alternative 2: TOTAL SYSTEMWIDE:*(operated by the Town of Breckenridge)*		**varies**	**8**	**168.5**	**2,296**	**30,729**	**417,779**	**365**	**$2,185,730**	**$70.41**
Alternative 2: TOTAL SYSTEMWIDE:*(partly paid for by Summit Stage)*		**varies**	**1**	**35**	**312**	**6,388**	**56,849**	**365**	**$380,430**	**$59.56**
Alternative 2: TOTAL SYSTEMWIDE:*(operated by the BSR)*		**varies**	**4**	**57.0**	**693**	**10,349**	**125,847**	**365**	**$699,530**	**$66.00**

**Note: The route interlines with another route.*

***Note: This does not include the Saturday service for special events*

****Note: Please note that this route is not included in the schedule*

Note: Costs are based on Town of Breckenridge's 2008 budget. These costs do not include three FTE's.

Source: Town of Breckenridge; LSC, 2008.

Chapter IX

TRANSPORTATION
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CHAPTER IX

Organizational Options

INTRODUCTION

The primary organizational consideration is the relationship between the Town of Breckenridge FREE RIDE and the Breckenridge Ski Resort bus service. Currently, the Resort operates winter service to provide connections between remote parking lots and the base areas. The Resort also operates some trips on the Town of Breckenridge system. A plan for integration of the services was completed for the Town in 2002 by Ostrander Consulting, Inc. That plan and the analysis by LSC are the basis for the discussion in the chapter.

SERVICE INTEGRATION

The Transit Integration Plan by Ostrander Consulting recommended that the two services be fully integrated as a single operation following the opening of the gondola. This has not yet occurred although the two services operate with very close coordination as evidenced by the Resort providing several trips on Town routes.

There are a number of advantages to operating an integrated service including a single identity, efficiencies in scheduling, and consolidation of functions that are currently duplicated within each operation. There are also several advantages to maintaining separate services such as the Resort's ability to hire seasonal employees and the Resort's emphasis on skier transportation. The unit costs for the Resort operation appear to be less than the Town's costs because of differences in pay scales, benefits, and use of Resort employees for other functions.

For a variety of reasons, the recommendations from *Transportation, Circulation, and Main Street Reconstruction Plan*, prepared by Charlier Associates in 2001, and the Transit Integration Plan have not been implemented. LSC has reviewed the current operations and has identified several issues related to integration of these services.

The current practice of using the Resort to operate buses on Town routes detracts from the quality of service provided to passengers. The use of different buses with different identities has the potential to confuse passengers. A passenger on the Blue Route may ride a Town bus with the FREE RIDE logo and identity and then on the next trip see a Resort bus with very different markings. Unless the passenger has checked the schedule very closely to see that this trip is made by the Resort, the passenger may not realize this is the bus operating on the Blue Route.

LSC concurs with the previous studies that have recommended a fully integrated transit system. However, recognizing that integration has not occurred during the past seven years, an alternate approach is suggested for consideration. The alternate is for the Town to operate all routes related to circulation within the Town and Resort. The Resort would operate all routes which are focused primarily on access to the Resort area. The Blue Route and Black Route are currently operated using a combination of Town and Resort buses. These two routes should be operated by the Town with all buses having the Town FREE RIDE identity. The Town would continue to operate the remaining routes as is done currently. The suggested alternate is for the Resort to operate only the Green and Red Routes. These two routes focus on providing access to the Resort area and circulation between base areas. With that focus it is possible to maintain the Resort identity.

With the shift from buses operated on the Black Route and Blue Route by the Resort to the Town, the Resort should pay an appropriate amount to the Town for that operation.

The benefits of the suggested alternate approach include:

- A single identity on each route to minimize confusion among passengers.
- Single management and oversight of individual routes.
- The Resort will continue to operate routes that are primarily oriented to Resort operations.

While not accomplishing the recommendations for full integration of the two services, this approach moves in that direction and does not preclude any future integration of the remaining services.

Chapter X

TRANSPORTATION
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CHAPTER X

Preferred Operations Plan

INTRODUCTION

Based upon the analysis of alternatives presented in previous chapters, various refinements with Town Staff, public comments, and Town Council comments, the LSC Team has prepared a preferred Winter and Summer Operations Plan. The following Preferred Plan by the LSC Team includes summaries from Chapters II through IX. To avoid repetition, details are not listed below. Please refer to the individual chapters for detailed information.

SERVICE CRITERIA

Criteria for bus stop locations and service were presented in Chapter VII. These criteria should be adopted for evaluating any new service, improving existing bus stops, and developing bus stops at new locations.

SERVICE PLAN

A recommended service plan has been developed based upon the transit service alternatives presented in Chapter VIII. The Preferred Winter and Summer Plans are a combination of several route structures and services presented in the two service alternatives. An iterative process was used to refine the alternatives into this Preferred Plan, as shown in Figures X-1 and X-2.

The Preferred Plan is to implement eight routes in the winter season (November though April) including the Green Route which is operated by the Breckenridge Ski Resort. This is shown in Figure X-1. As illustrated in Figure X-2, the preferred service alternative is to implement six routes in the summer season (May through October). Service on these routes operates similar to the current hours of operation from 6:30 a.m. to 12:00 midnight.

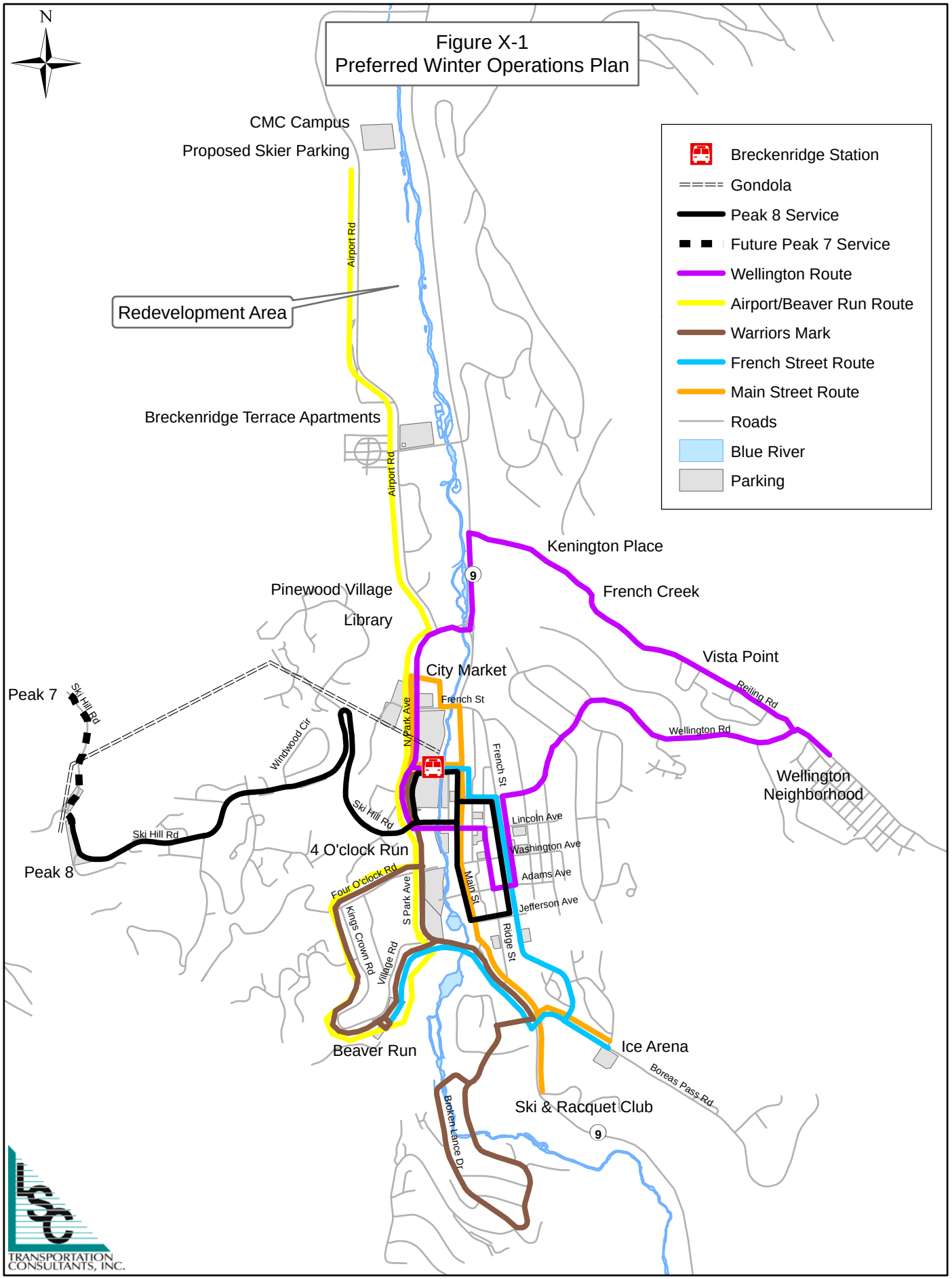
Figure X-1
Preferred Winter Operations Plan
N
CMC Campus
Proposed Skier Parking
Airport Rd
Redevelopment Area
Breckenridge Terrace Apartments
Airport Rd
Kenington Place
9
Pinewood Village
Library
French Creek
Vista Point
City Market
French St
N Park Ave
Peak 7
Ski Hill Rd
Windwood Cir
Relling Rd
Wellington Rd
Wellington Neighborhood
French St
Ski Hill Rd
Lincoln Ave
Washington Ave
Ski Hill Rd
4 O'clock Run
Peak 8
Four O'clock Rd
Adams Ave
Main St
Jefferson Ave
S Park Ave
Kings Crown Rd
Village Rd
Ridge St
Beaver Run
Ice Arena
Boreas Pass Rd
Ski & Racquet Club
9
Broken Lance Dr
Breckenridge Station
Gondola
Peak 8 Service
Future Peak 7 Service
Wellington Route
Airport/Beaver Run Route
Warriors Mark
French Street Route
Main Street Route
Roads
Blue River
Parking
LSC
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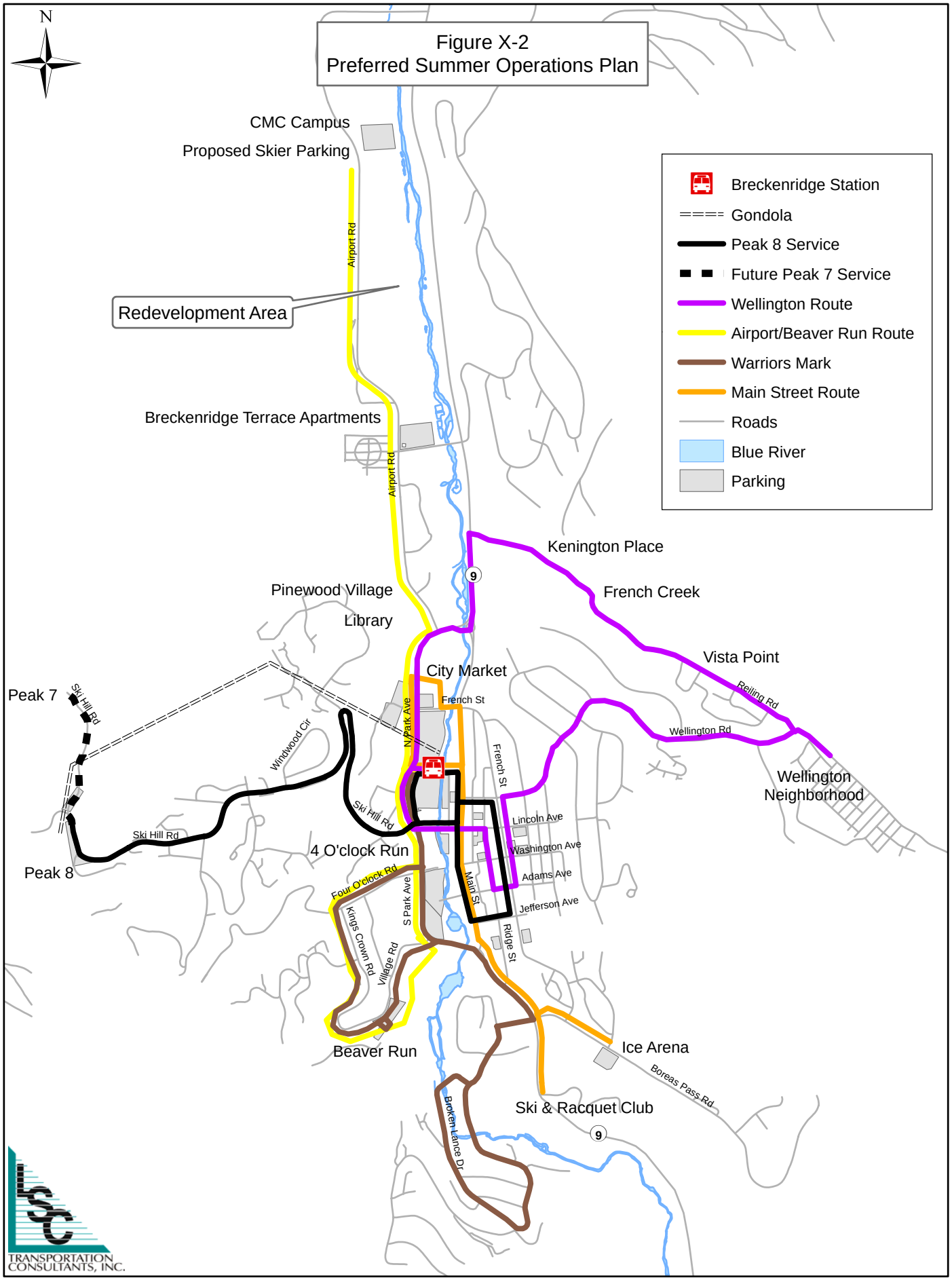
Figure X-2
Preferred Summer Operations Plan
N
CMC Campus
Proposed Skier Parking
Airport Rd
Redevelopment Area
Breckenridge Terrace Apartments
Airport Rd
Kenington Place
9
Pinewood Village
Library
French Creek
Vista Point
City Market
French St
N Park Ave
Peak 7
Ski Hill Rd
Windwood Cir
Relling Rd
Wellington Rd
Wellington
Neighborhood
French St
Ski Hill Rd
Lincoln Ave
Ski Hill Rd
Washington Ave
4 O'clock Run
Adams Ave
Peak 8
Four O'clock Rd
Main St
Jefferson Ave
S Park Ave
Kings Crown Rd
Village Rd
Ridge St
Beaver Run
Ice Arena
Boreas Pass Rd
Ski & Racquet Club
9
Broken Lance Dr
Breckenridge Station
Gondola
Peak 8 Service
Future Peak 7 Service
Wellington Route
Airport/Beaver Run Route
Warriors Mark
Main Street Route
Roads
Blue River
Parking
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Route Structure

The ***Airport Route*** has historically operated along North Park Avenue and Airport Road, looping around Four O' Clock Road, Kings Crown Road, and Village Road. This will continue in the future; however, the route will be signed as Airport Road and also as Beaver Run. Additional signage will be installed at the Breckenridge Station to indicate which bus to board for each area.

The ***Main Street Route*** operates mainly along Main Street, serving the Ski and Racquet Club and the Ice Arena.

The ***Peak 7/8 Route*** operates mainly along Ski Hill Road and serves the Peak 8 base and the new hotel at Peak 7. This route will be operated during the daytime hours by the ski area and after 5:00 p.m. by the Town. This provides direct access from the new lodging units at Peak 7/8 into town for the evening. Additionally, this provides higher frequency on Main Street.

The ***Warrior's Mark Route*** operates mainly on North Park Avenue, provides service to Beaver Run and to Warrior's Mark along Broken Lance Drive. This provides direct access to Beaver Run from Warrior's Mark and then to Breckenridge Station.

The ***French Street Route*** operates mainly along French Street, the Ski and Racquet Club on Main Street, the Ice Arena on Boreas Pass, and Beaver Run on Village Road.

The ***Wellington Route*** operates mainly along Reiling Road and Wellington Road. This route does not serve Main Street, but uses Ridge Street and French Street.

The ***Green Route*** provides service to Peak 7, to the Peak 8 base area along Ski Hill Road, and to F-Lot and Beaver Run. The Green Route is exactly the same as what is operated currently. Note the Green Route is not shown in Figure X-1 or X-2.

The Preferred Winter Operations Plan requires the Town of Breckenridge to maintain a fleet of 11 vehicles—nine vehicles for operation and two spare vehicles for

service provided directly by the Town. Additionally, the Town would operate the Wellington Route under contract with Summit County.

Current 2009 Budget

Table X-1 provides the current cost allocation model for the 2009 season. This cost allocation model was first presented in Chapter III. The cost allocation model allocates line item budget amounts to both service-hours, service-miles, and as fixed costs for the FREE RIDE. The full costs of service are then distributed to revenue-hours of service, miles, and then multiplied by the fixed-cost factor to determine fully-allocated costs to provide services.

The annual operating costs and vehicle requirements for this service plan are summarized in Table X-2. This service plan is based upon a winter operating season of 151 days and a summer season of 214 days.

Operated by the Town of Breckenridge (Breckenridge FREE RIDE):

Winter Schedule:

- Winter operational cost: $1.4 million
- Hours of service: 21,600
- Average cost per hour: $66.00

Summer Schedule:

- Summer operational cost: $1.4 million
- Hours of service: 19,000
- Average cost per hour: $60.00

Total Annual Service:

- Annual operational cost: $2.58 million
- Annual hours of service: 41,000
- Average cost per hour: $63.00

Capital Requirements:

- Winter season: Nine vehicles for operation and two spare vehicles.
- Summer season: Five vehicles for operation and one spare vehicle.
- Saturday service for special events: Nine vehicles for operation and two spare vehicles.

Table X-1
2009 Proposed Cost Allocation Model

FIXED-ROUTE SERVICES

PROPOSED ACCOUNT	Budget 2009	Vehicle-Hours	Vehicle-Miles	Fixed Cost
Admin. Salaries/Wages/Benefits	$ 395,744.00			$395,744
Op. Salaries/Wages/Benefits	$ 1,464,679.00	$ 1,206,953.58		$ 257,725
Vehicle Operations (Garage Fund minus Capital Replacement Fund)	$ 710,846.00		$710,846	
Office Expenses	$ 4,225.00			$4,225
TOTAL OPERATING COSTS	**$ 2,575,494.00**	$1,206,954	$710,846	$657,694
Service Variable Quantities		veh-hrs	veh-mls	Fixed-Cost
Used for Planning Purposes		40,599	309,688	Factor
		$29.73	**$2.30**	**1.34**

Source: Town of Breckenridge Transit, 2008.

Table X-2
Preferred Service Recommendation

Routes	Description	Headways	Total Daily			Total Season			Total Operating Cost	Performance Measure
			# of Veh.	Rev. Hrs.	Rev. Miles	Rev. Hrs.	Rev. Miles	Days		Cost/Hr.
Winter Schedule (mid-November - mid-April 23 Weeks per Year)										
Airport Route	Operates similar to the northern portion of the Yellow Route that serves Airport Road	20 minutes	1.5 *	24	269	3,624	40,633	151	$269,940	$74.49
Beaver Run Route	Operates similar to the southern portion of the Yellow Route that serves Beaver Run	20 minutes	1.5 *	24	145	3,624	21,964	151	$212,390	$58.61
French Street Route	Continue operating this route the same as the Blue Route is done today with minor modifications	30 minutes	1 *	12	106	1,812	15,946	151	$121,500	$67.05
Main Street Route	This route serves Main Street, Ski & Racquet Club, and Ice Arena	30 minutes	1	17.5	142	2,643	21,510	151	$171,810	$65.02
Warrior's Mark Route	Combines Brown Routes #1 and #2 with modifications	30 minutes (non-peak); 15 minutes (peak)	2	24	250	3,624	37,690	151	$260,870	$71.98
Peak 7/8 Route	Continue operating this route the same as the Black Route is done today, with modifications to include downtown Breckenridge.	30 minutes	1 *	24	240	3,624	36,240	151	$256,400	$70.75
Wellington Route	Operate this route the same as done today with modifications to include downtown Breckenridge	30 minutes	1	17.5	72	2,643	10,834	151	$138,900	$52.56
Winter Subtotal:				143	1223.9	21,593	184,816	151	1,431,810	$66.31
Summer Schedule (29 Weeks Per Year)										
Airport Route	Operates similar to the northern portion of the Yellow Route that serves Airport Road	20 minutes	1 *	21	235	4,242	38,076	202	$286,730	$67.59
Four O'Clock Route	Operates similar to the southern portion of the Yellow Route that serves Beaver Run	20 minutes	1 *	21	127	4,242	21,848	202	$236,710	$55.80
Main Street Route	This route serves Main Street, Ski & Racquet Club, and Ice Arena	60 minutes	0.5	10.5	85	2,121	13,549	202	$126,450	$59.62
Warrior's Mark Route	Combines Brown Routes #1 and #2 with modifications	60 minutes	0.5 *	10.5	109	2,121	17,108	202	$137,420	$64.79
Peak 7/8 Route	Continue operating this route the same as the Black Route is done today, with modifications to include downtown Breckenridge	60 minutes	0.5 *	10.5	105	2,121	16,478	202	$135,480	$63.88
Wellington Route	Operate this route the same as done today with modifications to include downtown Breckenridge	60 minutes	1 *	17.5	70	3,535	11,911	202	$177,850	$50.31
Saturday Service for special events (June, July, and August)	Provides the same service as the winter season on Saturdays	varies	9	52	492	624	5,902	12	$43,110	$69.09
Summer Subtotal:				91	732	19,006	124,872	202	1,143,750	$60.18
TOTAL SYSTEMWIDE: ***(operated by the Town of Breckenridge)***						**40,599**	**309,688**	**353**	**2,575,560**	$63.44

Note: Peak service is from 7:15 a.m. to 10:15 a.m. and 2:15 p.m. to 5:45 p.m.

**The route interlines with another route.*

Note: Costs are based on Town of Breckenridge's 2009 budget.

Source: Town of Breckenridge; LSC, 2008.

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Staffing and Budget Shortfalls

The 2009 proposed budget to operate the FREE RIDE has several shortcomings. First, the budget does not include enough drivers to fully cover all allotted vacation, sick time, and additional leave. The budget accounts for "drive time" only and does not include additional time such as staff training. Additionally, the budget accounts for supervisors covering for some drive time. The current budget is short approximately 2,000 hours of drive time which—factoring in vacation, sick leave, etcetera—actually amounts to approximately 2,700 hours of paid time. This is the equivalent of 1.3 full-time equivalent employees (FTEs). This takes into account supervisors' drive time and currently budgeted overtime. Depending upon the services offered and number of days in the winter and summer months, the number of FTEs which need to be budgeted for may increase.

Using an average compensation for employees, the additional 2,700 hours which should be accounted for in the budget is equivalent to approximately $70,000 in overtime for a seasonal driver for the year or nearly $77,000 for a full-time driver. The remaining 0.3 FTE position could be staffed using overtime at an additional of $15,000. Hiring one additional full-time driver would cost approximately $57,000 plus $15,000 in overtime for a total of $72,000.

Chapter XI

TRANSPORTATION
CONSULTANTS, INC.

CHAPTER XI

Long-Range Planning and Implementation

LONG-RANGE PLANNING

As part of the long-range planning for the Town of Breckenridge, it is necessary to examine those areas which may be looked at for future services. This chapter briefly examines areas for possible future expansion of services and defines the need for services and additional capital and operating requirements.

Airport Road Expansion

With the proposed development of Airport Road there comes a point when future buses are warranted. The development plan calls for the addition of between 30 and 50 townhomes/manor home units. Additionally, from 180 to 350 new units will be developed in the Block 11 addition. Colorado Mountain College is developing a proposed campus with approximately 400 parking spaces. A new park-and-ride facility is proposed that would accommodate nearly 500 more parking spaces. Potential demand for the 500 skier spaces alone could be on the magnitude of over 2,000 transit trips daily during the peak winter weekend. The demand of housing could generate anywhere from 150 to 200 transit trips per day, depending upon the permanent/seasonal mix of housing. More transit trips could be generated based upon the mix of employment housing offered.

Criteria for Future Services

There were several criteria for determining future service levels examined as part of this planning process. Future demands were calculated using existing transit trip rates and multiple regression techniques. The regression yields a trip rate for permanent versus seasonal housing units based upon an estimate of type of rider, i.e., a recreational trip as part of being a second/seasonal homeowner or rental. This stop level ridership accounts for existing parking areas. However, that is not to say that the addition of a the large parking area proposed on Airport Road would not generate a higher trip rate than has been calculated for the town. The

milestones needed prior to serving the Airport Road area are discussed briefly below.

The Airport Road development, based upon housing units, is estimated to generate, at a minimum, approximately 11 passengers per hour. This is based upon a seasonal housing mix of 100 permanent residents and 300 seasonal units. Changing the housing mix to 400 permanent and 50 seasonal units reduces the estimated passengers per hour to nine. As mentioned, the existing transit trip rates have accounted for parking in most of the areas of Breckenridge except at the main Breckenridge Station parking area. This area has been removed from the demand model as it would skew the results of ridership based upon those residing either permanently or seasonally or for recreational purposes. That being stated, the parking area could generate up to 2,200 peak-weekend transit trips per Saturday and Sunday. This is using an auto occupancy of 2.2 and a trip rate of one round-trip per person per day. Assuming the area would be near capacity for the weekends and several other key times (approximately 150 days/year), and at five percent capacity the remaining days, yields an annual ridership of nearly 280,000 one-way trips. This equates to an average of nearly 40 passenger-trips per hour for the season. With the estimated housing and parking, this area could generate an average of close to 45 trips per hour during the peak-winter season.

Additional Service Requirements

The future services along Airport Road to serve the future CMC development would require an additional vehicle to provide service to the area during the peak season to meet skier and housing demands. The planned Airport Route currently serves out to the satellite parking area—i.e., the future skier parking area. The additional running time requires that an additional bus be used to continue interlining with the Beaver Run portion of the route. This area should be served in combination with the BSR Red Route to meet skier demand. The Stan Miller Annexation project may require the addition of services. As mentioned previously, there is a certain mix of housing that can support the criteria of nine passengers per hour. The first two phases of development, approximately 134 units, may not be able to sustain this number of passengers on an hourly basis if more than six hours of service are

provided. The option for service, given that this represents an area of affordable housing, likely for seasonal workers, would be to serve this area with commuter/employee services twice in the morning and twice in the evening. Additionally, the BSR employee buses could serve this area for employees. Serving the area up to six hours per day would allow the passenger-per-hour criteria to be met, assuming a housing mix of both permanent residents and seasonal employees.

This additional service is just on the outer threshold of walking distance for patrons. The Annexation is approximately one mile walking distance from the furthest north stop on the Airport Route. The timing of this route is such that the proposed route interlines with the Beaver Run portion. If the bus was to travel the additional mile, it may not be possible to serve the Beaver Run portion while meeting at Breckenridge Station with other routes. This timing is something that will need to be looked at after the Airport Road Route and Beaver Run are operated this coming winter to determine if additional time could be added to accommodate the Annexation.

Increased Service Frequency

One additional long-range planning element would be increased frequency on Main Street and Beaver Run depending upon future demand. If the demand increases to the point that buses are exceeding their capacity more than 10 percent of the time, peak service should be added to provide additional capacity during those periods of highest demand. Previous Main Street service frequency has yielded lower demand for the additional services. However, as the town grows and demands increase, this would be something to examine in the future. Finally, this preliminary long-range plan does not affect future 2008 winter operations and therefore all system expansion would take place in 2009 or beyond.

Future Service Milestones

Based upon anticipated growth in the northern portion of the Town of Breckenridge, there will additional demand for transit service in these areas. Figures XI-1 and XI-2 provide the incremental transit service areas which should be considered

in the near future. The "triggers" to providing these increased services are shown in Table XI-1. As shown, incremental increases in the service area along Airport Road become warranted as development occurs. Estimates of required capital and operating expenses are provided for these incremental changes. The question regarding when these changes should occur are addressed in Table XI-1.

Route Naming

It is recommended that the routes be named for the area served, such as Warrior's Mark or the Wellington area. The proposed names are provided in Chapter X. While the routes can still be color coded, the names should be changed from a color designation to something that explains the area the routes serve. This will eliminate some confusion in the schedules.

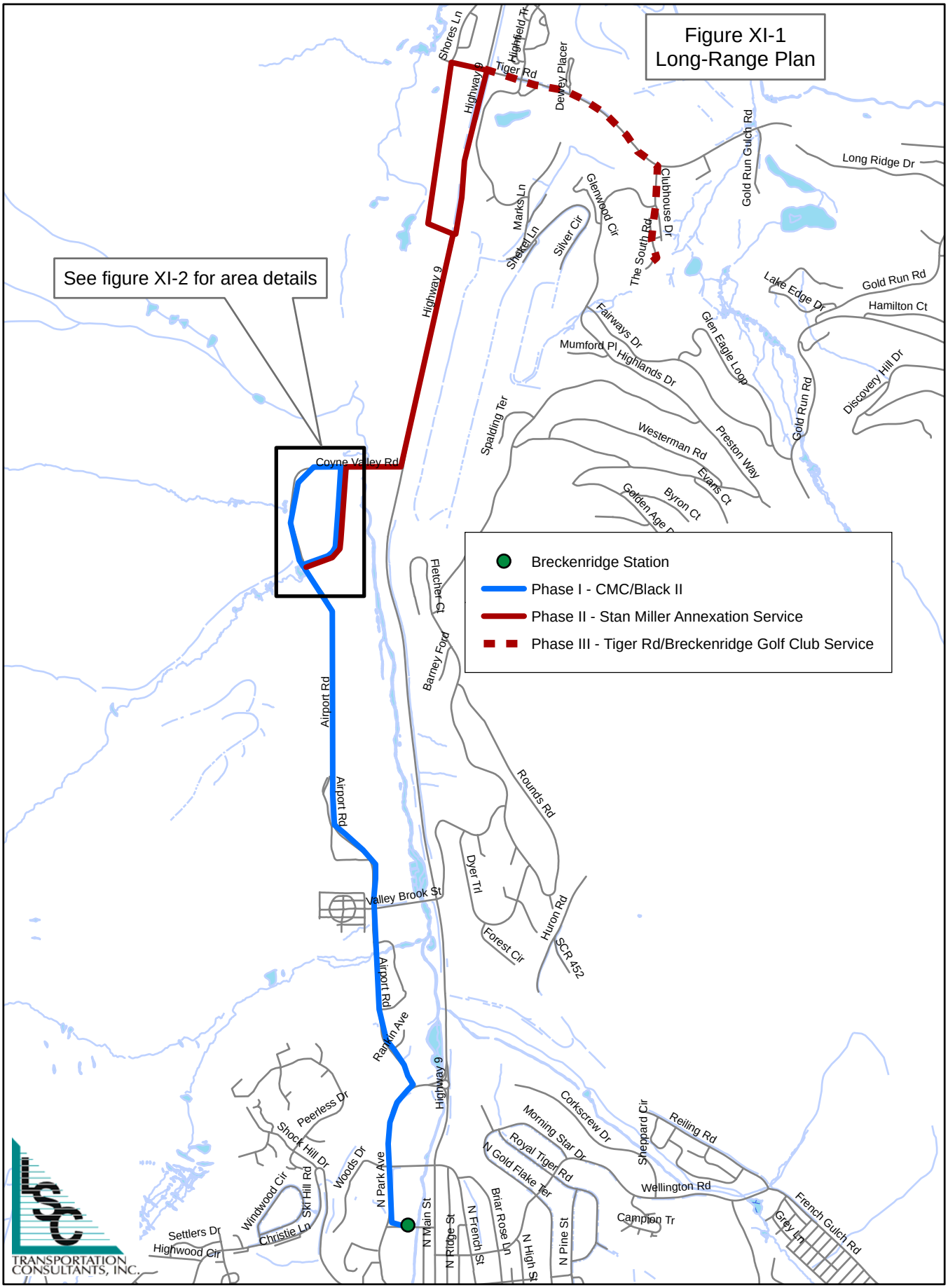
Figure XI-1
Long-Range Plan
See figure XI-2 for area details
Breckenridge Station
Phase I - CMC/Black II
Phase II - Stan Miller Annexation Service
Phase III - Tiger Rd/Breckenridge Golf Club Service
Shores Ln
Highfield Tr
Tiger Rd
Dewey Placer
Highway 9
Clubhouse Dr
Gold Run Gulch Rd
Long Ridge Dr
Marks Ln
Shelter Ln
Silver Cir
Glenwood Cir
The South Rd
Lake Edge Dr
Gold Run Rd
Hamilton Ct
Fairways Dr
Mumford Pl
Highlands Dr
Glen Eagle Loop
Discovery Hill Dr
Spalding Ter
Westerman Rd
Preston Way
Evans Ct
Byron Ct
Golden Age Ct
Coyne Valley Rd
Fletcher Ct
Barney Ford
Airport Rd
Rounds Rd
Dyer Trl
Huron Rd
Forest Cir
SCR 452
Valley Brook St
Rankin Ave
Peerless Dr
Shock Hill Dr
Ski Hill Rd
Windwood Cir
Woods Dr
N Park Ave
Settlers Dr
Highwood Cir
Christie Ln
N Main St
N Ridge St
N French St
Briar Rose Ln
N High St
N Pine St
N Gold Flake Ter
Royal Tiger Rd
Morning Star Dr
Corkscrew Dr
Sheppard Cir
Reiling Rd
Wellington Rd
Campion Tr
French Gulch Rd
Grey Ln
LSC
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Figure XI-2
CMC Detail

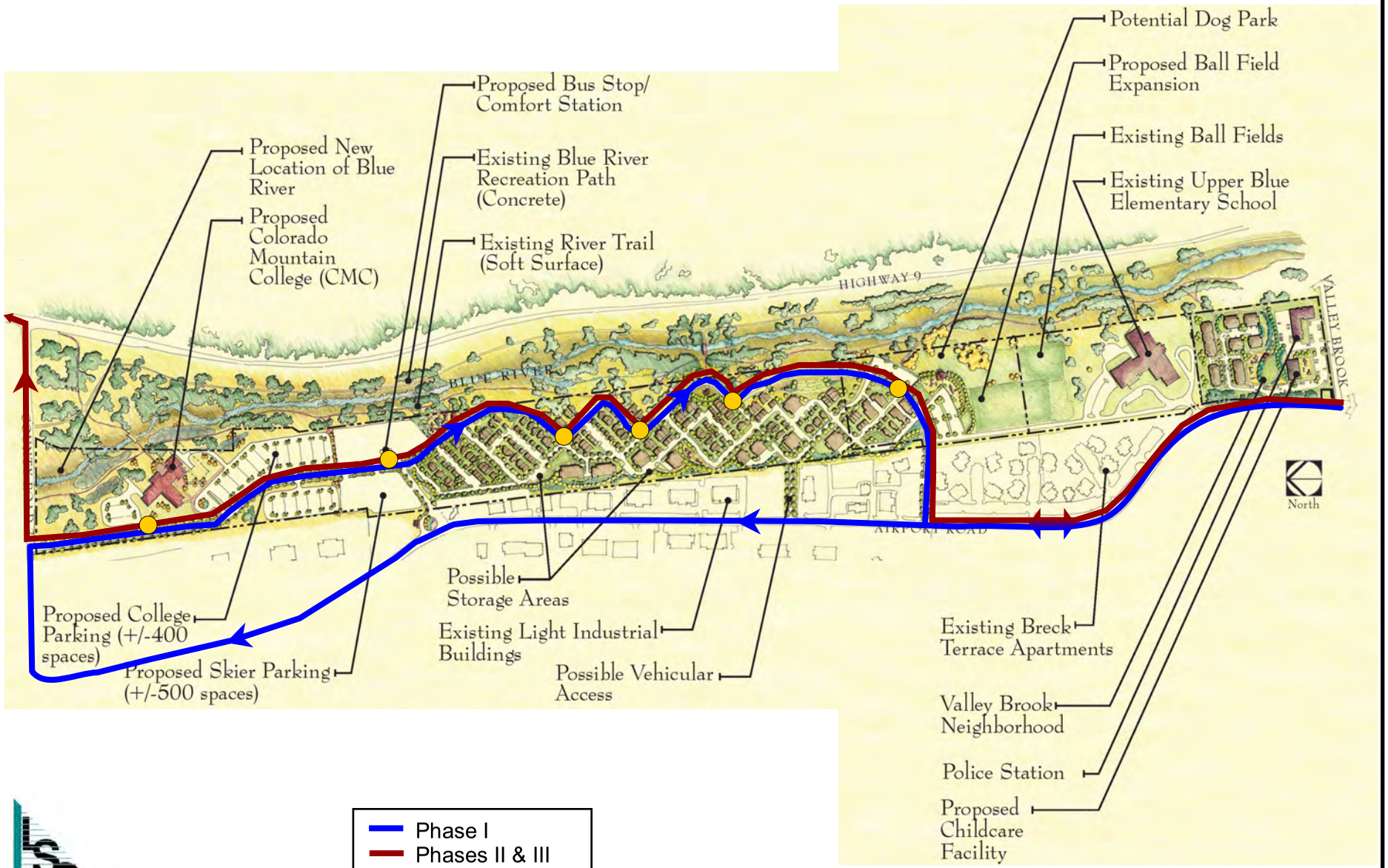

Table XI-1
Future Service Expansion

Phase	Services	Notes	Service Description	Triggers for Expansion	Season	Year of Expansion	Additional Hours of Service Per Day (Winter)*	Additional Hours of Service Per Day (Summer)*	Estimated Incremental Operating Cost	Additional incremental capital to meet peak-hour demand	# of Additional Full-Time Staff Positions	Grant Funding Request	Receipt of Funding
Phase I	CMC/Block 11	Maintain 15 minute peak-hour headway with system, and interline with the Beaver Run Route.	Operate winter/summer schedule as other services.	After Phase II and full 135 units are constructed.	Year-Round	2011	11.75	0	$ 136,813	1	1.5 FTE	May 2009 FTA Section 5311 Funding Cycle	January 2011
Phase II	Stan Miller Annexation	Maintain 15 minute peak-hour headway with system, and interline with the Beaver Run Route.	Operate winter/summer schedule as other services.	As service is requested. As increased higher density affordable housing development occurs. At least 350 housing units within 1/4 mile of route.	Year-Round	2012	17.50	0	$ 207,375	1	2 FTE	May 2011 FTA Section 5311 Funding Cycle	January 2012
Phase III	Tiger Road/Breckenridge Golf Club	Maintain 15 minute peak-hour headway with system, and interline with the Beaver Run Route.	Operates the same as winter/summer schedule	As service is requested following Phase III expansion.	Year-Round	2013 or beyond	0	0	$ 4,070	None	None	May 2011 FTA Section 5311 Funding Cycle	January 2013

Notes:
*Assumes that Winter service frequency at 30-minute off-peak (5.75 hrs/day) and 15-minute peak-hour (11.75 hours per day)
*Assumes Summer service frequency at 60-minutes

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STAFFING PLAN

Implementing the long-range vision for Airport Road will require the addition of 3.5 full-time drivers. The proposed service plan, as discussed in Chapter X, requires that a total staff of 28.5 FTEs be used to operate the service. Total staffing for the 2009 service plan and the expansion plan requires 32 FTEs. Listed below are recommendations that will enhance the FREE RIDE transit service regardless of whether the service is expanded.

Current Benefits

The Town of Breckenridge provides an excellent leave benefits package for Town employees. Listed below are the leave benefits for FREE RIDE employees by employee category.

Seasonal Employees

Winter seasonal employees receive 32 hours of personal leave during the season. Summer seasonal employees receive 16 hours of personal leave during the season. This is the only form of leave time given to seasonal employees and they are reimbursed for any unused personal leave at the end of the season.

Regular Full-Time Employees

Regular full-time employees receive a substantial leave package. Along with the personal leave that seasonal employees receive, regular full-time employees also receive annual leave, sick leave, family medical leave, military leave, jury duty leave, compensation time, and bereavement leave. Below is a description of each leave and the amount of leave time available.

Personal Leave

Regular full-time employees receive 48 hours of personal leave time at the beginning of each year. Unlike seasonal employees who are reimbursed for any unused personal time, regular full-time employees must use this time during the year. This "use it or lose it" policy has caused some consternation among the FREE RIDE employees because a number of them are not able to use all this time during the year.

Annual Leave

Along with personal leave, regular full-time employees receive a minimum of 80 hours of vacation each year. Additional vacation time is accumulated by the number of years of service. Annual leave may be accrued by an employee up to 240 hours.

At this time, FREE RIDE has three drivers who each receive 216 hours of combined personal and vacation leave, three drivers who each have 208 hours, and eight drivers who have 128 hours of combined vacation and personal leave.

For regular full-time drivers, FREE RIDE incurs 2,296 hours of combined personal and vacation leave, which results in 287 driver shifts a year that FREE RIDE needs to cover either with part-time drivers, by paying overtime to regular drivers, or having a supervisor cover the shifts of vacationing employees. If the personal leave given to the six full-time seasonal drivers is included, the number of shifts needed to be covered increases to 323.

Sick Leave Policy

All regular full-time employees receive 96 hours of sick leave annually. Sick leave can be accrued by an employee up to 480 hours.

Family Medical Leave

The Family Leave Act was enacted by the federal government to allow a person to take up to 12 weeks off, without pay, to attend to the urgent medical needs of their family without fear of losing their job. FREE RIDE allows their employees to use their accrued sick leave to offset the employee's loss of regular salary while on family medical leave. If the employee has reached their accrued maximum of 480 hours of sick leave, they can be off the entire 12 weeks without loss of pay. It is LSC's understanding that two employees have done this.

Jury Duty

FREE RIDE allows for three days paid for jury duty.

Bereavement Leave

If an employee loses a close relative, a child, or their spouse, they are allocated from 20 to 40 hours depending on where the funeral is located.

Military Leave

FREE RIDE provides a salary for any employee who is in the military and needs time off for military training. In the event that an employee's military unit is called up for active duty and deployment, FREE RIDE assures the employee's job while on active duty without loss of seniority.

Compensation

Compensation time—generally referred to as "comp time"—can be given to non-exempt (hourly) employees in lieu of overtime pay. If an employee chooses to take comp time instead of overtime, approximately 26.5 hours of overtime will yield 40 hours of comp time. Many drivers who are avid skiers choose this method of leave to avail themselves of more time on the slopes.

Staffing Levels

FREE RIDE's 2009 budget allows for the following staff during the winter season:

1. 14 regular full-time drivers
2. 11 full-time winter seasonal drivers
3. Two part-time seasonal drivers
4. Four regular full-time supervisors
5. One manager

Total staffing accounts for 27 drivers, 1.3 full-time positions short of accommodating the proposed 2009 service plan.

FREE RIDE operated with 15 regular full-time drivers during the 2007-2008 season. The FREE RIDE had three winter seasonal drivers that were not in the budget for 2008. FREE RIDE was also short one full-time summer seasonal driver in 2008. Even at full staffing, the service does not have the capability to cover for drivers on vacation or other leave and must pay overtime to full-time employees to

operate these open shifts. There are also times during the week that the service does not have a supervisor on duty when staffed with only three transit supervisors. Since the supervisors also train new drivers, there are other times that the supervisor shift has to be covered by the transit management, taking the managers away from management duties. Three transit supervisors resigned positions and had to be replaced in 2008.

A significant issue, other than exorbitant overtime costs, is the recruiting and training of drivers. FREE RIDE currently has five year-round transit routes that are staffed by seasonal employees. Staffing these routes with seasonal employees requires FREE RIDE to hire new drivers every 23 to 26 weeks. This incurs significant costs to the system in recruiting and training drivers. FREE RIDE management has calculated these costs and believes that if these five routes were staffed by regular full-time employees, a savings of $7,500 would occur. It would also decrease the number of seasonal employees needed each year for both the winter and summer seasons.

Hire regular full-time drivers to operate the existing year-round routes covered by seasonal drivers: As discussed, from an operational perspective it makes more sense to place regular full-time drivers on year-round routes than it does to fill these routes with temporary drivers. The recruiting and training costs associated with operating these routes using temporary drivers creates an unnecessary burden on management when they can easily be operated by regular full-time drivers.

Budget for additional regular full-time drivers: Currently there are no drivers available to perform vacation relief or fill in for drivers who are out due to illness or some other issue that requires the driver to be away from his/her job. According to FREE RIDE management, there have been many occasions where they simply did not have the staff necessary to properly operate the service. This leads to gaps in service, unneeded overtime expenses, and customer dissatisfaction with the bus service. It is recommended that these drivers be cross-trained to handle supervisor position duties.

Future Staffing and Capital Requirements

FREE RIDE management understands that each hour of revenue service requires 1.28 hours of paid time per year-round full-time employee. This is to cover all forms of leave associated with employment which may arise. This drops to a ratio of 1.14 using part-time employees. These ratios were developed based upon an average of vacation, sick time, and other leave taken by employees. For every bus operating eight hours of service, ten hours of paid service are required. Using these ratios will help management to account for total hours in the budget as opposed to comparing paid time to actual driving hours. For example, to add an additional bus on the north Airport Route for 12 hours per day would require hiring approximately two FTEs, depending upon the combination of full-time and part-time employees.

ORGANIZATIONAL PLAN

The organizational recommendations described in Chapter X provided the alternative for the Town of Breckenridge to operate all buses on the Black Route and the Blue Route. The final Preferred Plan is that the Town and Breckenridge Ski Resort continue to cooperate in the operation of all buses. The major change is that the Black route will be operated during daytime hours, until approximately 5:00 p.m., by the Ski Area, and then by the Town after 5:00 p.m.

MONITORING PLAN

Monitoring of service should continue on a daily basis, with some recommendations for how to change specific data collection procedures. Data collection is essential to evaluate service performance and to determine if changes should be made in service delivery. This section provides information on data collection, databases, and standard reports that should be prepared. Data to be collected fall into three basic categories—ridership data, on-time performance, and financial. The Town has historically used a Microsoft Access database to track all elements of the FREE RIDE. This includes financial and ridership. While tracking can easily be accomplished in Access, the current database needs to be updated to be more user friendly. The LSC Team found multiple errors with how information was

entered, creating false reporting to Supervisors. Error checks should be the task of supervisors at the end of the reporting cycle, either daily, biweekly, or weekly.

Ridership

Passenger boarding data should be collected continually on a time-specific basis. There is a trade-off between data collection efforts and the value of information. It is just as easy to collect too much data as it is to collect insufficient data.

Passenger boardings should be recorded daily by route, fare category, and by trip. One goal all transit agencies should strive for is the implementation of Intelligent Transportation Systems, such as Mobile Data Terminals (MDT). Mobile Data Terminals include features such as recording each passenger by fare category as they board. This should be programmed into the capability of the software as it is implemented. Mobile Data Terminals also allow both data and voice communication between operator and dispatcher. It is similar to having an alphanumeric pager on the dashboard.

Passenger boarding data can also be collected using tally boards on the buses. A driver's log sheet should then be used to record the passenger counts at the end of each trip. The drivers do not need to calculate the number of passengers for that trip, but record the running total by fare category. As data are entered, the calculation of passengers on each trip can be made. An effective approach is to prepare the driver's log sheet for each of the drivers' runs. This will provide pre-printed route and trip information and the driver will need only to record the date and the passenger count data.

- Twice each year, a full boarding and alighting count should be completed. If passenger boardings are counted using the MDTs and integrated with Automatic Vehicle Location (AVL), the data can be recorded automatically. If it must be done manually, this is a more intense effort and will require the use of additional personnel. Passenger counts are recorded for passengers boarding and alighting by stop for a full day. This information records the passenger activity at individual stops and is useful in determining if stops are appropriately placed and what amenities should be provided. If a stop has little or no activity, it would not warrant a bench or shelter and may not even be appropriate as a designated stop. Data collection forms

should be prepared for each route showing the stops and providing space to record the passenger counts.

- An onboard passenger survey should be conducted periodically. We recommend that a survey be conducted three months after service changes have been implemented. Following that, passenger surveys should be conducted at least every two years. Survey instruments with questions appropriate for the Town should collect information about passenger demographics, trip characteristics, and perceptions of the transit service. The onboard survey completed in 2008 would be an excellent sample questionnaire for future years.

On-Time Performance

With any transit system, it is important to monitor on-time performance. An on-time performance goal should be established. For instance, an attainable on-time goal of 95 percent for the service may be considered for system changes. Minor adjustments to routes may be needed to ensure that schedules and headway adherence can be maintained.

To record on-time performance, drivers should report actual arrival and departure times at designated bus stops along the routes and at major stops. It should be emphasized that drivers should not leave prior to a scheduled stop time in order to make up time along a route. Leaving early could cause riders to miss a bus.

The dispatcher should then record this information so that the number of trips running late can be determined. Again, this capability could be integrated with the MDT and database system so that the data are entered directly by the driver. This effort should continue for the first three months of service. After that, on-time data should be checked randomly to ensure that performance remains acceptable.

Database Formats

Several options are available for storing the data. The recommended approach is to set up databases in Microsoft Access to record passenger data. Sample databases and assistance can be provided. A separate database should be set up for routine passenger data and a second for the boarding and alighting counts.

If the buses are equipped with MDTs, passenger count data can be entered directly into the database by the driver. The touch screen capability will allow the driver to record passenger boardings at each stop. This, combined with Automatic Vehicle Location systems, can record the data automatically by stop, eliminating the need for separate boarding and alighting counts. Similarly, drivers could report their arrival at the downtown transfer center via the MDT and the time could be recorded automatically into a database for on-time performance. These capabilities should be programmed into the new software as they are implemented.

Onboard survey data can be entered into a database such as Access or a spreadsheet program such as Excel.

Reporting

The Town should provide a monthly performance report. The report should include performance data for the current month, the same month in the previous year, year-to-date performance, and the prior year-to-date performance. Information that should be reported includes passenger boardings by route, passengers per revenue-hour by route, total passengers by fare category, total passengers, and system passengers per revenue-hour. Financial information should be reported including the operating cost and the cost per passenger. The average fare should be calculated and reported based on operating costs and passenger counts.

Quarterly reports should be considered for providing recent trends and interim performance data to elected officials, the public, and other stakeholders. Additionally, an annual report should be compiled and presented. The information for these reports can be easily generated from the databases and the accounting system.

The following tracking should be completed daily by trip and route:

- Revenue hours of service
- Revenue miles of service
- Passenger boardings by scheduled trip time

PERFORMANCE MEASURES

Transit performance measures serve as a guide to finding out how a transit system performs. Performance measures define the types of data to be collected and provide the tools necessary to identify transit system deficiencies and opportunities.

It is worth noting that criteria used for the selection of performance measures include the following:

- Be measurable
- Have a clear and intuitive meaning so that it is understandable to those who will use it and to non-transportation professionals
- Be acceptable and useful to transportation professionals
- Be comparable across time and between geographical areas
- Have a strong functional relationship to actual system operations so that once changes occur in system operations, changes to the system can readily be determined
- Provide the most cost-effective means of data collection
- Where appropriate, be based on statistically sound measurement techniques
- Be consistent with measures identified for other systems

Performance measurement categories that should be used include:

- On-time performance
- Missed/late trips
- Passenger no-shows
- Service denials
- Fleet maintenance

Many of these measures have been described above. Other performance measures that should be used are:

Passengers/Hour: Number of total monthly and annual passengers divided by the corresponding revenue-hours.

Passengers/Mile: Number of total annual passengers divided by the annual revenue-miles.

Cost/Trip: Total expenses divided by total annual one-way trips.

Subsidy/Trip: Total expenses minus fare revenue divided by total annual one-way trips.

Passenger-Miles: Passenger-miles are one of the most difficult performance measures to calculate. Multiplying total system miles by one-way passenger-trips does not give a good measure of passenger-miles. This involves very detailed data collection to obtain average passenger-miles per route. One way is to take an average trip length multiplied by systemwide miles or sample passenger activity.

Vehicle-Miles/Service Area: A good measure of the level of service being provided. The service area must be realistically identified. As an example, a county system may say they serve the entire county, but in fact much of the county is very rural and service is never provided.

Service/Road Calls: Vehicle breakdowns are inevitable. This measures the distance traveled between mechanical breakdowns. Although frequent occurrences can create disruptions in a transit system, it is important to track the frequency and type of mechanical failures of each vehicle in addition to monitoring a fleet's age. Monitoring of vehicle breakdowns is one method of reducing system disruptions and may allow an agency to improve monitoring of vehicle replacement schedules and preventative maintenance practices. Data collection efforts should include date, time of day, type of failure, age of vehicle, vehicle number, vehicle mileage, and how the situation was rectified. Monitoring of these items will allow an agency to recognize repeated types of mechanical breakdowns, breakdowns related to vehicle type, age or mileage, and assist with preventative maintenance programs. Wheelchair lift failures should also be monitored. Data should be included in the monthly report.

Accidents/1,000 miles: Measure of driver safety. Accidents must be defined as a standard.

Average Age of Fleet: A good single indicator of vehicle replacement needs, although individual vehicle inventories, ages, and mileage should be tracked.

Cost/Revenue-Hour: An excellent indicator of efficiency is cost per revenue-hour of service. Costs per hour should be analyzed by route and compared to overall system averages.

FINANCE AND BUDGETING

The following recommendations are provided for development and monitoring of the transit budget. Currently there are two cost center codes for transit services. Cost center 481 is for administration and 482 is for operations. The service on the Wellington Route historically has not been included in the budget because it is paid for by Summit County. The budget therefore did not reflect the full cost of the Breckenridge transit system.

The recommendation for the transit budget is to include all costs of providing the service. To track the actual cost of operating the Wellington Route, a separate cost

center should be designated. All costs for this route would then be charged to the separate cost center, either through direct charges such as driver's time or through adjusting transactions for fuel and vehicle maintenance.

Similarly, when additional drivers are hired because of new grants, the budget should be adjusted to reflect the changes. A revised and accurate budget will allow management to track actual costs of the service and monitor financial performance. As the budget has been created in the past, it is difficult, if not impossible, to accurately monitor the financial performance of the transit service.

LAND USE CONSIDERATIONS

With the FREE RIDE being part of the Public Works Department and the Town, there are specific land use considerations which should be made as the Town continues to develop. Chapter VII presented information on specific land use guidelines which should be followed as development occurs and is reviewed by the Town.

MARKETING PLAN

Marketing programs can be one of the most overlooked components of providing transit services. The marketing of any service is dependent upon providing a quality product or service. Several changes should be made with respect to the marketing of the Breckenridge FREE RIDE. These include signage, website, and route maps/schedules.

Signage

Signage is an important identifier for a transit agency. As discussed in Chapter VII, signage should be clearly recognized as a transit stop. Signage should be visible from both directions and large enough for drivers to see in the dark. Signage should be reflective and include the times the bus arrives and only the major destinations served.

Passenger Amenities and Facilities

Passenger amenities such as shelters and benches are important in terms of marketing. The Town should continue to coordinate with major transit-generating agencies/businesses to improve passenger waiting areas at these locations and to determine if improved passenger amenities are needed at key locations. One marketing tool is to use the stops as a way to generate advertising revenue from local businesses. This is something that should be approached cautiously with specific policies and guidelines that detail what can and cannot be advertised on a passenger shelter or bench. Advertising for alcohol, tobacco, or anything that could be deemed offensive should strictly be prohibited. Additionally, several stops are owned and maintained by private developers. This provides a source of facilities; however, amenities should be consistently designed to meet design criteria. In short, they should look similar, convey the information needed, and be accessible.

Passenger Information

The public information area of marketing is important because this is the arena that tells people what the system is and how to use it. Some possibilities for presentation include prepared user information aids, media coverage, community meetings, a citizens' advisory committee, school program, interior bus cards, telephone information service, system destination maps, and information bulletins.

Existing Brochure

One example of public information is the passenger information brochure or rider guide. The brochure can be one of the most informative pieces produced by the transit agency. It provides the opportunity to show people what service is available, how easy it is to use the bus, and other agency information. There are several key points of discussion relating to the current brochure:

- Hours of service should be easy to find.
- Schedules need to be revised to be more readable and consistent. One change is to incorporate schedule changes for the Airport and Beaver Run routes. The current schedule should not include every stop made and it should be easy to understand the schedule. Ideas include separating the schedule so, while it is essentially the same Yellow Route, the schedule reads as though it were two routes.

- The existing map in PDF format looks nice. However, it does not include the schedule, which is on the reverse side. One idea is to incorporate how maps and schedules are produced.

Existing Advertisement

Advertisements can be one of the strongest marketing tools available, whether it is radio, television, or newspaper media. The Town should advertise in local papers using both paid advertisements and public service announcements, which in most cases are free. The Town should partner with local businesses and homeowners associations on advertising and marketing. Advertisements are an excellent way to communicate information, including system changes, special promotions, contact information, and information on how to use the system.

Website

Currently, a transit website for information about Breckenridge services provides the basic information along with schedules. However, the website must be used for schedules and to download a PDF of the map. The website should be redesigned with much more information provided, such as the following:

- Key destinations served
- Maps of services for each route and a systemwide map. This should include schedule information
- Hours of service
- Information on how to use the service
- Key contact information
- Rider policies
- Mission statement

The main benefits of a website are making the schedule, maps, and passenger information readily available. Other benefits include attracting new customers, improving the agency's image in the community, increasing ridership among existing patrons, and providing information for public involvement.

Keys to site navigability are:

- Put important information at the top of a page.
- Group related information.

- Give greatest visibility to the information most often requested, such as schedules, fare information, service area, and contact information.
- Don't make visitors search or dig for important information.
- Place navigation elements on the left side of the screen, which could be repeated on every page to keep track of where users are on the site.
- Keep pages consistent in design, such as logo placement and contact information.
- Have the website reviewed by outside sources for ease of use. This could be in the form of a brief users' workshop at a local civic group meeting or seniors luncheon.

PDF Files

While PDF files are great for some, others despise waiting for them to load, or do not even have a PDF viewer. Care should be taken when considering the use of PDF documents on the website. That is not to say they should not be used for specific items such as printable route maps or system information. However, alternate forms of the files should be done in something like HTML (text) format. That is to say, if a PDF file is to be used, there should be an alternate file format for those who are unable or unwilling to use the PDF formats.

Schedules and Maps

Many times transit agencies try to "squeeze" large schedules onto their web page. This method does not make reading schedules online easy or pleasant. Schedules should be made accessible in PDF and HTML formats. In either case, a printable format should be designed so people can print schedules at their leisure. It is imperative that if schedules change, they be updated immediately on the website.

Maps on an agency's website are an excellent idea if done properly. Maps should be clearly labeled and easy to read. Maps should have the major streets labeled as well as stop locations. Many agencies use smart tags associated with stop locations. A patron can click on a stop and this is linked to information about that stop, including the schedule for that particular stop.

Accessibility for Persons with Disabilities

A final note on website design is taking into consideration persons with visual disabilities. A number of simple steps can make a website accessible to persons with disabilities. These include the following:

- Providing a text equivalent of all graphical elements. For example, use of "ALT" (alternate) tags for graphical elements. Text alternatives make web pages accessible to screen readers, which are software programs that convert text into synthesized speech for blind or visually-impaired persons.
- Designing web pages so that information conveyed with color is available without color.
- Not causing the screen to flicker with a frequency greater than 2 Hz and lower than 5 Hz, which can induce seizures.

Additional Marketing Strategies and Recommendations

As with many transit systems across the United States, there is no strategic marketing plan in place. Many factors can affect the success of marketing efforts, primarily the resources available to accomplish the objectives and strategies appropriate for a system of this size. To reiterate, the strongest marketing that can be done is to offer **efficient and convenient** transit service. The next logical step is to develop strategies that can realistically be accomplished with limited staff and financial resources. One such strategy is the design of new brochures to be distributed to patrons and placed at key locations within the communities to attract new ridership. A brochure must convey the message that FREE RIDE is a ***reliable alternative*** and can be used by anyone in the area. This brochure should be designed around the concept of attracting new ridership which may not know the benefits of transit, specifically aimed at the visitor population. Locals generally know how to use the system.

Review Passenger Information

Reviewing passenger information regularly to make sure that brochures, flyers, and other passenger information are kept up-to-date and current is a vital part of a short-term marketing vision. Incorrect or outdated information which is provided to customers is a sure way to decrease ridership. Information should be concise, clear, and available if it is to be effective. Regular review of these promotional or informational materials will promote service as a reliable transit opportunity.

Customer Surveys

Customer surveys should be done at least every two years. Customer surveys require that a survey be designed that asks the important questions which help to improve transit service. Questions should inquire into service delivery, destinations, income, reason for riding, and perceptions of areas such as driver friendliness, cleanliness of the buses, fare information, timeliness, etc. Surveys are an important measure of service performance. If you don't know the perceptions of the clientele you are serving, how can you effectively serve them? The way to measure these perceptions is to survey them.

Marketing Budget

The marketing budget is a tough field for many transit agencies. According to the American Public Transit Association, transit providers typically budget between 0.75 and 3.0 percent of their gross budget on marketing promotions (excluding salaries). Although this is less than most private sector businesses, public sector organizations can rely more heavily on media support for their public relations programs.

In reality, transit agencies must ask themselves questions, such as, "Will we get more riders with this campaign?" or "Will we get additional revenues from this marketing effort?" or "Why should we advertise something we are losing money operating?" Answers to these questions are subjective and may be influenced politically or may be continual efforts toward a particular market segment. The following provides some "rules of thumb" that may be used.

Marketing budget per peak vehicle	=	$800 to $1,200
Amount of line revenue generated for each marketing dollar spent	=	$13 to $16
Marketing budget per rider (excluding transfers)	=	$0.015 to $0.02
Amount per person in the service area	=	$0.22 to $0.25

3-5% of operating costs expended as follows:

Salaries and/or Consultant Services	66%
Printing Materials	19%
Advertising	7%
Merchandising	4%
Other Direct Expenses	4%
TOTAL	100%

This information should be used as a guide to plan future marketing expenses.

Appendix A: Onboard Survey Questionnaire

TRANSPORTATION
CONSULTANTS, INC.

Guest of FREE RIDE:
Please take a few minutes to complete this survey during your bus ride today. Your answers and suggestions will help us improve service.

Thank you!
Town of Breckenridge

1. **Where did you come from before you got on this bus?** (*check only one*)
   - ☐ Home/Hotel ☐ School/College ☐ Restaurant/Bar
   - ☐ Work ☐ Doctor ☐ Skiing
   - ☐ Shopping/Errands ☐ Visiting/Other Recreation ☐ Other (please specify) _____

2. **Where are you going to now?** (*check only one*)
   - ☐ Home/Hotel ☐ School/College ☐ Restaurant/Bar
   - ☐ Work ☐ Doctor ☐ Skiing
   - ☐ Shopping/Errands ☐ Visiting/Other Recreation ☐ Other (please specify) _____

3. **Was a vehicle available for you to use on this trip instead of taking the bus?** ☐ Yes ☐ No

4. **Is part of your trip using? (check all that apply)**
   - ☐ Private automobile ☐ Summit Stage bus ☐ Breckenridge Ski Area bus
   - ☐ Transfer to or from another Breckenridge Free Ride bus ☐ Gondola

5. **Are you a visitor or resident of Summit County?**
   - ☐ Visitor/Tourist ☐ Year-round Resident
   - ☐ Seasonal Resident ☐ Second Homeowner
   - If you are a visitor, how long are you visiting Summit County? _____

6. **I usually ride the bus ____?_____ days a week.** (*check only one*)
   - ☐ One Day ☐ Four Days ☐ Less than Once a Month
   - ☐ Two Days ☐ Five Days ☐ One -Three Days/Month
   - ☐ Three Days ☐ Six / Seven Days ☐ This is my first time

7. **What is the most important reason you ride the bus?** (*check only one*)
   - ☐ Family doesn't have a car ☐ Someone else uses car
   - ☐ Parking is a problem ☐ I don't drive ☐ Traffic is bad
   - ☐ Bus is economical ☐ Bus is convenient ☐ Weather conditions
   - ☐ Avoid drinking and driving ☐ Other (please specify)_____

8. **Do you have a driver's license?** ☐ Yes ☐ No

9. **Sex:** ☐ Female ☐ Male

10. **The combined Total Annual Income of all members of my household is:**
    - ☐ Less than $15,000 per year ☐ $35,000 - $44,999 per year
    - ☐ $15,000 - $24,999 per year ☐ $45,000 - $55,000 per year
    - ☐ $25,000 - $34,999 per year ☐ More than $55,000 per year

Continue on other side ➜

Guest of FREE RIDE:
Please take a few minutes to complete this survey during your bus ride today. Your answers and suggestions will help us improve service.

Thank you!
Town of Breckenridge

1. **Where did you come from before you got on this bus?** (*check only one*)
   - ☐ Home/Hotel ☐ School/College ☐ Restaurant/Bar
   - ☐ Work ☐ Doctor ☐ Skiing
   - ☐ Shopping/Errands ☐ Visiting/Other Recreation ☐ Other (please specify) _____

2. **Where are you going to now?** (*check only one*)
   - ☐ Home/Hotel ☐ School/College ☐ Restaurant/Bar
   - ☐ Work ☐ Doctor ☐ Skiing
   - ☐ Shopping/Errands ☐ Visiting/Other Recreation ☐ Other (please specify) _____

3. **Was a vehicle available for you to use on this trip instead of taking the bus?** ☐ Yes ☐ No

4. **Is part of your trip using? (check all that apply)**
   - ☐ Private automobile ☐ Summit Stage bus ☐ Breckenridge Ski Area bus
   - ☐ Transfer to or from another Breckenridge Free Ride bus ☐ Gondola

5. **Are you a visitor or resident of Summit County?**
   - ☐ Visitor/Tourist ☐ Year-round Resident
   - ☐ Seasonal Resident ☐ Second Homeowner
   - If you are a visitor, how long are you visiting Summit County? _____

6. **I usually ride the bus ____?_____ days a week.** (*check only one*)
   - ☐ One Day ☐ Four Days ☐ Less than Once a Month
   - ☐ Two Days ☐ Five Days ☐ One -Three Days/Month
   - ☐ Three Days ☐ Six / Seven Days ☐ This is my first time

7. **What is the most important reason you ride the bus?** (*check only one*)
   - ☐ Family doesn't have a car ☐ Someone else uses car
   - ☐ Parking is a problem ☐ I don't drive ☐ Traffic is bad
   - ☐ Bus is economical ☐ Bus is convenient ☐ Weather conditions
   - ☐ Avoid drinking and driving ☐ Other (please specify)_____

8. **Do you have a driver's license?** ☐ Yes ☐ No

9. **Sex:** ☐ Female ☐ Male

10. **The combined Total Annual Income of all members of my household is:**
    - ☐ Less than $15,000 per year ☐ $35,000 - $45,999 per year
    - ☐ $15,000 - $24,999 per year ☐ $45,000 - $55,000 per year
    - ☐ $25,000 - $34,999 per year ☐ More than $55,000 per year

Continue on other side ➜

11. What is your ethnicity?

- ☐ American Indian/Alaskan Native
- ☐ Asian
- ☐ Black/African American
- ☐ Hispanic/Latino
- ☐ Pacific Islander
- ☐ White
- ☐ Other (please specify) _____

12. What is your occupation?

- ☐ Homemaker
- ☐ Laborer
- ☐ Managerial/Professional
- ☐ Production/Craft/Repair/Machine Operator
- ☐ Retired
- ☐ Sales
- ☐ Service Worker
- ☐ College Student
- ☐ Secondary Student
- ☐ Technical/Administration
- ☐ Unemployed
- ☐ Other (please specify) _____

13. How long have you been riding the FREE RIDE?

- ☐ First time
- ☐ One week
- ☐ One month
- ☐ One year
- ☐ Two years
- ☐ More than two years

14. How did you first learn about the FREE RIDE?

- ☐ Bus stop sign
- ☐ Saw bus
- ☐ Friend/coworker
- ☐ Other _____
- ☐ Hotel worker
- ☐ Advertisement
- ☐ Saw bus guide

15. What are your suggestions to improve FREE RIDE service?

16. Please share any other comments:

THANK YOU!!

11. What is your ethnicity?

- ☐ American Indian/Alaskan Native
- ☐ Asian
- ☐ Black/African American
- ☐ Hispanic/Latino
- ☐ Pacific Islander
- ☐ White
- ☐ Other (please specify) _____

12. What is your occupation?

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- ☐ Managerial/Professional
- ☐ Production/Craft/Repair/Machine Operator
- ☐ Retired
- ☐ Sales
- ☐ Service Worker
- ☐ College Student
- ☐ Secondary Student
- ☐ Technical/Administration
- ☐ Unemployed
- ☐ Other (please specify) _____

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- ☐ Two years
- ☐ More than two years

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- ☐ Bus stop sign
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- ☐ Friend/coworker
- ☐ Other _____
- ☐ Hotel worker
- ☐ Advertisement
- ☐ Saw bus guide

15. What are your suggestions to improve FREE RIDE service?

16. Please share any other comments:

THANK YOU!!

Estimado Usuario del Servicio de Autobuses FREE RIDE:
Por favor tome unos minutos durante su viaje en autobús para llenar esta encuesta. Sus sugerencias ayudarán a mejorar el servicio de buses.
¡Muchas gracias! Town of Breckenridge

1. **¿De dónde vino usted antes de tomar este autobús?**
   (marque una opción)
   ☐ Hogar ☐ Escuela/Universidad ☐ Restaurante/Bar
   ☐ Trabajo ☐ Doctor ☐ Esquiar
   ☐ Compras/Mandados ☐ Visitando/Otra recreación
   ☐ Otro Lugar _____ (especifique por favor)

2. **¿Adónde se dirige ahora?** *(marque una opción)*
   ☐ Hogar ☐ Escuela/Universidad ☐ Restaurante / Bar
   ☐ Trabajo ☐ Doctor ☐ Esquiar
   ☐ Compras / Mandados ☐ Visitando / Otra recreación
   ☐ Otro Lugar _____ (especifique por favor)

3. **¿En vez de tener que tomar el autobús, había un vehículo disponible para su uso en este viaje?** ☐ Si ☐ No

4. **¿ Es parte de su viaje usando...? (marque todos que aplican)**
   ☐ Automóvil privado ☐ Autobús de Summit Stage
   ☐ Transbordo de otro autobús de Breckenridge Free Ride
   ☐ Autobús de la Estacón de Esquí de Breckenridge ☐ Góndola

5. **¿Es usted un visitante o residente de Summit County?**
   ☐ Visita / Turista ☐ Residente de todo el año
   ☐ Residente Estacional ☐ Segundo propietario
   Si de visita, cuanto tiempo estará en Summit County? _____

6. **Yo tomo el autobús generalmente ___?____ días a la semana.**
   (marque una opción)
   ☐ Un Día ☐ Cuatro Días ☐ Menos de una vez al mes
   ☐ Dos Días ☐ Cinco Días ☐ De uno a tres días por mes
   ☐ Tres Días ☐ Seis / Siete Días ☐ Esta es mi primera vez

7. **¿Cuál es la razón más importante de tomar el autobús?**
   (marque una opción)
   ☐ Familia no tiene auto ☐ Otra persona usa el auto
   ☐ Problema para estacionar ☐ No manejo
   ☐ Trafico es imposible ☐ Autobús es conveniente
   ☐ Condición de clima ☐ Evitar beber y manejar
   ☐ Autobús es económico ☐ Otro _____

8. **¿Tiene licencia de conducir?** ☐ Si ☐ No

9. **Sexo:** ☐ Femenino ☐ Masculino

Por favor Continuar en Reverso ➜

Estimado Usuario del Servicio de Autobuses FREE RIDE:
Por favor tome unos minutos durante su viaje en autobús para llenar esta encuesta. Sus sugerencias ayudarán a mejorar el servicio de buses.
¡Muchas gracias! Town of Breckenridge

1. **¿De dónde vino usted antes de tomar este autobús?**
   (marque una opción)
   ☐ Hogar ☐ Escuela/Universidad ☐ Restaurante/Bar
   ☐ Trabajo ☐ Doctor ☐ Esquiar
   ☐ Compras/Mandados ☐ Visitando/Otra recreación
   ☐ Otro Lugar _____ (especifique por favor)

2. **¿Adónde se dirige ahora?** *(marque una opción)*
   ☐ Hogar ☐ Escuela/Universidad ☐ Restaurante / Bar
   ☐ Trabajo ☐ Doctor ☐ Esquiar
   ☐ Compras / Mandados ☐ Visitando / Otra recreación
   ☐ Otro Lugar _____ (especifique por favor)

3. **¿En vez de tener que tomar el autobús, había un vehículo disponible para su uso en este viaje?** ☐ Si ☐ No

4. **¿ Es parte de su viaje usando...? (marque todos que aplican)**
   ☐ Automóvil privado ☐ Autobús de Summit Stage
   ☐ Transbordo de otro autobús de Breckenridge Free Ride
   ☐ Autobús de la Estacón de Esquí de Breckenridge ☐ Góndola

5. **¿Es usted un visitante o residente de Summit County?**
   ☐ Visita / Turista ☐ Residente de todo el año
   ☐ Residente Estacional ☐ Segundo propietario
   Si de visita, cuanto tiempo estará en Summit County? _____

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   (marque una opción)
   ☐ Un Día ☐ Cuatro Días ☐ Menos de una vez al mes
   ☐ Dos Días ☐ Cinco Días ☐ De uno a tres días por mes
   ☐ Tres Días ☐ Seis / Siete Días ☐ Esta es mi primera vez

7. **¿Cuál es la razón más importante de tomar el autobús?**
   (marque una opción)
   ☐ Familia no tiene auto ☐ Otra persona usa el auto
   ☐ Problema para estacionar ☐ No manejo
   ☐ Trafico es imposible ☐ Autobús es conveniente
   ☐ Condición de clima ☐ Evitar beber y manejar
   ☐ Autobús es económico ☐ Otro _____

8. **¿Tiene licencia de conducir?** ☐ Si ☐ No

9. **Sexo:** ☐ Femenino ☐ Masculino

Por favor Continuar en Reverso ➜

10. El total de entrada anual combinada de todos los miembros de mi casa es:

- ☐ Menos de $15,000 al año
- ☐ $15,000-$24,999 al año
- ☐ $25,000-$34,999 al año
- ☐ $35,000-$44,999 al año
- ☐ $45,000-$55,000 al año
- ☐ Mas de $55,000 al año

11. ¿Cuál es su origen?

- ☐ Indio NorteAmericano/Nativo de Alaska
- ☐ Negro/Africano NorteAmericano
- ☐ Isleño del Pacifico
- ☐ Asiático
- ☐ Hispano/Latino
- ☐ Blanco
- ☐ Otro (especifique por favor) _____

12. ¿Cuál es su ocupación?

- ☐ Ama de Casa
- ☐ Empleado
- ☐ Gerencia/profesional
- ☐ Técnico/Administración
- ☐ No Empleado
- ☐ Trabajador de Servicio
- ☐ Estudiante de universidad
- ☐ Estudiante de escuela secundaria
- ☐ Ventas
- ☐ Jubilado
- ☐ Producción/operador de maquina/Artesano
- ☐ Otro (especifique por favor) _____

13. ¿Cuanto hace que usted usa el sistema FREE RIDE?

- ☐ Primera vez
- ☐ Una semana
- ☐ Un mes
- ☐ Un año
- ☐ Dos años
- ☐ Más de dos años

14. ¿Como se entero de FREE RIDE?

- ☐ Parada de autobus
- ☐ Vio autobus
- ☐ Amigo/compañero de trabajo
- ☐ Trabajador de hotel
- ☐ Anuncio
- ☐ Vio guía de autobus
- ☐ Otro _____

15. ¿Cuáles son sus sugerencias para mejorar el servicio de FREE RIDE?

16. Favor comparta cualquier otro comentario:

¡GRACIAS!

10. El total de entrada anual combinada de todos los miembros de mi casa es:

- ☐ Menos de $15,000 al año
- ☐ $15,000-$24,999 al año
- ☐ $25,000-$34,999 al año
- ☐ $35,000-$44,999 al año
- ☐ $45,000-$55,000 al año
- ☐ Mas de $55,000 al año

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- ☐ Isleño del Pacifico
- ☐ Asiático
- ☐ Hispano/Latino
- ☐ Blanco
- ☐ Otro (especifique por favor) _____

12. ¿Cuál es su ocupación?

- ☐ Ama de Casa
- ☐ Empleado
- ☐ Gerencia/profesional
- ☐ Técnico/Administración
- ☐ No Empleado
- ☐ Trabajador de Servicio
- ☐ Estudiante de universidad
- ☐ Estudiante de escuela secundaria
- ☐ Ventas
- ☐ Jubilado
- ☐ Producción/operador de maquina/Artesano
- ☐ Otro (especifique por favor) _____

13. ¿Cuanto hace que usted usa el sistema FREE RIDE?

- ☐ Primera vez
- ☐ Una semana
- ☐ Un mes
- ☐ Un año
- ☐ Dos años
- ☐ Más de dos años

14. ¿Como se entero de FREE RIDE?

- ☐ Parada de autobus
- ☐ Vio autobus
- ☐ Amigo/compañero de trabajo
- ☐ Trabajador de hotel
- ☐ Anuncio
- ☐ Vio guía de autobus
- ☐ Otro _____

15. ¿Cuáles son sus sugerencias para mejorar el servicio de FREE RIDE?

16. Favor comparta cualquier otro comentario:

¡GRACIAS!

Appendix B: Suggestions

TRANSPORTATION
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Appendix B

Question 15. What are your suggestions to improve FREE RIDE service?

Blue Route

- Couldn't be better
- Este es bueno
- Excellent Service
- Go to blue river
- Hotel and service more aware of bus routes
- It's fine.
- Keep It!
- Later local route times. Service to blue river and Alma.
- More buses.
- More often after peak hours.
- Please coordinate with bus service to other ski areas. We can't meet the bus.
- Put more buses in the morning and after 6pm.
- Racks on the city buses
- Ski racks
- Spread out the service.
- Very good
- Very good service.
- Years ago we were told it was better if you're late than early. I have seen it happen with no regard waiting for people on time.

Black Route

- Be more on time at all the bus stops.
- Board at major stops updating if buses are on schedule and how far behind.
- Coordinate better with other bus systems, particularly the ones that go to other resorts. Have ski racks on outside of bus.
- Every half hour after 5 pm

- Free n good
- Give them their own lane
- Go to Blue River
- Go to distinct addresses
- Good equip and good people
- Good service
- I use and encourage more stops specifically in Blue River
- It's excellent
- It's great!
- Keep it up
- Later buses, more up Ski Hill Road
- Later rides
- More buses
- More frequent service after 5pm to Peak 8
- More frequent than 15 minutes in peak ski season.
- More frequently black bus
- None. Perfect service. Clean. On time.
- Pay drivers more money.
- Reg. service needs to be on time.
- Run buses later at night.
- Service later than 5:13pm. Bus that goes further into town.
- Summit Stage could run later.
- Thank you for the service!
- Thanks for the ride.
- Trips to and from Denver.

Yellow Route

- A connection to Denver
- A stop across from Breck Terrace
- Add a bus stop across the street from one or both Breck. Terrace stops so there is a stop for both directions of traffic.
- Add routes
- Advertise right by the $15/day signs
- Allow beer on buses... Nicer drivers.

- Amptar rutes a otros lugares
- Be on time
- Be on time to F lot in the afternoons. Run until 1 am!
- Be on time. Sometimes yellow bus doesn’t stop for passengers in morning.
- Better routes during busy season.
- Bigger yellow bus
- Bus goes every 30 minutes after 6 pm instead of 1 hours. thanks
- Bus on time and every 10 minutes
- Bus running later at night.
- Change the stop bus some two years ago.
- Coasters
- Consistency of timing should run later so people don't drink and drive
- Creo que esta bien
- Dedication to being on time, or notification of some-sort when it will be at least 20 minutes late.
- El horano del bus sez probongab
- En lo persuoton pard le es muy loyodd el servicio que nos brinaan y la atencion
- Es excelente
- Extend time for 2 bus on Yellow route
- Good
- Good.
- Great service as is.
- Have a bus run until 1 am
- Have a map where all the buses park at the station
- Have one to run later on Tuesday and Thursday.
- I love this bus service, can't believe it's free and so convenient. Make the yellow run later, 11:30 pm is too early.
- I think ??, needs more punctuality.
- If a bus arrives early have it wait until time to leave. sync all drivers watches
- It is great.
- It is very convenient
- It should work later, many people walk for example from, ??, which to terrace is a long way.

- It's a good idea to increase the number hours for the different buses.
- It's all good.
- Keep up good job
- Keep yellow 2 running all day
- Later bus routes from downtown
- Long times to have at night in Breck
- Make ski resort supply transportation for Breck Terrace so yellow route doesn't fill up so easily.
- Make them be on time always and in crowded time have more buses available.
- Maybe run them a little later.
- More bus
- More buses
- More buses at peak times.
- More buses in the nights.
- More buses on Yellow route, not always on time. Late is ok, but they sometimes arrive 5 minutes early.
- More buses will be excellent
- More Peak 8 service
- More regular!
- More regularly up and down Airport.
- More service on Ski Hill Town service of once an hour could be better.
- More yellow routes and later buses at night
- Ningunas
- No suggestions. Service is excellent. Thank you.
- On time
- Patient driver. More time schedule specially for the yellow bus
- Perks for the drivers - they often seem annoyed with all the same questions all day.
- Put clock in Transit Center.
- Que hayo transporte hastamas tarde.
- Que pasen a tiempo
- Run buses later than 12 pm
- Run later
- Run later (at least until 2am)

- Run later (Yellow and Brown routes). Avoid drinking and driving
- Run later hours from town to Airport Road in p.m..
- Run later hours.
- Run later. 4 am
- Run to Terrace later at night, even if it's once an hour.
- Run yellow #2 more often
- Service is ok. but only for the fact that bus drivers should be considerate especially when passed the stop sign before time, should stop to pick up people on the other side.
- Ski racks
- Some drivers are really unfriendly. I ask "how are you" & he'll just stare at me.
- Start service at 6am and run until 1:30-2a. to better serve those residents and tourists who work late or stay out late. Keep the Grand Room open later so passengers have a comfortable place to stay while waiting on the bus.
- Stay running during night
- The yellow bus shouldn't be late so much
- They need to be on time
- They should not be late and some new drivers
- Transport to Denver.
- Travel later at night.
- Two Yellow routes help...but I have still been passed by a "full" bus and late for work.
- When parked at Breck station shut the front door of bus. Otherwise the diesel fumes keep coming into the bus. Especially when the 'Yellow' is waiting five minutes behind the 'Brown'
- Works great
- Yo penso & eta bien
- You should allow dogs on the bus or at least put a sign that dogs are not allowed because one very cold night a driver left me out freezing because I had with me a small dog.

Orange Route

- Add ski racks on outside of bus
- Advertise free service on internet for tourists coming in
- Be more on time - run every 15 minutes during busy tourist times.

- Be on time Orange
- Circulate more frequently on main street
- Coordinate county & town free bus service
- Difficult to coordinate with other shuttle schedules for ski areas etc
- Driver needs to be more courteous and explain how the bus works
- Free ride is an excellent service
- Friendlier staff - Buses need to be on time.
- Get or keep enough drivers to operate the orange route every half hour
- Get Orange bus on time.
- Getting on time
- Good music, service later
- Great job
- Have a bus stop on Rainbow Dr. near the gated community because it is a mile and a half walk. and it's tiring 2 times a day
- Have bus arrive soon enough at transfer center in time to get on bus to Frisco with just 5 minutes wait, maximum
- Have bus drivers tell people when they get on they have to push the button for their stop. We didn't know, so she drove right by our stop when we told her where we were going when we got on.
- Have more stops
- Hope run more bus pass to ski racquet
- I like it
- Increase frequency to ski & racket
- It's a good service
- It's a great service sometimes I will be right by the bus but it will drive off
- It's a great service. Thanks for the good work.
- It's all good
- It's good.
- It’s great
- It's great
- Keep it available, we love to see the sights from the bus
- Later Evening Service
- Let us know the Routes when we get on.
- More direct drop-offs and pick-ups
- More frequent times to ski and racquet club

- More often
- More often buses
- More stops at ski & racket it would be great to have it come every 20 mins
- More times
- Need more stops
- Nice
- No need to improve
- None - Brilliant service.
- None cuz it's GRREAT!
- None, great service.
- Not to be early and make you wait 30 more minutes.
- Nothing - everything is good.
- Nothing. Excellent staff very helpful.
- On time
- On time would appreciate
- Orange 2 more often, more stops to ski
- Orange is the only line with issues. Maybe divide the line to keep on time.
- Perfect
- Pretty good now.
- Que haya mas rotas
- Que tenga mas paradas
- Run the Orange route more often, especially during busy times.
- Very good
- Very Good.
- Works great

Brown Route

- Air Fresheners
- Announce stops better
- Avoid early buses
- Be on time
- Better explanations of routes.
- Bring back free parking by transfer station.

- Bus driver etiquette (ie: stopping at scheduled stops)
- Bus every 15 minutes
- Bus lane on Park Ave.
- Bus Service to Georgetown, Silverplume (Clear Creek County).
- Connection must match with all line bus
- DO NOT leave stops early
- Don't leave bus stop early
- Don't pass the stops too early. It's ok to be a little late, just NOT early.
- Don't take the employee's (Brown) away off peak season
- Drivers need to stop until their time of departure listed on each stop
- Drivers stay at stop until scheduled time
- Every 15 minutes all the time. A bus at 12pm or later - maybe 1 an hour.
- Good Job.
- Good Service. Thank you.
- Great Service.
- GREAT.
- Have Yellow stop at City Market when returning from Airport Road.
- I think I really like the system and for me is perfect.
- I think it’s a good idea
- I want much more yellow and brown bus
- I would like the bus to be on time always.
- It works great for me.
- It's great
- It's great.
- Keep it the same, this is great. Thanks.
- Later service Bar close
- Later service until 2am
- Later service.
- Love it.
- Make better connections with Summit Stage.
- Make map easier to read.
- Make sure your drivers pay attention to all stop and watch for people. If they don't know it they shouldn't drive.
- Maybe a few more routes for a longer time.

- More?
- More buses
- More buses more often
- More consistent with times, availability 2-5 pm
- More frequency alway hours
- More frequent and later service
- More frequent brown service to/from Beaver Run
- More frequent runs.
- More frequent service and Brown Beaver Run stop should be with the other routes instead of on street.
- More routes and frequency
- More times on Brown
- Morning to lifts is good, coming back has been very sporadic this year. Many times (this year only) someone had to come pick us up in a car (coming back 2-5 pm).
- Must be on time
- No suggestions, its great.
- None right now.
- None, works great.
- Nothing - it was great!
- On time.
- Place on bus to put skis
- Please don't reduce service on Broken Lance
- Put a rack on the bus for skis!
- Racks on the side of the bus for snowboards/skis
- Raise speed limit
- Run buses later at night (until ?? closes)
- Run buses later or have a one trip last bus at like 2:00am
- Run buses later than 11:30pm.
- Run early = stay till the time; more friendly bus drivers
- Run later on weekend nights.
- Run until 1 or 2am please.
- Service over Hoosier Pass to my house.
- Ski Rack

- Ski rack outside bus
- So far so good.
- Stay open until 2:30a.m.
- Thank you for putting more busses on.
- The bus driver was friendly! :)
- The Free Ride at Christmas time - Nov/Dec 2007 was terrible. More communication if bus service is delayed or canceled due to weather or other reason (ie: lack of drivers).
- They drove by me cause I wasn't at a bus stop. I was pissed.
- To run later at night. Sometimes I don't leave work until after 12am.
- Too early to tell.
- Try to keep schedule more consistent during peaks/busy hours.
- Vail/Beaver Creek charge $5.00

Purple Route

- A bus station by the Breck Elementary School.
- All is good.
- Be on time more Don't sit and wait till :03 or later to leave.
- Buses to Breck Golf Course
- Change Breck north back to old route so we can get to rec center
- Cup holders and free stuff
- Cup holders, massage chairs, food/refreshments
- Extend the hours of operation until after bars and restaurants close.
- Free Ride is great, runs often and so on. The only thing is, it doesn't run so late. To avoid drink and driving in this town it should run to 2am when bars close (especially during weekends). 11pm is when all the kids go out to the bars. 2:30am they go ho
- Get the Frisco bus here a little earlier so I can catch my bus (Purple).
- Good Job.
- Good service. Will use again.
- Great Service.
- Have a later bus for Purple route so I can get home for work please.
- I like it. doesn't need anything.
- I think the bus runs great. Pass Bus Lane for peak season.
- I'd like that they run 3:30am

- Improve Yellow bus - often drivers leave very early or late.
- Include more neighborhoods.
- It's great. Thanks.
- Later night service, at least in winter.
- Later night service, even just an hour would be better, same as summit stage.
- Later service --> Home for Bars Service to Blue River?
- Later service times.
- Like to ride the bus home after drinking in town at night but 11:30pm is too early to stop drinking. Please run later.
- Longer hours.
- More buses at busy routes
- No small buses
- None - The service is perfect - clean - on time
- None. Love it.
- Not very much to say pretty good overall :)
- Nothing
- Nothing. It's great.
- Punctuality! please ski and board racks on buses
- Run all buses to 1 in the morning.
- Run later. DUI's are too big and the buses early stop time is forcing a lot of drunk driving.
- service is great
- Time with Stage Buses
- Times meet up with Summit Stage better for transfer.
- You guys Rock!
- Your service is great.

Appendix C: Comments

TRANSPORTATION
CONSULTANTS, INC.

Appendix C

ONBOARD SURVEY COMMENTS

Question 16. Please share any other comments.

Blue Route

- Enjoyed the bus ride
- Excellent service
- Has been very useful, convenient, pleasant
- Keep up the good work
- Nice color scheme
- The buses are fine, I like that.
- Very good public service.
- Very Good.

Black Route

- Axe the gondola and parking fees
- Best bus drivers ever
- I wish the Ski Area Blue Route Buses (2 per hour) were as prompt as City buses.
- It was a nice ride.
- Love It!
- Music at the bottom could be significantly better.
- Rock On
- Suggest stop and drop on request
- Thanks for the ride.
- Thanks.

Yellow Route

- Add City Market back onto Yellow Route coming from Airport Road. Add extra stop across from Breck Terrace II for return service. Run Yellow II until 7pm all the way down Airport.

- Available all day.
- Buses should run til 1 am to keep drunk driving down
- Estoy muy auraajuqa con todd (gracias
- Good Thanks.
- Great service, very clean, nice drivers. Free
- Hos ahoferes son my amables pero los pasajeras javenes de reponte son muy groseros
- I appreciate the free ride
- I like the new hybrid bus. Would like too see more
- I love free ride.
- Ice on floors on later routes can be dangerous. Please run Yellow route later (at least til bars close).
- It would be awesome if yellow route would run later instead of everyone hitch hiking to airport road after 11:30 pm
- It would be good if the Free Ride Service is consistent with the Summit Stage.
- Late buses running
- Lots of bus drivers are rude especially the brown haired lady that drives the Yellow route at night.
- Maybe it would be good if you get a bus top on Breck Terrace and put on the other side of the road, and take out the one that is there right now.
- No buses are late.
- Some drivers do not have any manners
- Sometimes the bus doesn't come on time
- Son, who works here introduced me.
- Survey I lacking in Demo
- Temporada acta el a marillo so resdeta los horacios yhay hasta 1 hours de espera
- Thank you for being free.
- Thank you.
- Thanks.
- The bus is alway son time
- The bus is great
- The free bus is one of the better things in Breck!

- There has been multiple times on yellow route where I have been early only to see bus already passing back other direction. Also on the same route I've had the door shut in my face and driven off.
- Where is the purple route bus?
- Why is ? service this year

Orange Route

- Don't change the route, I wanna get home on time.
- Drivers often very helpful
- Drivers very friendly and helpful
- Drivers very helpful and friendly
- Excellent method, alternative to car to come from denver on mountain express & ski, travel, etc.
- Excellent service.
- Free bus helps me so much. Thanks.
- great bus drivers
- I Love You!
- I think it is great and I'm glad this service was provided. very convenient. Thanks!
- Is an excellent service.
- It's cool
- It’s ok
- It's perfect
- Like service
- Most of the drivers are great.
- My legs are very grateful
- Needs to accommodate visitors, needs to run earlier and later
- New Belgium
- Nice
- Nice to have the service
- Please continue service
- Ski racks for Orange Route!
- Thank you for providing this service for tourists
- Thank you for the service
- Thank you.

- The past two days, Orange has not even showed up at the Maggie during its time.
- Very Good Service
- Very good service.
- We like the bus
- We love the ride when we are up here from Denver
- You have an awesome facility

Brown Route

- Bus works pretty good for me!
- Drivers are so friendly :)
- Drivers very helpful.
- Excellent service. Thank you.
- Excellent Service. Very pleased.
- Fun and Friendly - Thx!
- Good Drivers Great Service
- Great Drivers, Great Service
- Great Drivers, Great Service.
- Great drivers, later hours.
- Great ride.
- Great service
- Great Service Great people!
- Great service! Thx.
- Great service.
- Great service. Valuable to overall community. Don't mind paying taxes for service.
- Great to have
- I like alot.
- If bus is full, notify ?? passengers.
- If bus is not going directly to ski hill and going on a long route, he should tell you.
- It sucked for work really really bad when it was running every hour. Thanks for the Bus.
- It's a great service.
- I've been left at numerous stops usually by the same driver.

- Keep bus on schedule
- Maybe earlier in the a.m.
- More buses during peak season.
- On 25th March. Bus 9209 at 8:40am didn't stop for us. My friends foot was in the door and the driver closed the door on him and said she didn't have time. She should be sacked.
- On 3/25 while riding the Brown to work @ 8am, the driver was very rude to other riders. Left people at the stop instead of waiting 10 seconds! 485-9477 - cell
- One of the new female bus drivers with glasses is very rude. Everybody else is cool.
- Short dark haired heavy set woman is meaner than all other bus drivers. Better info for gapers!! Locals pay taxes, gapers don't.
- Thank you for providing the Free Buses.
- Thanks.
- The bus schedule from Main St. to Gondola parking doesn't seem to apply. Waited 45 minutes for bus. If I had known I would have driven.
- Very convenient. Excellent.
- Want more time table
- Watch the times.
- We had to call for rides more than 10 times this season to get home (and I am only up here 1-2x/month for the weekend).
- We've ridden the bus 3 times on our trip. Two/3 drivers great - the other, a woman, was terrible. She wouldn't wait for a family and the father was at the door.
- You are the Best! Thank you for your service.
- You didn't have enough buses/drivers this year. You didn't start Brown #2 early enough.
- Your drivers on the Brown route are always friendly.

Purple Route

- Best bus drivers ever!! Thanks for all the rides!
- Big buses are good.
- Bigger routes
- Drivers are great.
- Fantastic. I couldn't live without it.
- Good Job!, but need to run later.

- Great attitude of drivers on route
- I am very happy to have a free bus system. I use it to go to work and when I go skiing. The only time I don't use the bus is when I get out of work after 11:30pm.
- I love Breck!
- I think the bus drivers do their best to be on time.
- It's great. Keep up the good job.
- Keep it free and remember keep it fresh free.
- Keep it free.
- Love the Free Bus system
- Service has been prompt and friendly. Thanks.
- Should be wheelchair accessible
- Some friendlier drivers most are great.
- Thank You
- Thanks for the ride
- The bus drivers are awesome.
- The service is very good. But sometimes this route is not on time and sometimes it is. That is confusing.
- Tremendous service for visitors
- We appreciate the new bus line down Wellington since I live on Corkscrew Drive.

Appendix D: Calibrated Demand Models

TRANSPORTATION
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Table D-1
Fixed-Route Demand Model (Shoulder Season)

Census Tract	Block Group	Total # of Housing Units 2000	# of Housing Units		Housing Units Served by Transit		Transit Trip Rates		Walk Distance (ft)	Walk Factor	Headway (min)	Headway Factor	Transit Trips		Daily Trip # of
			Permanent	Seasonal	Permanent	Seasonal	Permanent	Seasonal					Permanent	Seasonal	
400	1010	210	154	124	154	12	0.27	0.36	1,300	0.98	30	1.45	58	6	64
400	1014	171	129	97	97	7	0.60	0.36	1,300	0.98	30	1.45	82	4	86
400	1015	200	21	18	21	2	0.70	0.36	1,300	0.98	30	1.45	20	1	21
400	1016	0	0	0	0	0	0.27	0.36	1,300	0.98	30	1.45	0	0	0
400	2024	102	113	27	6	0	0.10	0.36	1,300	0.98	30	1.45	1	0	1
400	2049	48	39	25	0	0	0.27	0.36	1,300	0.98	30	1.45	0	0	0
400	2051	0	0	0	0	0	0.27	0.36	1,300	0.98	30	1.45	0	0	0
400	2052	20	21	0	5	0	0.10	0.36	1,300	0.98	30	1.45	1	0	1
400	2053	0	0	0	0	0	0.27	0.36	1,300	0.98	30	1.45	0	0	0
400	2054	71	82	16	62	1	0.01	0.36	1,300	0.98	30	1.45	1	1	1
400	2055	0	0	0	0	0	0.27	0.36	1,300	0.98	30	1.45	0	0	0
400	2056	0	0	0	0	0	0.27	0.36	1,300	0.98	30	1.45	0	0	0
400	2057	54	74	2	74	0	0.01	0.36	1,300	0.98	30	1.45	1	0	1
400	2060	0	0	0	0	0	0.27	0.36	1,300	0.98	30	1.45	0	0	0
400	2061	88	88	32	26	1	0.01	0.36	1,300	0.98	30	1.45	0	0	1
400	2062	36	45	2	23	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2063	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2064	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2065	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2069	23	14	16	5	1	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2070	17	14	9	11	1	0.01	0.36	1,300	0.98	30	1.45	0	0	1
400	2071	19	14	7	11	1	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2072	35	27	18	1	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2073	187	197	51	197	5	0.01	0.36	1,300	0.98	30	1.45	3	3	5
400	2074	41	23	27	23	3	0.01	0.36	1,300	0.98	30	1.45	0	1	2
400	2075	9	8	4	8	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2076	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2077	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	2078	107	41	25	41	2	0.01	0.36	1,300	0.98	30	1.45	1	1	2
400	2079	32	12	28	12	3	0.01	0.36	1,300	0.98	30	1.45	0	1	2
400	3058	1	0	2	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	3059	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	3063	25	18	14	2	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	3065	200	200	0	30	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4000	19	10	14	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4001	49	33	30	2	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4002	48	35	19	2	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4003	30	37	4	2	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4004	16	18	0	18	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4005	13	10	7	10	1	0.01	0.36	1,300	0.98	30	1.45	0	0	1
400	4006	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4007	9	10	2	10	0	0.90	0.36	1,300	0.98	30	1.45	13	0	13
400	4008	20	23	2	23	0	0.40	0.36	1,300	0.98	30	1.45	13	0	13
400	4009	28	27	2	27	0	0.12	0.36	1,300	0.98	30	1.45	5	0	5
400	4010	46	35	14	35	1	0.01	0.36	1,300	0.98	30	1.45	0	1	1
400	4011	103	125	16	19	0	0.08	0.36	1,300	0.98	30	1.45	2	0	2
400	4012	23	18	9	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4013	17	14	9	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4014	175	150	83	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4025	10	6	2	6	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4026	6	4	4	3	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4027	15	2	16	2	2	0.01	0.36	1,300	0.98	30	1.45	0	1	1
400	4028	90	25	72	15	4	0.05	0.30	1,300	0.98	30	1.45	1	2	3
400	4029	10	0	12	0	1	0.01	0.36	1,300	0.98	30	1.45	0	1	1
400	4030	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	4031	107	29	106	29	11	0.30	0.36	1,300	0.98	30	1.45	12	5	18
400	4032	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	8	0	8
400	4033	45	53	9	53	1	0.02	0.36	1,300	0.98	30	1.45	2	0	2
400	4034	30	10	28	10	3	0.01	0.36	1,300	0.98	30	1.45	0	1	2
400	5000	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5001	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	12	0	12
400	5002	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5003	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5004	22	27	4	27	0	0.01	0.36	1,300	0.98	30	1.45	0	0	1
400	5005	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5006	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5007	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5008	23	33	0	33	0	0.01	0.36	1,300	0.98	30	1.45	15	0	15
400	5009	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5010	35	14	18	14	2	0.01	0.36	1,300	0.98	30	1.45	27	1	28
400	5011	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5012	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5013	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	54	0	54
400	5014	326	205	221	62	7	0.10	0.36	1,300	0.98	30	1.45	9	3	12
400	5015	15	4	14	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5016	20	2	23	2	2	0.01	0.36	1,300	0.98	30	1.45	0	1	1
400	5017	364	201	271	80	11	0.01	0.40	1,300	0.98	30	1.45	1	6	7
400	5018	157	14	161	5	6	0.50	0.54	1,300	0.98	30	1.45	4	4	8
400	5019	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5020	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5021	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5022	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5023	20	0	25	0	2	0.01	0.36	1,300	0.98	30	1.45	3	1	4
400	5024	206	14	239	14	24	0.30	0.70	1,300	0.98	30	1.45	6	24	30
400	5025	42	33	4	33	0	0.70	0.36	1,300	0.98	30	1.45	32	0	33
400	5026	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5027	17	8	14	8	1	0.01	0.36	1,300	0.98	30	1.45	3	1	4
400	5028	6	8	0	8	0	0.01	0.36	1,300	0.98	30	1.45	4	0	4
400	5029	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5030	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	6	0	6
400	5031	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5032	126	4	149	4	15	0.01	0.30	1,300	0.98	30	1.45	0	6	6
400	5033	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5034	16	18	4	18	0	0.50	0.36	1,300	0.98	30	1.45	13	0	13
400	5035	1	2	0	2	0	2.50	0.36	1,300	0.98	30	1.45	7	0	7
400	5036	59	6	35	6	4	3.25	0.36	1,300	0.98	30	1.45	28	2	30
400	5037	436	18	502	17	45	1.50	0.36	1,300	0.98	30	1.45	35	23	58
400	5038	1,082	82	1234	82	123	0.50	0.36	1,300	0.98	30	1.45	58	62	120
400	5039	0	0	0	0	0	0.50	0.36	1,300	0.98	30	1.45	5	0	5
400	5040	45	8	48	4	7	1.30	0.36	1,300	0.98	30	1.45	8	4	11
400	5041	6	4	4	4	0	1.00	0.36	1,300	0.98	30	1.45	6	0	6
400	5043	10	4	9	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5044	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5054	258	107	214	43	9	0.40	0.36	1,300	0.98	30	1.45	24	4	28
400	5059	97	23	94	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5060	93	74	44	55	3	0.20	0.36	1,300	0.98	30	1.45	16	2	17
400	5063	28	25	12	16	1	0.65	0.36	1,300	0.98	30	1.45	15	0	15
400	5064	42	37	19	30	2	0.45	0.36	1,300	0.98	30	1.45	19	1	20
400	5065	59	43	35	43	4	0.05	0.36	1,300	0.98	30	1.45	3	2	5
400	5066	10	10	4	1	0	0.10	0.36	1,300	0.98	30	1.45	2	0	2
400	5067	19	8	16	8	2	0.10	0.36	1,300	0.98	30	1.45	1	1	2
400	5068	637	16	762	16	76	0.45	0.40	1,300	0.98	30	1.45	10	43	54
400	5069	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5070	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	21
400	5071	374	49	343	49	34	0.01	0.15	1,300	0.98	30	1.45	1	7	8
400	5072	319	115	248	115	25	0.01	0.20	1,300	0.98	30	1.45	2	7	9
400	5073	13	18	0	15	0	0.01	0.36	1,300	0.98	30	1.45	5	0	5
400	5074	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5075	32	10	30	10	3	0.20	0.36	1,300	0.98	30	1.45	3	2	4
400	5076	4	4	2	4	0	0.80	0.36	1,300	0.98	30	1.45	5	0	5
400	5077	0	0	0	0	0	0.70	0.36	1,300	0.98	30	1.45	5	0	5
400	5078	32	12	28	12	3	0.15	0.36	1,300	0.98	30	1.45	3	1	4
400	5079	19	12	12	2	0	0.01	0.36	1,300	0.98	30	1.45	2	0	2
400	5082	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5090	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
400	5091	0	0	0	0	0	0.01	0.36	1,300	0.98	30	1.45	0	0	0
Subtotal		7,678	3,285	5,840	1,918	476							677	242	940

Source: LSC, 2008.

Table D-2

Fixed-Route Demand Model (Summer)

Census Tract	Block Group	Total # of Housing Units 2000	# of Housing Units		Housing Units Served by Transit		Transit Trip Rates		Walk Distance (ft)	Walk Factor	Headway (min)	Headway Factor	Transit Trips		Daily Trip # of
			Permanent	Seasonal	Permanent	Seasonal	Permanent	Seasonal					Permanent	Seasonal	
400	1010	210	154	124	154	12	0.21	0.23	1,300	0.98	30	1.45	46	4	50
400	1014	171	129	97	97	7	0.04	0.23	1,300	0.98	30	1.45	5	2	8
400	1015	200	21	18	21	2	0.40	0.23	1,300	0.98	30	1.45	12	1	12
400	1016	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2024	102	113	27	6	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2049	48	39	25	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2051	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2052	20	21	0	5	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2053	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2054	71	82	16	62	1	0.01	0.23	1,300	0.98	30	1.45	1	0	1
400	2055	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2056	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2057	54	74	2	74	0	0.01	0.23	1,300	0.98	30	1.45	1	0	1
400	2060	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2061	88	88	32	26	1	0.01	0.23	1,300	0.98	30	1.45	0	0	1
400	2062	36	45	2	23	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2063	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2064	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2065	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2069	23	14	16	5	1	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2070	17	14	9	11	1	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2071	19	14	7	11	1	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2072	35	27	18	1	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2073	187	197	51	197	5	0.01	0.23	1,300	0.98	30	1.45	3	2	4
400	2074	41	23	27	23	3	0.01	0.23	1,300	0.98	30	1.45	0	1	1
400	2075	9	8	4	8	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2076	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2077	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	2078	107	41	25	41	2	0.01	0.23	1,300	0.98	30	1.45	1	1	1
400	2079	32	12	28	12	3	0.01	0.23	1,300	0.98	30	1.45	0	1	1
400	3058	1	0	2	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	3059	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	3	0	3
400	3063	25	18	14	2	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	3065	200	200	0	30	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4000	19	10	14	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4001	49	33	30	2	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4002	48	35	19	2	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4003	30	37	4	2	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4004	16	18	0	18	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4005	13	10	7	10	1	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4006	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4007	9	10	2	10	0	2.50	0.23	1,300	0.98	30	1.45	36	0	36
400	4008	20	23	2	23	0	1.10	0.23	1,300	0.98	30	1.45	35	0	35
400	4009	28	27	2	27	0	0.08	0.23	1,300	0.98	30	1.45	3	0	3
400	4010	46	35	14	35	1	0.01	0.23	1,300	0.98	30	1.45	0	0	1
400	4011	103	125	16	19	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4012	23	18	9	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4013	17	14	9	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4014	175	150	83	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4025	10	6	2	6	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4026	6	4	4	3	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4027	15	2	16	2	2	0.01	0.23	1,300	0.98	30	1.45	0	1	1
400	4028	90	25	72	15	4	0.01	0.23	1,300	0.98	30	1.45	0	1	2
400	4029	10	0	12	0	1	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4030	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	4031	107	29	106	29	11	0.30	0.23	1,300	0.98	30	1.45	12	3	16
400	4032	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	12	0	12
400	4033	45	53	9	53	1	0.01	0.23	1,300	0.98	30	1.45	1	0	1
400	4034	30	10	28	10	3	0.01	0.23	1,300	0.98	30	1.45	0	1	1
400	5000	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5001	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	15	0	15
400	5002	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5003	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5004	22	27	4	27	0	0.01	0.23	1,300	0.98	30	1.45	8	0	8
400	5005	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5006	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5007	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5008	23	33	0	33	0	0.01	0.23	1,300	0.98	30	1.45	2	0	2
400	5009	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5010	35	14	18	14	2	0.90	0.23	1,300	0.98	30	1.45	18	1	19
400	5011	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5012	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5013	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	48	0	48
400	5014	326	205	221	62	7	0.09	0.23	1,300	0.98	30	1.45	8	2	10
400	5015	15	4	14	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5016	20	2	23	2	2	0.01	0.23	1,300	0.98	30	1.45	0	1	1
400	5017	364	201	271	80	11	0.01	0.23	1,300	0.98	30	1.45	1	4	5
400	5018	157	14	161	5	6	0.70	0.23	1,300	0.98	30	1.45	5	2	7
400	5019	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5020	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5021	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5022	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5023	20	0	25	0	2	0.01	1.00	1,300	0.98	30	1.45	0	3	3
400	5024	206	14	239	14	24	0.01	0.15	1,300	0.98	30	1.45	0	5	5
400	5025	42	33	4	33	0	0.30	0.23	1,300	0.98	30	1.45	14	0	14
400	5026	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5027	17	8	14	8	1	0.50	0.23	1,300	0.98	30	1.45	6	0	6
400	5028	6	8	0	8	0	0.25	0.23	1,300	0.98	30	1.45	3	0	3
400	5029	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5030	0	0	0	0	0	0.00	0.23	1,300	0.98	30	1.45	0	0	0
400	5031	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5032	126	4	149	4	15	0.01	0.23	1,300	0.98	30	1.45	0	5	5
400	5033	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5034	16	18	4	18	0	1.40	0.23	1,300	0.98	30	1.45	37	0	37
400	5035	1	2	0	2	0	4.00	0.23	1,300	0.98	30	1.45	12	0	12
400	5036	59	6	35	6	4	0.50	0.23	1,300	0.98	30	1.45	4	1	5
400	5037	436	18	502	17	45	0.30	0.23	1,300	0.98	30	1.45	7	15	22
400	5038	1,082	82	1234	82	123	0.45	0.23	1,300	0.98	30	1.45	52	40	92
400	5039	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	4	0	4
400	5040	45	8	48	4	7	2.00	0.40	1,300	0.98	30	1.45	12	4	16
400	5041	6	4	4	4	0	0.50	0.23	1,300	0.98	30	1.45	3	0	3
400	5043	10	4	9	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5044	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5054	258	107	214	43	9	0.10	0.23	1,300	0.98	30	1.45	6	3	9
400	5059	97	23	94	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5060	93	74	44	55	3	0.05	0.23	1,300	0.98	30	1.45	4	1	5
400	5063	28	25	12	16	1	0.10	0.23	1,300	0.98	30	1.45	2	0	3
400	5064	42	37	19	30	2	0.15	0.23	1,300	0.98	30	1.45	6	1	7
400	5065	59	43	35	43	4	0.01	0.23	1,300	0.98	30	1.45	1	1	2
400	5066	10	10	4	1	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5067	19	8	16	8	2	0.01	0.23	1,300	0.98	30	1.45	0	1	1
400	5068	637	16	762	16	76	0.01	0.15	1,300	0.98	30	1.45	0	16	16
400	5069	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5070	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	13	0	13
400	5071	374	49	343	49	34	0.01	0.10	1,300	0.98	30	1.45	1	5	6
400	5072	319	115	248	115	25	0.01	0.10	1,300	0.98	30	1.45	2	3	5
400	5073	13	18	0	15	0	0.01	0.23	1,300	0.98	30	1.45	2	0	2
400	5074	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5075	32	10	30	10	3	0.01	0.23	1,300	0.98	30	1.45	0	1	1
400	5076	4	4	2	4	0	0.01	0.23	1,300	0.98	30	1.45	2	0	2
400	5077	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	2	0	2
400	5078	32	12	28	12	3	0.05	0.23	1,300	0.98	30	1.45	1	1	2
400	5079	19	12	12	2	0	0.09	0.23	1,300	0.98	30	1.45	0	0	0
400	5082	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5090	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
400	5091	0	0	0	0	0	0.01	0.23	1,300	0.98	30	1.45	0	0	0
Subtotal		7,678	3,285	5,840	1,918	476							475	137	612

Source: LSC, 2008.

Table D-3

Fixed-Route Demand Model (Peak Winter Season)

Census Tract	Block Group	Total # of Housing Units 2000	# of Housing Units		Housing Units Served by Transit		Transit Trip Rates		Walk Distance (ft)	Walk Factor	Headway (min)	Headway Factor	Transit Trips		Daily Trip # of
			Permanent	Seasonal	Permanent	Seasonal	Permanent	Seasonal					Permanent	Seasonal	
400	1010	210	154	95	154	57	0.72	0.30	1,300	0.98	15	1.60	173	27	200
400	1014	171	129	75	97	34	0.85	0.60	1,300	0.98	15	1.60	128	32	160
400	1015	200	21	14	21	8	0.70	0.40	1,300	0.98	15	1.60	22	5	27
400	1016	0	0	0	0	0	0.40	0.30	1,300	0.98	15	1.60	0	0	0
400	2024	102	113	20	6	1	1.25	0.30	1,300	0.98	15	1.60	11	0	11
400	2049	48	39	19	0	0	0.40	0.30	1,300	0.98	15	1.60	0	0	0
400	2051	0	0	0	0	0	0.40	0.30	1,300	0.98	15	1.60	0	0	0
400	2052	20	21	0	5	0	0.10	1.00	1,300	0.98	15	1.60	1	0	1
400	2053	0	0	0	0	0	0.40	0.30	1,300	0.98	15	1.60	0	8	8
400	2054	71	82	12	62	6	0.25	0.03	1,300	0.98	15	1.60	24	0	24
400	2055	0	0	0	0	0	0.25	0.30	1,300	0.98	15	1.60	0	22	22
400	2056	0	0	0	0	0	0.40	0.30	1,300	0.98	15	1.60	0	0	0
400	2057	54	74	1	74	1	0.10	0.03	1,300	0.98	15	1.60	12	0	12
400	2060	0	0	0	0	0	0.40	0.03	1,300	0.98	15	1.60	0	0	0
400	2061	88	88	24	26	4	0.30	0.03	1,300	0.98	15	1.60	12	0	13
400	2062	36	45	1	23	0	0.20	0.03	1,300	0.98	15	1.60	7	0	7
400	2063	0	0	0	0	0	0.02	1.00	1,300	0.98	15	1.60	0	6	6
400	2064	0	0	0	0	0	0.02	0.30	1,300	0.98	15	1.60	0	0	0
400	2065	0	0	0	0	0	0.02	0.30	1,300	0.98	15	1.60	0	6	6
400	2069	23	14	12	5	3	0.02	0.30	1,300	0.98	15	1.60	0	1	1
400	2070	17	14	7	11	3	0.02	0.30	1,300	0.98	15	1.60	0	2	2
400	2071	19	14	5	11	3	0.02	0.55	1,300	0.98	15	1.60	0	2	3
400	2072	35	27	14	1	0	0.02	0.03	1,300	0.98	15	1.60	0	0	0
400	2073	187	197	39	197	24	0.01	0.10	1,300	0.98	15	1.60	3	4	7
400	2074	41	23	20	23	12	0.02	0.35	1,300	0.98	15	1.60	1	7	7
400	2075	9	8	3	8	2	0.50	0.04	1,300	0.98	15	1.60	6	0	7
400	2076	0	0	0	0	0	0.02	0.30	1,300	0.98	15	1.60	0	3	3
400	2077	0	0	0	0	0	0.02	0.30	1,300	0.98	15	1.60	0	3	3
400	2078	107	41	19	41	11	0.01	0.10	1,300	0.98	15	1.60	1	2	2
400	2079	32	12	22	12	13	0.02	0.02	1,300	0.98	15	1.60	0	0	1
400	3058	1	0	1	0	0	0.02	0.30	1,300	0.98	15	1.60	0	6	6
400	3059	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	7	7
400	3063	25	18	11	2	1	0.02	0.30	1,300	0.98	15	1.60	0	2	2
400	3065	200	200	0	30	0	0.02	0.30	1,300	0.98	15	1.60	1	5	6
400	4000	19	10	11	0	0	0.02	0.30	1,300	0.98	15	1.60	0	0	0
400	4001	49	33	23	2	1	0.02	0.30	1,300	0.98	15	1.60	0	1	1
400	4002	48	35	15	2	0	0.02	0.30	1,300	0.98	15	1.60	0	1	1
400	4003	30	37	3	2	0	0.02	0.30	1,300	0.98	15	1.60	0	2	2
400	4004	16	18	0	18	0	0.02	0.30	1,300	0.98	15	1.60	1	2	3
400	4005	13	10	5	10	3	0.10	0.30	1,300	0.98	15	1.60	2	2	3
400	4006	0	0	0	0	0	0.02	0.30	1,300	0.98	15	1.60	0	1	1
400	4007	9	10	1	10	1	0.90	0.30	1,300	0.98	15	1.60	14	11	26
400	4008	20	23	1	23	1	0.65	0.30	1,300	0.98	15	1.60	23	0	23
400	4009	28	27	1	27	1	0.21	0.30	1,300	0.98	15	1.60	9	0	9
400	4010	46	35	11	35	7	0.01	0.30	1,300	0.98	15	1.60	1	3	4
400	4011	103	125	12	19	1	0.08	0.30	1,300	0.98	15	1.60	2	1	3
400	4012	23	18	7	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	4013	17	14	7	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	4014	175	150	64	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	4025	10	6	1	6	1	0.20	0.30	1,300	0.98	15	1.60	2	0	2
400	4026	6	4	3	3	1	0.01	0.30	1,300	0.98	15	1.60	0	1	1
400	4027	15	2	12	2	7	0.01	0.30	1,300	0.98	15	1.60	0	3	3
400	4028	90	25	56	15	20	0.30	0.40	1,300	0.98	15	1.60	7	13	19
400	4029	10	0	10	0	6	0.01	0.30	1,300	0.98	15	1.60	0	3	3
400	4030	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	4031	107	29	82	29	49	0.40	0.30	1,300	0.98	15	1.60	18	23	41
400	4032	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	18	18
400	4033	45	53	7	53	4	0.02	0.30	1,300	0.98	15	1.60	2	2	4
400	4034	30	10	22	10	13	0.10	0.10	1,300	0.98	15	1.60	2	2	4
400	5000	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5001	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	16	16
400	5002	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5003	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5004	22	27	3	27	2	0.01	0.30	1,300	0.98	15	1.60	0	1	1
400	5005	0	0	0	0	0	0.10	0.30	1,300	0.98	15	1.60	0	0	0
400	5006	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5007	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5008	23	33	0	33	0	0.30	0.30	1,300	0.98	15	1.60	15	41	56
400	5009	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5010	35	14	14	14	8	1.25	0.50	1,300	0.98	15	1.60	28	15	43
400	5011	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5012	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5013	0	0	0	0	0	0.10	0.50	1,300	0.98	15	1.60	0	115	115
400	5014	326	205	170	62	31	0.10	0.30	1,300	0.98	15	1.60	10	14	24
400	5015	15	4	11	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5016	20	2	18	2	11	0.01	0.30	1,300	0.98	15	1.60	0	5	5
400	5017	364	201	208	80	50	0.01	0.10	1,300	0.98	15	1.60	1	8	9
400	5018	157	14	124	5	26	0.50	0.30	1,300	0.98	15	1.60	4	12	16
400	5019	0	0	0	0	0	0.01	0.50	1,300	0.98	15	1.60	0	0	0
400	5020	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5021	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5022	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5023	20	0	19	0	11	0.01	0.60	1,300	0.98	15	1.60	0	11	11
400	5024	206	14	184	14	110	0.60	0.40	1,300	0.98	15	1.60	13	69	82
400	5025	42	33	3	33	2	0.70	0.30	1,300	0.98	15	1.60	36	101	137
400	5026	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5027	17	8	11	8	7	0.40	0.30	1,300	0.98	15	1.60	5	3	8
400	5028	6	8	0	8	0	0.60	0.30	1,300	0.98	15	1.60	8	0	8
400	5029	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5030	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	13	13
400	5031	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5032	126	4	114	4	69	0.01	0.10	1,300	0.98	15	1.60	0	11	11
400	5033	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5034	16	18	3	18	2	0.90	0.03	1,300	0.98	15	1.60	26	0	26
400	5035	1	2	0	2	0	2.50	0.50	1,300	0.98	15	1.60	8	10	18
400	5036	59	6	27	6	16	3.00	2.00	1,300	0.98	15	1.60	29	51	80
400	5037	436	18	386	17	209	1.25	0.35	1,300	0.98	15	1.60	32	114	146
400	5038	1,082	82	949	82	570	0.06	0.30	1,300	0.98	15	1.60	8	267	274
400	5039	0	0	0	0	0	0.50	0.30	1,300	0.98	15	1.60	0	14	14
400	5040	45	8	37	4	6	1.50	0.05	1,300	0.98	15	1.60	10	39	49
400	5041	6	4	3	4	2	1.00	1.00	1,300	0.98	15	1.60	6	3	9
400	5043	10	4	7	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5044	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5054	258	107	165	43	39	0.50	0.30	1,300	0.98	15	1.60	33	18	52
400	5059	97	23	72	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5060	93	74	34	55	15	0.30	0.30	1,300	0.98	15	1.60	26	7	33
400	5063	28	25	10	16	4	0.80	0.30	1,300	0.98	15	1.60	20	2	22
400	5064	42	37	15	30	7	0.80	0.30	1,300	0.98	15	1.60	37	3	40
400	5065	59	43	27	43	16	0.20	0.30	1,300	0.98	15	1.60	13	8	21
400	5066	10	10	3	1	0	0.20	0.30	1,300	0.98	15	1.60	0	5	5
400	5067	19	8	12	8	7	0.10	0.30	1,300	0.98	15	1.60	1	3	5
400	5068	637	16	586	16	352	0.10	0.20	1,300	0.98	15	1.60	3	110	112
400	5069	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5070	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	48	0	48
400	5071	374	49	264	49	158	0.20	0.03	1,300	0.98	15	1.60	15	7	23
400	5072	319	115	190	115	114	0.15	0.02	1,300	0.98	15	1.60	27	4	30
400	5073	13	18	0	15	0	0.01	0.30	1,300	0.98	15	1.60	0	13	13
400	5074	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5075	32	10	23	10	14	0.20	0.30	1,300	0.98	15	1.60	3	6	10
400	5076	4	4	1	4	1	1.50	0.30	1,300	0.98	15	1.60	10	0	10
400	5077	0	0	0	0	0	0.70	0.30	1,300	0.98	15	1.60	0	13	13
400	5078	32	12	22	12	13	0.15	0.30	1,300	0.98	15	1.60	3	6	9
400	5079	19	12	10	2	1	0.01	0.30	1,300	0.98	15	1.60	0	7	7
400	5082	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5090	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
400	5091	0	0	0	0	0	0.01	0.30	1,300	0.98	15	1.60	0	0	0
Subtotal		7,678	3,285	4,493	1,918	2,169							964	1,385	2,349

Source: LSC, 2008.