BASIN TRANSIT SERVICE

TRANSIT DEVELOPMENT PLAN

NELSON\NYGAARD CONSULTING ASSOCIATES

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EXECUTIVE SUMMARY

Basin Transit Service is the public transit agency for the Greater Klamath Falls Urban Area. The Transit District encompasses over 30 sq. miles and extends from Terminal City in the north to Kingsley Field in the South and from the Klamath Falls city limits in the west to an area just beyond Highway 39 in the east. BTS serves the area with a combination of fixed route and demand responsive services.

Almost 75% of the County's 57,000 residents live within the Urban Area. This area, as well as the surrounding rural communities, includes a number of different transit markets:

- **Small-City Local** - Klamath Falls is typical of many cities in the 20,000-100,000 range. The area is sufficiently self contained that local circulation is the primary transit need.

- **Rural** - The Klamath Basin is home to a number of small and distant agricultural communities like Merrill, Malin, and Chiloquin. These towns generate a very low level of transit demand, primarily by residents who are dependant on transit for at least a "lifeline" connection.

- **Paratransit** - Paratransit services are focused primarily on transit dependant populations, especially the elderly and people with disabilities. Because of the provisions of the Americans with Disabilities Act transit operators, like BTS, are faced with the tremendous challenge of providing equal service to these rider groups. Transit operators need to look at innovative and cost efficient methods of delivering service.

As a provider of public transit service, Basin Transit Service (BTS) is required to complete a comprehensive Transit Development Plan (TDP). The purpose of this TDP is to develop a program of detailed service improvements for Basin Transit during the next ten years with a series of options to pursue over the long term through the next decade.

REPORT SUMMARY

Transit Needs

The transit improvements are based on careful review of existing services including detailed information about existing ridership patterns and performance trends, and ridership counts by bus stop for all BTS routes, and telephone surveys. The transit needs assessment identified a number of issues which were addressed in the service plan including a need for a cross town connection, desire for improved service frequency, and the opportunity to attract a larger share of the commute market. Service within the rural communities and intercity service were examined and it was concluded there is insufficient demand to warrant this type service at this time.

Service Plan

The BTS system as it existed prior to August 1995 was a network of one-way loop routes all running on hourly headways. Some trips, such as from Altamont to OIT, required two transfers and took up to an hour. The restructuring plan prepared as part of this study was implemented in August 1995. The plan simplified the system by concentrating service on a "Mainline" linking OIT, downtown, and the South 6th corridor, dramatically reducing the need to transfer. The Mainline provides half-hourly service between all of these key points, an improvement over previous frequencies.

The latest ridership figures suggest that ridership has held steady despite the disruption normally caused by change. Although passenger boardings declined slightly, BTS believes this reflects the fact that fewer transfers are needed in the new system. The actual number of passenger trips being made on the system held steady and can be expected to rise as the new system is marketed.

The service plan also shows some conceptual long range plans for how BTS could expand as resources become available. These plans generally stress the need for more frequent and direct service within the present service area, rather than for expanding fixed-route service to additional areas. (All of the BTS service area is served at least by demand-responsive service). Chapter 10 presents policies recommended for governing expansions of the fixed route system.

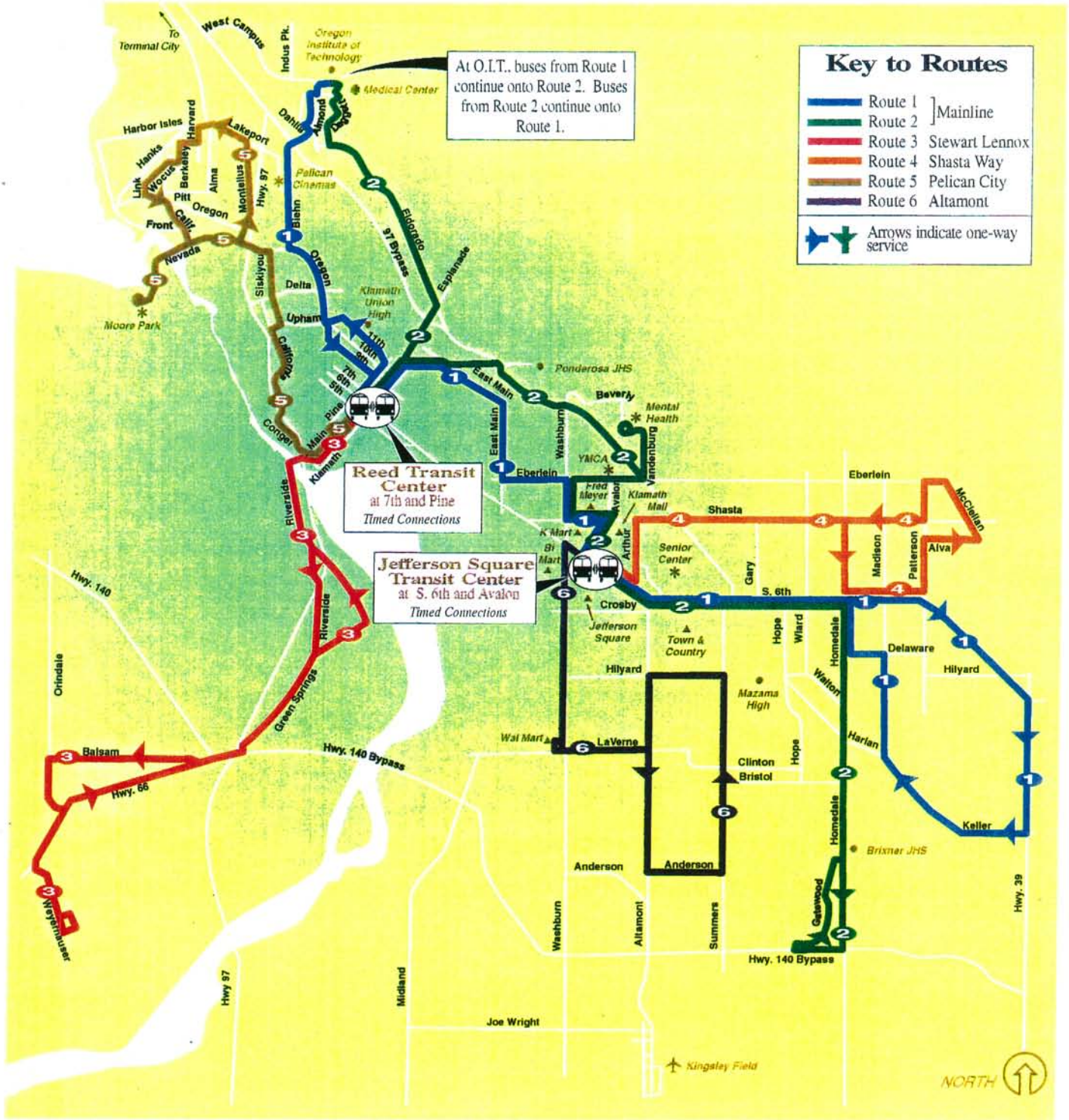
Service Marketing

Chapter 7 recommends strategies for BTS to increase public awareness of the system and for expanding the public information network. A new system brochure was prepared and distributed in advance of service improvements implemented in August 1995. Other marketing and public information improvements recommended in this chapter include improved sub-stop signage, more informative overhead signs for buses, and targeted direct mail advertising.

Capital Plan

The primary capital need for BTS will be replacement vehicles. All fixed route vehicles will need to be replaced during the next ten years as they reach their ten year useful life. The three paratransit vans are scheduled to be replaced twice during the ten year timeframe consistent with a five year lifecycle. Other capital projects include a new transit center to replace the current temporary center, and bus stop amenities. A new trolley coach to be used for a historic shuttle service in the downtown area is programmed in the first year of the plan as well as a computerized dispatch system to automate scheduling of trips for the dial-a-ride service. The capital requirements for the ten-year time frame total $2.5 million. Beyond FY 2004/05, the capital requirements will continue to be dominated by the need to replace vehicles as they reach their useful life.

Figure ES-1
1995 Service Plan



Financial Plan

The Financial Plan address the ten year operating cost projections and reviews funding sources for both capital improvements and operating subsidy requirements.

The ten year operating costs for fixed route and dial-a-ride service range from nearly $1.2 million in FY 1995/96 to $1.4 million by FY 2004/05. These costs are based on the no-growth fixed route service plan and a more efficient dial-a-ride service due to the computerized dispatch system.

Revenues to support operations and capital improvements are generally derived from three primary sources: the Federal Government, the State of Oregon, and local sources. Passenger fare revenues account for about 11% of total revenue during the first year of the plan and are expected to increase to about 16% by FY 2004/05. Two fare increases are recommended over the next ten years to both keep pace with inflation and to achieve at least a 15% farebox recovery ratio for fixed route service and a 5% recovery ratio for dial-a-ride service.

The capital plan assumes federal funds will pay for 80% of vehicle purchases with a combination of state and locally generated revenues contributing the required 20% match. This will require that BTS successfully secure Federal Transit Administration (FTA) Section 3 funds for future bus purchases or other federal fund sources such as Congestion Management Air Quality (CMAQ) funds made available under the Intermodal Surface Transportation Efficiency Act (ISTEA). Other potential funding sources outlined in this chapter include revenues from Oregon Institute of Technology (OIT), downtown business associations, and other state and federal grants.

Service Policy, Evaluation and Planning

Chapter 10 presents guidelines for Basin Transit Service to maintain and increase the effectiveness of its service. These guidelines address the quality of current service, criteria to evaluate requests for future service alterations and expansion, and guidelines to encourage transit supportive development. The four major components that must be considered when contemplating increased transit service are:

- Population concentrations
- Specific needs service must be tailored to meet
- Increasing Fixed route service frequency before service area coverage
- Limitations on Financial Resources

Figure ES-2
Ten-Year Operating Cost and Performance Measures

	FY 1995/96	FY 1996/97	FY1997/98	FY 1998/99	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05
SERVICE HOURS										
Fixed Route Service	20,690	20,690	20,690	20,690	20,690	20,690	20,690	20,690	20,690	20,690
Dial-A-Ride	8,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Systemwide Hours	28,690	25,690	25,690	25,690	25,690	25,690	25,690	25,690	25,690	25,690
OPERATING COSTS										
Fixed Route Service (1)	$827,186	$856,138	$886,103	$917,116	$949,215	$982,438	$1,016,823	$1,052,412	$1,089,246	$1,127,370
Dial-A-Ride (1)	$319,760	$206,896	$214,138	$221,633	$229,390	$237,418	$245,728	$254,329	$263,230	$272,443
Public Information/Outreach (2)	$29,460	$26,576	$27,506	$28,469	$29,465	$30,496	$31,564	$32,669	$33,812	$34,995
BTS Operating Expenses	$1,176,406	$1,089,610	$1,127,746	$1,167,218	$1,208,070	$1,250,353	$1,294,115	$1,339,409	$1,386,288	$1,434,808
REVENUES										
Fixed Route Passenger Fares	$123,097	$156,631	$161,330	$169,397	$174,479	$179,713	$197,549	$203,475	$209,579	$215,867
DAR Passenger Fares	$6,903	$11,706	$12,291	$12,905	$13,551	$14,228	$17,576	$18,455	$19,377	$20,346
TOTAL FARES	$130,000	$168,337	$173,621	$182,302	$188,029	$193,941	$215,124	$221,930	$228,957	$236,213
OPERATING STATISTICS										
Fixed Route Service										
Fixed Route Passengers	*307,120*	*313,262*	*322,660*	*338,793*	*348,957*	*359,426*	*346,576*	*356,974*	*367,683*	*378,713*
Cost/Passenger	*$2.79*	*$2.82*	*$2.83*	*$2.79*	*$2.80*	*$2.82*	*$3.02*	*$3.04*	*$3.05*	*$3.07*
Cost/Service Hour	*$41.40*	*$42.66*	*$44.16*	*$45.70*	*$47.30*	*$48.96*	*$50.67*	*$52.44*	*$54.28*	*$56.18*
Farebox Recovery	*14.4%*	*17.7%*	*17.7%*	*17.9%*	*17.8%*	*17.7%*	*18.8%*	*18.8%*	*18.7%*	*18.6%*
Passengers/Hour	14.8	15.1	15.6	16.4	16.9	17.4	16.8	17.3	17.8	18.3
Dial-A-Ride Service										
DAR Passengers	*6,903*	*6,886*	*7,230*	*7,591*	*7,971*	*8,369*	*8,788*	*9,227*	*9,689*	*10,173*
Cost/Passenger	*$46.32*	*$30.05*	*$29.62*	*$29.20*	*$28.78*	*$28.37*	*$27.96*	*$27.56*	*$27.17*	*$26.78*
Cost/Service Hour	*$39.97*	*$41.38*	*$42.83*	*$44.33*	*$45.88*	*$47.48*	*$49.15*	*$50.87*	*$52.65*	*$54.49*
Farebox Recovery	*2.2%*	*5.7%*	*5.7%*	*5.8%*	*5.9%*	*6.0%*	*7.2%*	*7.3%*	*7.4%*	*7.5%*
Passengers/Hour	0.9	1.4	1.4	1.5	1.6	1.7	1.8	1.8	1.9	2.0
Systemwide Farebox Ratio	*11.1%*	*15.4%*	*15.4%*	*15.6%*	*15.6%*	*15.5%*	*16.6%*	*16.6%*	*16.5%*	*16.5%*

(1) Operating cost for fixed route service is estimated at $41.40 including outreach expenses, and DAR hourly costs are $39.97. Costs are assumed to increase at 3.5% per year.

(2) Marketing Expense represents 2.5% of operating budget and is added to fixed route services only.

Figure ES-3
Ten-Year Operating and Capital Budget

	FY1995/96	FY1996/97	FY1997/98	FY1998/99	FY1999/00	FY2000/01	FY2001/02	FY2002/03	FY2003/04	FY2004/05
EXPENSES										
Operating Expenses	$1,176,406	$1,089,610	$1,127,746	$1,167,218	$1,208,070	$1,250,353	$1,294,115	$1,339,409	$1,386,288	$1,434,808
Capital Expense	$315,000	$56,750	$524,598	$498,435	$515,705	$142,768	$57,672	$59,516	$321,034	$18,629
Capital Reserve Set-Aside (1)	$70,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
TOTAL SYSTEM COSTS	$1,561,406	$1,196,360	$1,702,344	$1,715,652	$1,773,775	$1,443,121	$1,401,787	$1,448,925	$1,757,322	$1,503,437
REVENUES										
Passenger Fares	$130,000	$168,337	$173,621	$182,302	$188,029	$193,941	$215,124	$221,930	$228,957	$236,213
FTA Section 18 (Operating)	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850
FTA Section 3 (2)	$216,800		$381,399	$394,748	$408,564				$252,827	
Other Federal Funds (3)	$32,000	$33,120	$34,279	$0	$0	$100,713	$42,138	$43,613	$0	$0
Special Transportation Funds (4)	$51,000	$51,000	$43,350	$32,513	$28,178	$23,843	$17,340	$13,005	$8,670	$0
Property Tax (5)	$600,149	$636,158	$674,327	$714,787	$757,674	$803,135	$851,323	$902,402	$956,546	$1,013,939
Public Transit Assist.(Payroll Tax)	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000
Interest Income	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bus Advertising	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Downtown Merchants Assoc. (6)		$10,350				$11,877				$13,629
Previous Levied Taxes	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000
Miscellaneous (7)	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Public/Private Contributions (8)	$54,200									
Subtotal Revenues	$1,383,999	$1,198,815	$1,606,826	$1,624,199	$1,682,295	$1,433,358	$1,425,775	$1,480,800	$1,746,850	$1,563,631
Net Working Capital Carryover (9)	$177,407		$95,518	$91,453	$67,961					
Drawdown Capital Reserve (10)					$23,519	$9,763			$10,472	
TOTAL REVENUES	$1,561,406	$1,198,815	$1,702,344	$1,715,652	$1,773,775	$1,443,121	$1,425,775	$1,480,800	$1,757,322	$1,563,631
Annual Surplus/(Deficit)	$0	$2,455	$0	$0	$0	$0	$23,988	$31,875	$0	$60,194

(1) $70,000 has been set-aside as a capital reserve for FYs 94/95 & 95/96. If federal funds pay 80% of vehicle costs, a $50,000 annual capital reserve is recommended.

(2) BTS will be receivng a FTA Section 3 Discretionary Grant in the amount of $275,000. Assumes Section 3 funds will pay 80% to replace six Gilligs in FYs 98, 99 & 00.

(3) FTA Section 16 or CMAQ funds could potentially pay for 80% of paratransit vehicle replacements and proposed transit center.

(4) Special Transportation Funds gradually decrease with no funds available by the tenth year.

(5) Assumes the maximum 6% increase is allocated to BTS each year.

(6) Assumes the Downtown Merchants Association pays for passenger shelters. No other funding contributions are assumed by the Merchants Association.

(7) Represents revenues from surplus sales, insurance reimbursement, and other miscellaneous income. FY 1995/96 amount is average of previous three years.

(8) City, County and Business Contributions to pay the required 20% local match for the trolley bus purchase.

(9) In FY 1995/96 net working capital totals $437,339. These funds are used to help cover capital expneses. These funds will be depleted in FY 99/00.

(10) Capital reserves used to help pay for vehicle replacements.

CHAPTER 1. INTRODUCTION

The City of Klamath Falls is located in Southern Oregon approximately 20 miles from the California border. Long known as a center for timber and agriculture, Klamath Falls is also an important gateway to a number of recreational destinations including Crater Lake, Upper Klamath Lake, and Lava Beds National Monument.

Basin Transit Service is the public transit agency for the Greater Klamath Falls Urban Area. The Transit District encompasses over 30 sq. miles and extends from Terminal City in the north to Kingsley Field in the South and from the Klamath Falls city limits in the west to an area just beyond Highway 39 in the east. BTS serves the area with a combination of fixed route and demand responsive services.

Almost 75% of the County's 57,000 residents live within the Urban Area. This area, as well as the surrounding rural communities, includes a number of different transit markets:

- **Small-City Local** - Klamath Falls is typical of many cities in the 20,000-100,000 range. The area is sufficiently self contained that local circulation is the primary transit need.

- **Rural** - The Klamath Basin is home to a number of small and distant agricultural communities like Merrill, Malin, and Chiloquin. These towns generate a very low level of transit demand, primarily by residents who are dependant on transit for at least a "lifeline" connection.

- **Paratransit** - Paratransit services are focused primarily on transit dependant populations, especially the elderly and people with disabilities. Because of the provisions of the Americans with Disabilities Act transit operators, like BTS, are faced with the tremendous challenge of providing equal service to these rider groups. Transit operators need to look at innovative and cost efficient methods of delivering service.

1.1 PURPOSE OF THIS PLAN

As a provider of public transit service, Basin Transit Service (BTS) is required to complete a comprehensive Transit Development Plan (TDP). The TDP serves two important roles: a) it provides a "snapshot" look at the local environment and the existing transit services, and b) it serves as the principal planning document to guide the operation through the next decade.

1.2 PLANNING CONTEXT

The TDP is being completed in conjunction with the Klamath County Transportation Systems Plan (TSP). The final TDP work product will be designed so that it will function as an integral component in the TSP. Every effort will be made to ensure that recommendations made in the TDP are consistent with the goals and objectives of the TSP.

In addition the study team examined the 1994 BTS on-board survey results and conferred with local planning officials about the nature and direction of future development.

As part of the effort to involve the public in the planning process, the TSP and TDP study teams held a joint public meeting in Klamath Falls at the end of August. At this meeting the two projects were outlined. The public was provided the opportunity to give its input about important issues. Some of the ideas discussed at that meeting have been incorporated into the needs assessment section.

1.3 ORIGINAL DATA COLLECTION

This study included extensive original data collection, much of which is documented in this plan. The following summarizes the different types of data collected in this study. Copies of all data collection instruments used in this effort are provided in **Appendix A**.

Ridecheck Data

Surveyors were assigned to ride every bus on each of the six fixed routes. The surveyors recorded boardings, alightings, and running times at scheduled time-points. The ridecheck data provides a comprehensive and detailed picture of the performance of the existing system. The results were tabulated and presented graphically for each route.

Telephone Survey

Marketing Decisions Corporation (MDC) completed a two-part random survey of: a) approximately 400 residents of the Klamath Falls Urban Area, and b) 50 residents each from the rural communities of Chiloquin, Keno, Merrill, and Malin. The survey was primarily intended to gather information about non-transit users, since transit riders make up a relatively small percentage of the local population. The rural surveys were designed to gauge public opinion about the possible extension of BTS service to those communities.

1.4 REPORT ORGANIZATION

This report is organized into ten chapters. Following this introduction, nine chapters follow:

- **The demographic trends and projections** for the Klamath Falls Urban Area are the subject of Chapter 2.
- **Existing Basin Transit Service** and its current operation is outlined in this chapter and serves as the base upon which the plan is built.

- **The Ridercheck results** on all BTS routes are presented in Chapter 4 and the **telephone survey results** are the subject of Chapter 5.

- Alternative service scenarios are presented in Chapter 6 including the recommended **no growth improvement plan** implemented on August 25, 1995.

- **A marketing plan** to "get the word out" is outlined in Chapter 7.

- **A capital plan** outlines the systems' capital needs in Chapter 8 and a **financial plan** presents operating budgets and revenue projections in Chapter 9.

- **Service Goals** and **land-use guidelines** are the subject of Chapter 10.

CHAPTER 2. DEMOGRAPHICS

This chapter summarizes key census data for both the Klamath Falls Urban Area and the rural communities studied. Specific census categories which are considered to be good indicators of potential transit demand were analyzed for each of the communities. These indicators include:

- School Age Children
- Elderly
- Low Income
- Disabled or Mobility Impaired
- Renters/Home Owners
- Auto Ownership

For Klamath Falls the data was analyzed and plotted using a series of census block maps. Each indicator has a corresponding map that is shown on the following pages. The census data was also used to calibrate some of the information developed in the phone surveys. Complete tables of census data are displayed in **Figure 2-1**. The rural communities were too small to make maps meaningful. Instead, summaries of relevant data are provided.

2.1 KLAMATH FALLS URBAN AREA

2.1.1 Population

The 1990 population of Klamath Falls was 17,737 while the entire urban growth boundary had a population of 36,328.

Population Growth

The County has developed population growth projections based on recent census data and past trends. The current estimated population of the Klamath Falls Urban Area is approximately 45,500. The City's population has increased over the last four years at an average annualized rate of 1.5% per year. Growth within the city limits is expected to continue at this rate until 2005 when it will slow slightly to 1.3% per year. Growth in the unincorporated and rural areas is expected to increase at about 1% per year. The majority of the expected residential growth in the Urban Area will occur in the unincorporated areas south of South 6th Street. **Figure 2-2** presents the estimated populations for the urban growth boundary and the rural communities.

Figure 2-1
Summary of Census Data

1990 Census Data

Klamath Falls, Chiloquin, and Keno

	Klamath Falls Urban Area															
Block #	9708	% of block	9709	% of block	9710	% of block	9711	% of block	9712	% of block	9713	% of block	9714	% of block	9715	% of block
Population	1664		3441		2131		4228		2638		4582		4652		4076	
# of Families	485		1025		624		1219		697		1327		1379		1118	
# of Households	634		1330		787		1578		1113		1829		1643		1573	
Income Level (1)	73	15%	190	19%	56	9%	170	14%	197	28%	234	18%	130	9%	311	28%
Elderly (age 65+)	227	14%	523	15%	165	8%	612	14%	478	18%	722	16%	501	11%	615	15%
School Age (ages 5-16)	368	22%	514	15%	394	18%	720	17%	433	16%	767	17%	1031	22%	728	18%
Disabled (2)	18	1%	206	6%	33	2%	164	4%	157	6%	197	4%	156	3%	229	6%
Renters (3)	328	20%	751	22%	430	20%	1130	27%	1120	42%	1520	33%	747	16%	1278	31%
No Auto (4)	16	3%	65	5%	7	1%	48	3%	149	13%	133	7%	39	2%	98	6%

Footnotes

(1) Number of families with annual incomes below $15,000

(2) Includes mobility limits only, self-care limits only, and people with both self-care and mobility limits

(3) Number of people living in rental units

(4) Number of households with no autos

Source: Demographic, Housing, and Socioeconomic Characteristics of Klamath County 1990 Census, Center for Population Research and Census, School of Urban Affairs, PSU.

Figure 2-1
Summary of Census Data
(Continued)

1990 Census Data
Klamath Falls, Chiloquin, and Keno

	Klamath Falls Urban Area (con't)											Chiloquin		Keno (5)		Merrill		Malin	
Block #	9716	% of block	9717	% of block	9718	% of block	9719	% of block	9720	% of block	Total	N/A	% of block	9703	% of block	N/A	% of block	N/A	% of block
Population	2828		2793		2594		3483		3728		42838	697		1201		811		751	
# of Families	692		767		538		879		911		11661	162		358		218		193	
# of Households	1329		1292		1128		1425		1221		16882	222		461		325		245	
Income Level (1)	237	34%	270	35%	176	33%	328	37%	99	11%	2471	67	41%	63	17%	71	33%	86	45%
Elderly (age 65+)	686	24%	606	22%	331	13%	403	12%	499	13%	6368	64	9%	157	13%	147	18%	78	10%
School Age (ages 5-16)	430	15%	426	15%	426	16%	657	19%	674	18%	7568	121	17%	220	18%	140	17%	160	21%
Disabled (2)	185	7%	170	6%	168	6%	124	4%	147	4%	1954	12	2%	28	2%	28	3%	19	3%
Renters (3)	1620	57%	1499	54%	1316	51%	1901	55%	757	20%	14397	262	38%	180	15%	364	45%	301	40%
No Auto (4)	262	20%	159	12%	278	25%	125	9%	14	1%	1393	27	12%	11	2%	20	6%	18	7%

Footnotes

(1) Number of families with annual incomes below $15,000

(2) Includes mobility limits only, self-care limits only, and people with both self-care and mobility limits

(3) Number of people living in rental units

(4) Number of households with no autos

(5) The community of Keno is approximately 47% of the total population of Census Block 9703. We have assigned 47% of all categories to Keno.

Source: Demographic, Housing, and Socioeconomic Characteristics of Klamath County

1990 Census, Center for Population Research and Census, School of Urban Affairs, PSU.

Figure 2-2
Estimated Population Growth

Year	Klamath Falls City	Altamont	Urban Growth Area	Chiloquin	Merrill	Malin
1990	17,737	18,591	36,328	673	837	725
1995	19,108	19,775	38,883	704	843	755
2000	20,585	21,303	41,888	740	865	793
2005	22,175	22,949	45,124	778	887	834

2.1.2 Income Level

A large percentage of transit users tend to come from lower income families. The highest concentrations of lower income families can be found within the city limits, clustered around the downtown areas in tracts 9716, 9717, 9718, and 9719 where housing costs are lower (see **Figure 2-3**). As in urban areas, the neighborhoods farthest from the downtown core tend to be more affluent than those nearer the downtown.

2.1.3 Elderly

Persons age 65 and older usually use public transit services in disproportionately high numbers. The two highest concentrations of elderly residents can be found in tracts 9716 and 9717 which are east of the railroad tracts and north of South 6th Street (**Figure 2-4**). The largest number of seniors in any tract can be found in the neighborhoods surrounding the intersection of Shasta Way and Patterson Street.

2.1.4 School Age Children

In many urban areas this group (children age 5-16) accounts for a significant percentage of transit users. This is because funds for school busing are often reduced in order to limit local budget deficits. Public transit is often called upon to pick up the slack and transport children to school. To date there have been no significant reductions in funds for school bus services in Klamath Falls and there appear to be no major reductions planned for the near future.

School age children sometimes also use transit for transportation to after-school activities and part-time jobs. At this time, according to BTS staff, school age children are a small percentage of daily riders.

The distribution of school age children is relatively even throughout the tracts, ranging from a low of 15% to a high of 22%. The largest concentrations are located

in the three South Suburbs census tracts of 9713, 9714 and 9715 (**Figure 2-5**). There are over 2500 children in this area.

2.1.5 Disabled

As illustrated by **Figure 2-6**, the number of residents who indicated that they have a mobility or self-care limitation was relatively well distributed throughout the entire urban area. Typically 3-7% of the residents in each tract have some type of disability. Not surprisingly there are high concentrations of disabled residents in tracts 9716, 9717, and 9718. These tracts surround the downtown area where there is easier access to social service agencies, shopping, and medical offices.

2.1.6 Renters

Our experience has shown that renters are more likely to be transit users than are homeowners. The census data indicates that there are high concentrations of people living in rental units in and around the downtown area (tracts 9716-9719). Approximately 50-57% of the people who live in these tracts live in rental units. Compare this to the south suburbs and the north part of town where only 16-33% of the residents are renters (**Figure 2-7**). Homeownership and family income are directly linked. As income levels increase so does the level of homeownership. This becomes more pronounced as one moves outward from the downtown core to the more suburban areas.

2.1.7 Auto Ownership

Many people do not own a car and thus are dependant upon public transportation to get around. Like home-ownership, access to an auto is related to the level of income. Thus it is not surprising to find that the greatest concentrations of households without a car can be found in the tracts surrounding the downtown core (9716, 9717, and 9718). Tract 9712 also has a large number of households without a car. The rest of the tracts have high levels of auto ownership. **Figure 2-8** presents the distribution of homes with no available auto.

2.2 RURAL COMMUNITIES

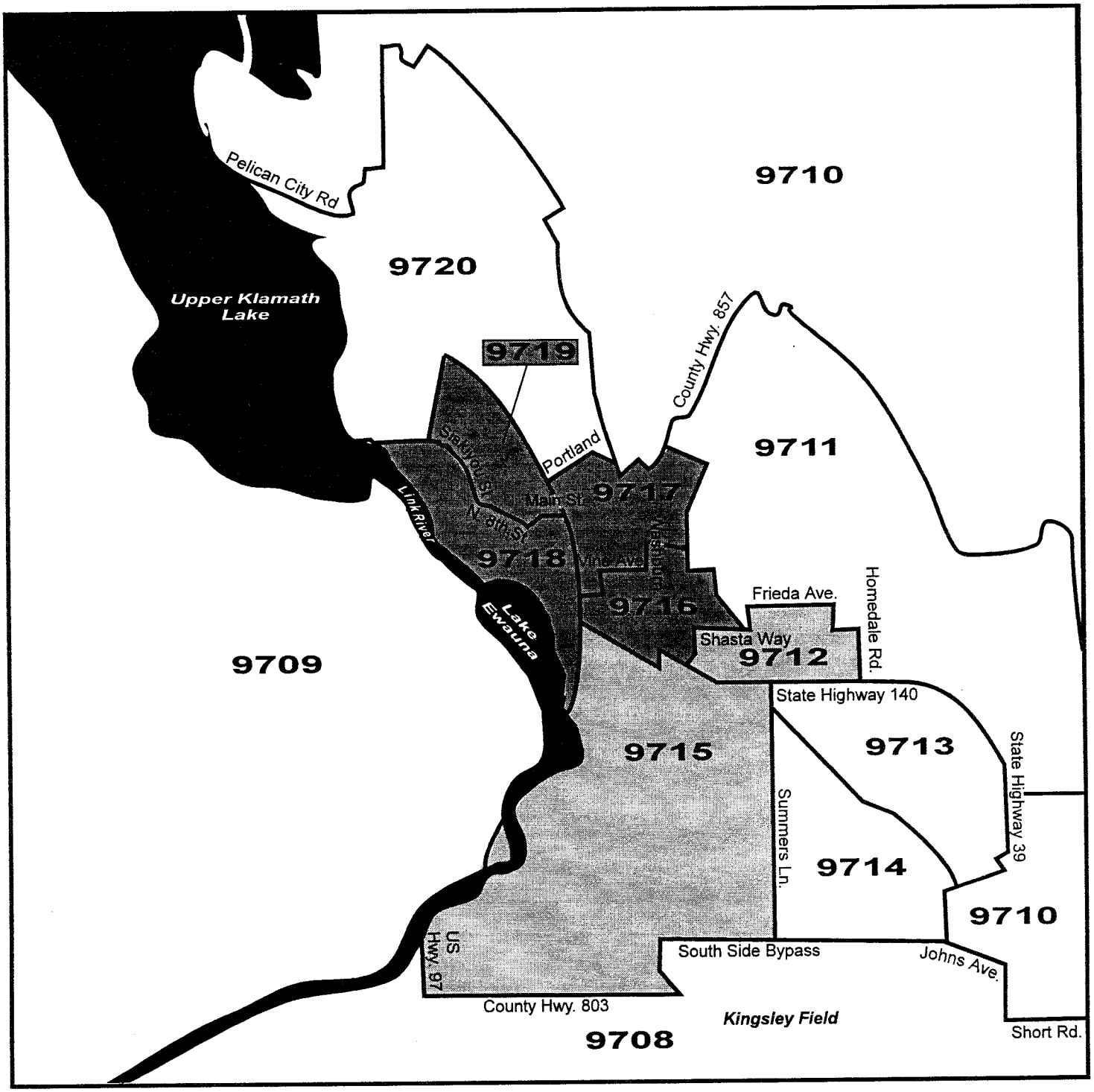
Populations in the rural communities studied range from 697 in Chiloquin to 1201 in Keno. Future growth was noted earlier in **Figure 2-3**.

With the exception of Keno, each of the communities has a high percentage of low income families, anywhere from a 1/3 to almost one half of each town. In many ways the census data for Keno is remarkably similar to the data for the South Suburbs in Klamath Falls. The housing stock in Keno is newer and the community is more affluent than the other three rural communities.

Overall the four rural communities have a lower percentage of elderly, 9-18%, than the Klamath Falls Urban Area. The percentage breakdown of school age children (17-21%) and disabled residents (2-3%) was nearly identical to the Klamath Falls Urban Area.

The percentage of renters ranged from a low of 15% in Keno to a high of 45% in Merrill.

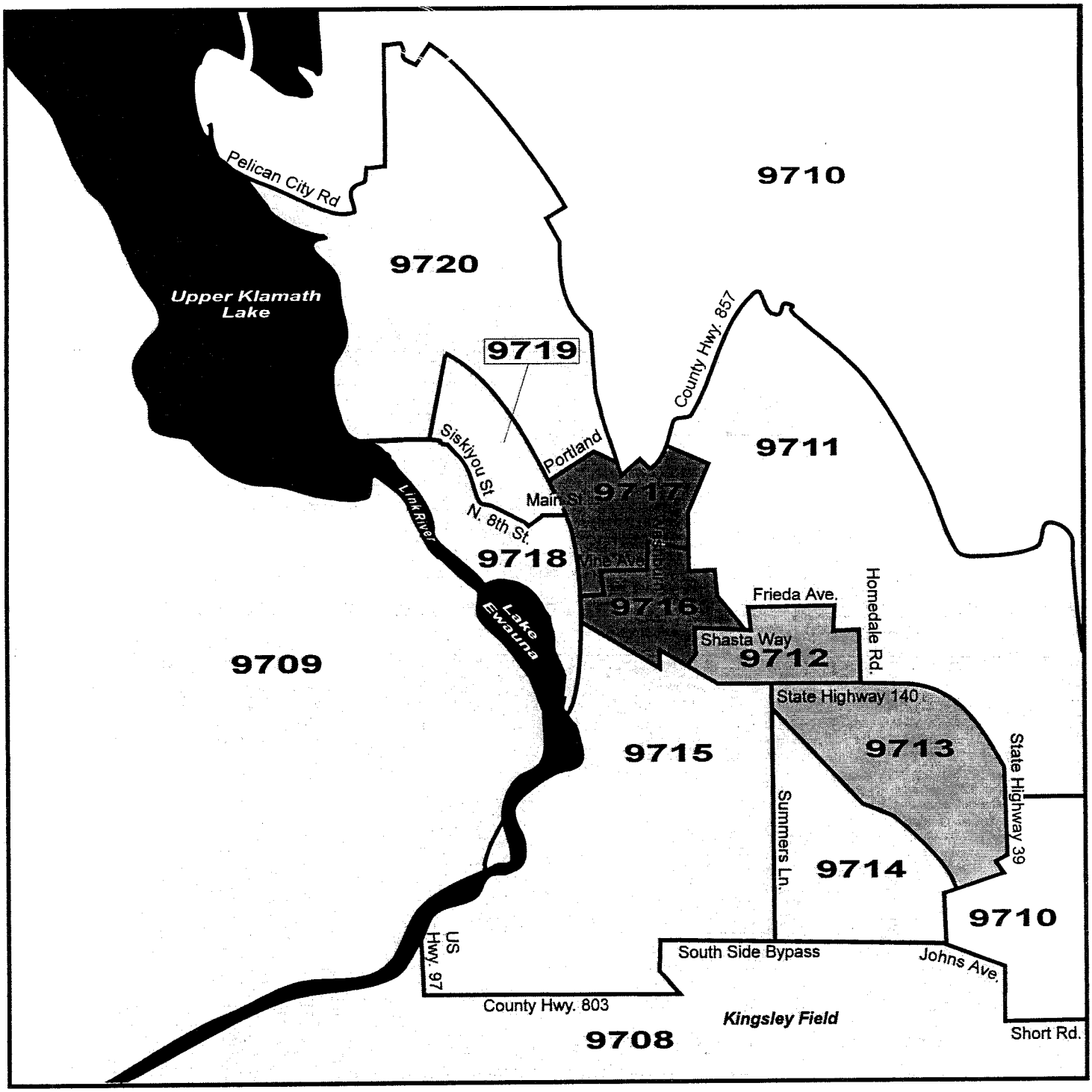
The number of households with access to a car was higher in the more affluent community of Keno, than in the other three communities. Chiloquin had the greatest number of households without a car at 12%.



Percent of Block Area

- 0 - 10%
- 11 - 20%
- 21 - 30%
- 31 - 40%

Figure 2.3
Klamath Falls Urban Area
Distribution of Low Income Households



Percent of Block Area

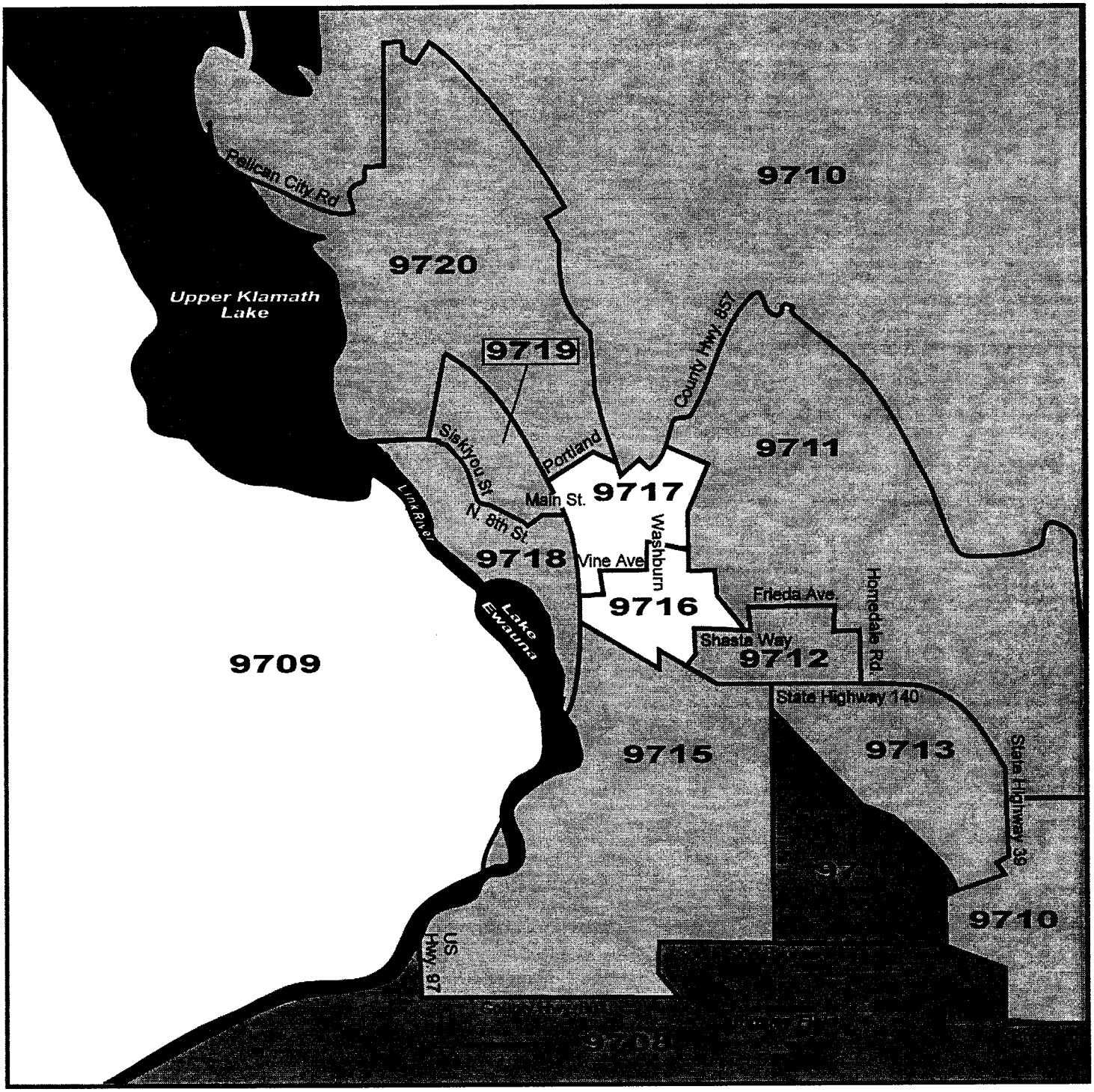
0 - 10%

11 - 15%

16 - 20%

21 - 25%

Figure 2-4
Klamath Falls Urban Area
Distribution of Elderly Residents



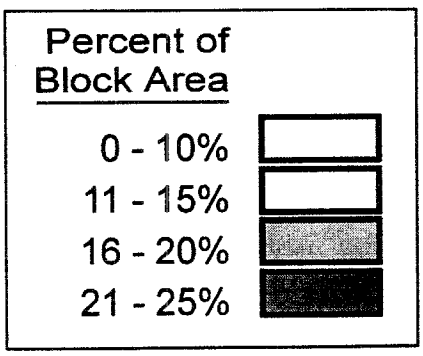
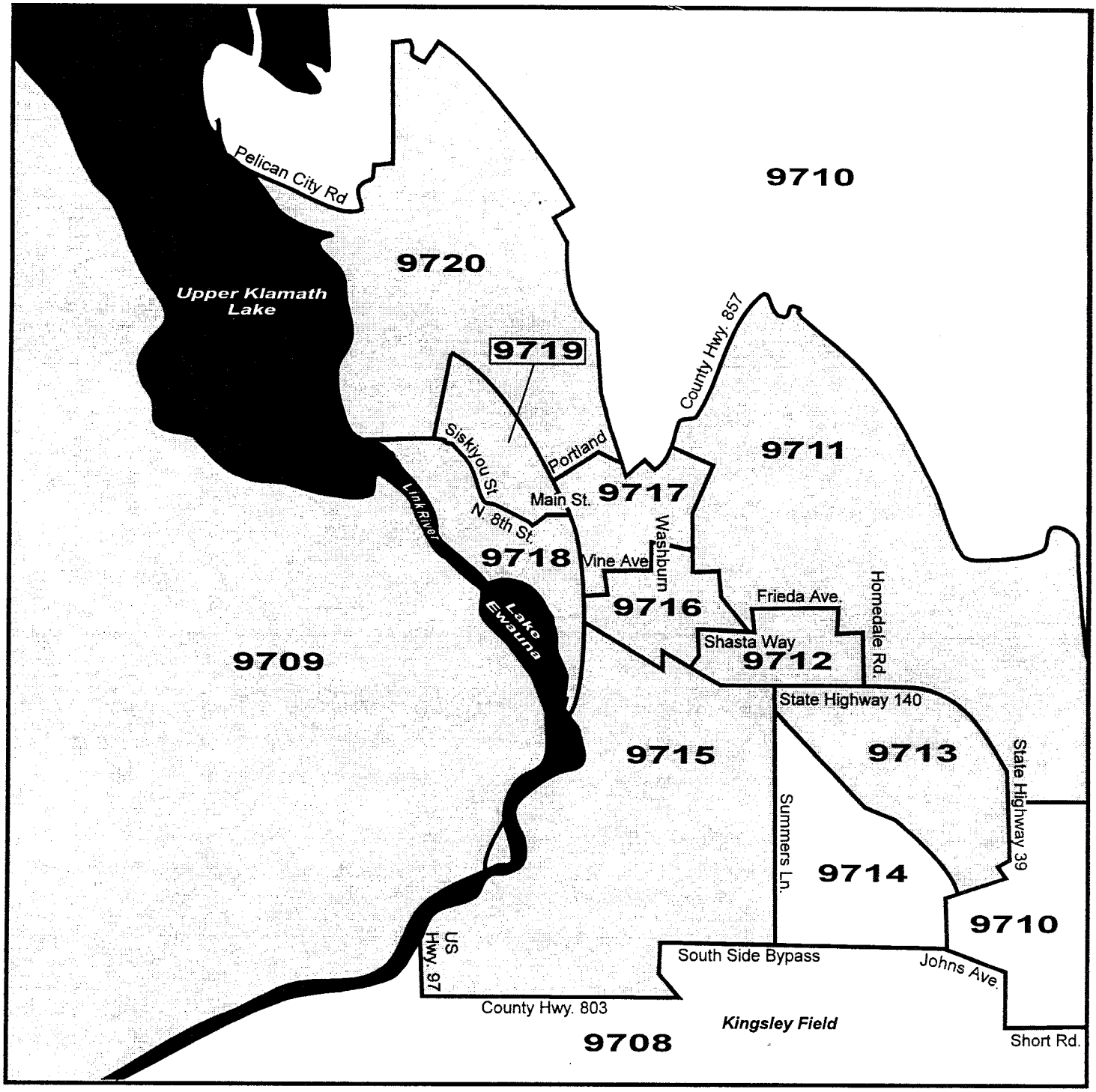


Figure 2-5
Klamath Falls Urban Area
Distribution of School Age Children



Percent of Block Area

0 - 3%

4 - 7%

8 - 10%

Figure 2-6
Klamath Falls Urban Area
Distribution of Disabled Residents

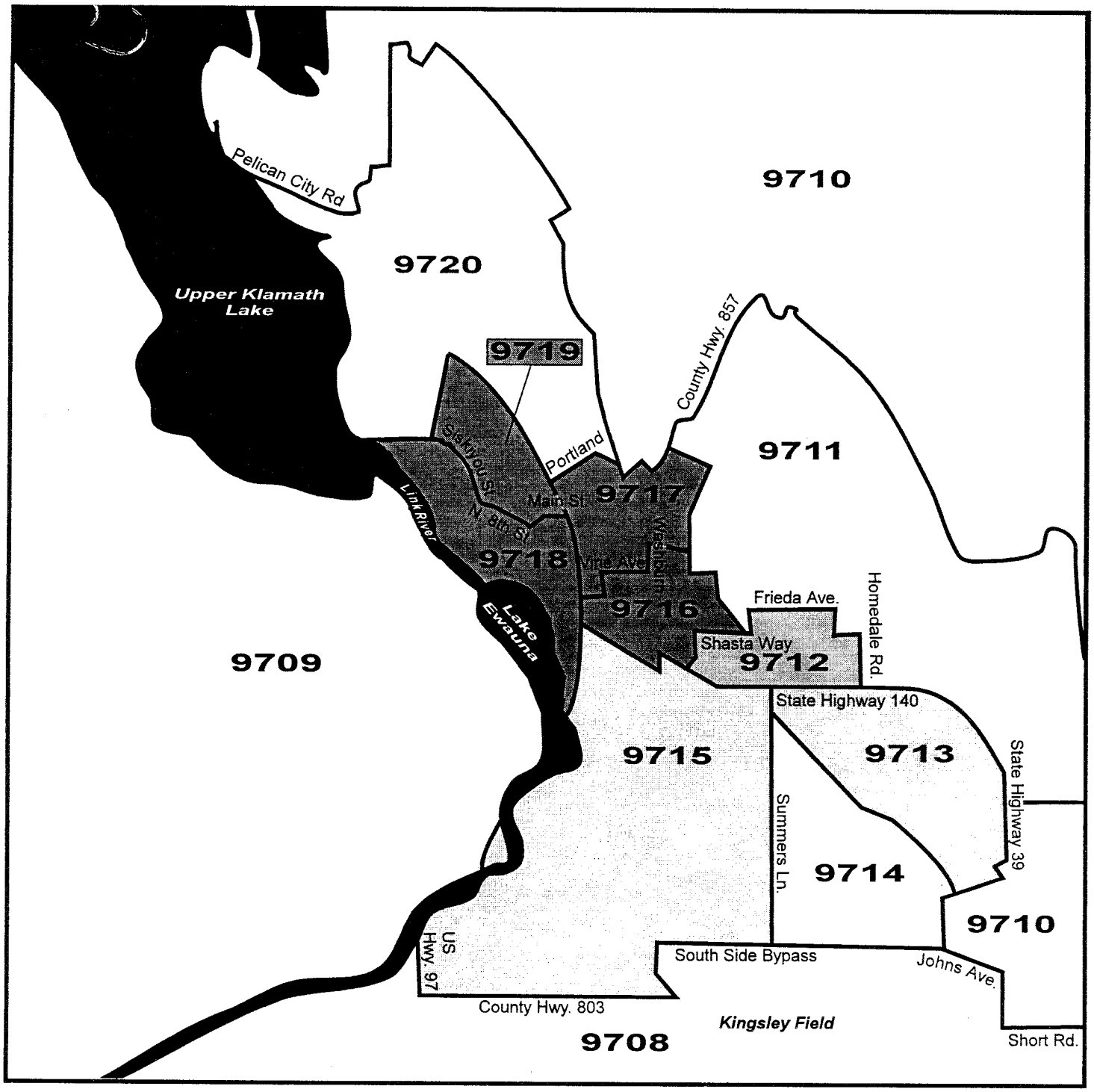


Figure 2-7
Klamath Falls Urban Area
Distribution of Residents Living in Rental Units

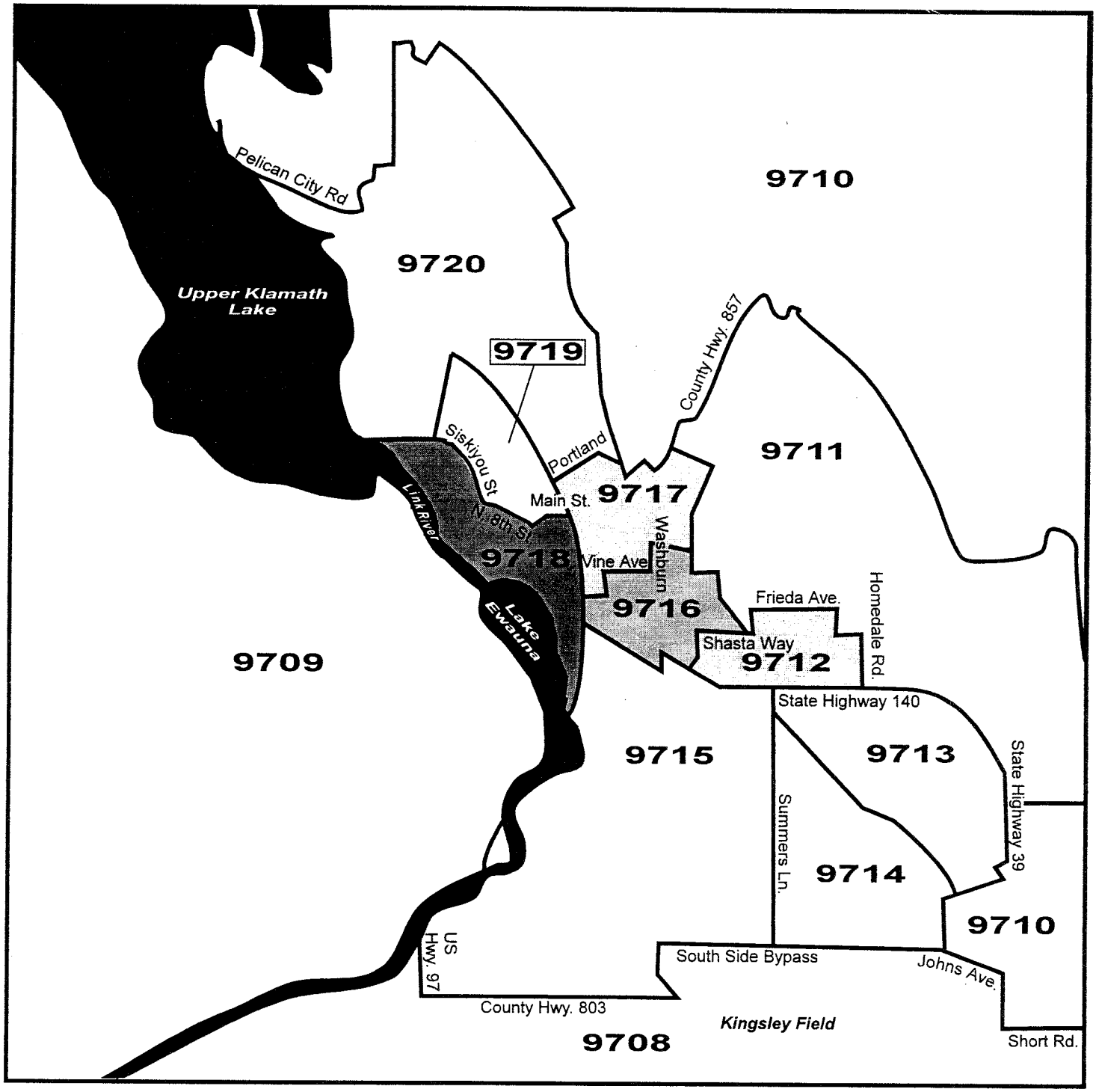


Figure 2-8
Klamath Falls Urban Area
Distribution of Households with No Auto

Percent of Block Area

0 - 5%	
6 - 10%	
11 - 15%	
16 - 20%	
21 - 25%	

CHAPTER 3. EXISTING SERVICES

3.1 BASIN TRANSIT SERVICE

The Basin Transit Service District was organized as a Special District in 1981 under ORS 267. The district is served by seven board members elected at large that serve four year terms. The board is assisted by a budget committee that meets once a year and a nine member Special Transportation Fund Citizens Committee that meets monthly. Professional staff employed by the district are responsible for management and operation of the service.

Geographic Setting and Climate

To the northwest of the service area lies Upper Klamath Lake. To the east are the Hogback Mountains. Most of the Urban Area lies north and east of the Klamath River and Lake Ewauna. The topography throughout the service area is mostly flat with the exception of some gentle hills just to the north of Downtown along Jefferson, Lincoln, and Grant Streets. Standard transit vehicles are well suited for this environment.

The Klamath Basin receives approximately 14 inches of rainfall annually. Snow and ice can be a problem in winter, as can very low temperatures. During the worst part of winter buses can experience traction problems, especially along Riverside and on the hills to the west of Downtown.

3.1.1 Fleet

The fixed route fleet consists of eight buses ranging in capacity from 27-40 seats. Much of the fleet was purchased in 1988. All of the vehicles, are equipped with wheelchair lifts. The vehicles are stored and maintained at the BTS facility located at 1130 Adams Street.

There are three vehicles available for demand responsive service and all are wheelchair accessible.

All of the equipment appears to be clean and well maintained. **Figure 3-1** presents the vehicle inventory.

Figure 3-1
BTS Fleet Inventory

Unit #	Model Year	Make	Capacity	Wheelchair Accessible Y/N	Odometer Reading	Scheduled Replacement Year?
9301	1988	Gillig Phantom	27	Y	204,508	1998
9302	1988	Gillig Phantom	27	Y	185,453	1998
9303	1988	Gillig Phantom	27	Y	204,503	1998
9304	1988	Gillig Phantom	27	Y	211,421	1998
9305	1988	Gillig Phantom	27	Y	206,140	1998
9306	1988	Gillig Phantom	27	Y	201,955	1998
5353	1980	GMC	40	Y	237,939	N/S
8352	1986	Blue Bird	35	Y	135,019	1994
01	1992	Dodge Caravan	4	Y	52,438	1997
02	1987	Dodge Van	8	Y	120,117	N/S
04	1993	Dodge Caravan	8	Y	44,007	1998

3.1.2 Fares

BTS restructured and realigned its fares in 1993. The current fares are:

Adult	*Persons not in school, up to age 60.*	$.70
Student	*Full time student, kindergarten through college.*	$.70
Senior	*Persons 60 and over.*	$.35
Disabled	*Persons with a physical or mental disability.*	$.35

Children 6 and under ride free with an adult.

Fares can be paid with cash, tokens, or discounted passes. Passengers may transfer between routes at no charge. Monthly passes, tickets, and tokens can be purchased at six locations throughout the BTS service area.

3.1.3 Service Hours

BTS service is available Monday through Friday from 6:00am-7:00pm and on Saturday from 10:00am-5:00pm. There is no service on Sunday and on selected holidays.

3.1.4 Fixed Route Structure

A system of six routes covers a good portion of the BTS service area. Most of the routes operate hourly, with the exception of route 1 which runs every 30 minutes. The service is based on the timed-transfer concept and it uses three transfer centers: Reed Transfer Center, Fred Meyer, and Town and Country. These centers allow for smooth connections between routes with little layover.

While the system's strengths are in its area of coverage and timed transfers its primary weakness can be found in the many one-way loops. These loops can force users to travel a significant distance in the opposite direction in order to reach their destination. Descriptions of each route are provided below. **Figures 3-2 to 3-7** display the route maps.

Route 1 Downtown/Hospital

This route runs every 30 minutes north from downtown to OIT and the Hospital. The return trip alternates every 30 minutes between a route southbound along Eldorado Street (East of Highway 97) and one southbound along Oregon Avenue and Biehn Street.

Route 2 Downtown/South 6th Street

This east/west route connects the Downtown with the eastern part of the service area. The route runs along East Main and South 6th Street and stops at all three transfer centers. Service is every hour.

Route 3 Stewart-Lennox

A north/south route, this bus operates every hour and connects Stewart-Lennox with Downtown via Greensprings Drive and Riverside Street. At the southern end of the route there is a split. On "odd" hours the bus covers the neighborhoods north of Highway 66 and on "even" hours it travels to the industrial areas along Weyerhauser Road.

Route 4 Mills/Moyina

This is another hourly east/west service and is similar in design to Route 2. Like Route 2, Route 4 connects all three transfer centers via E. Main, and South 6th. In addition, it travels west along Shasta Way to provide service to the neighborhoods north of South 6th. This entire route operates as a one-way loop.

Route 5 Wocus/Pelican City

With service every hour route 5 connects Downtown with Moore Park and the northern most sections of the service area via Oregon Avenue, Biehn Street, and Highway 97. Northbound service terminates at Lakeport on "even" hours, while continuing north to Wocus during "odd" hours.

Route 6 South Suburbs

This hourly route is the only one that does not travel to Downtown. Route 6 connects the South Suburbs with the South 6th Street corridor. The majority of the route consists of a one-way loop that travels "up and down" the major streets south of South 6th. The bus will travel off the route to the Airport and the Henley school when requested. While it is commendable that the bus covers such a large area it can take as much as an hour to make trips that are no more than two miles long.

Route 7

This is a special service that is provided under contract to clients of both the Klamath Mental Center and the REACH program. Door-to-door service several days each week allows client to come to the centers for medical appointments, counseling, and job training.

Figure 3.2
Route 1

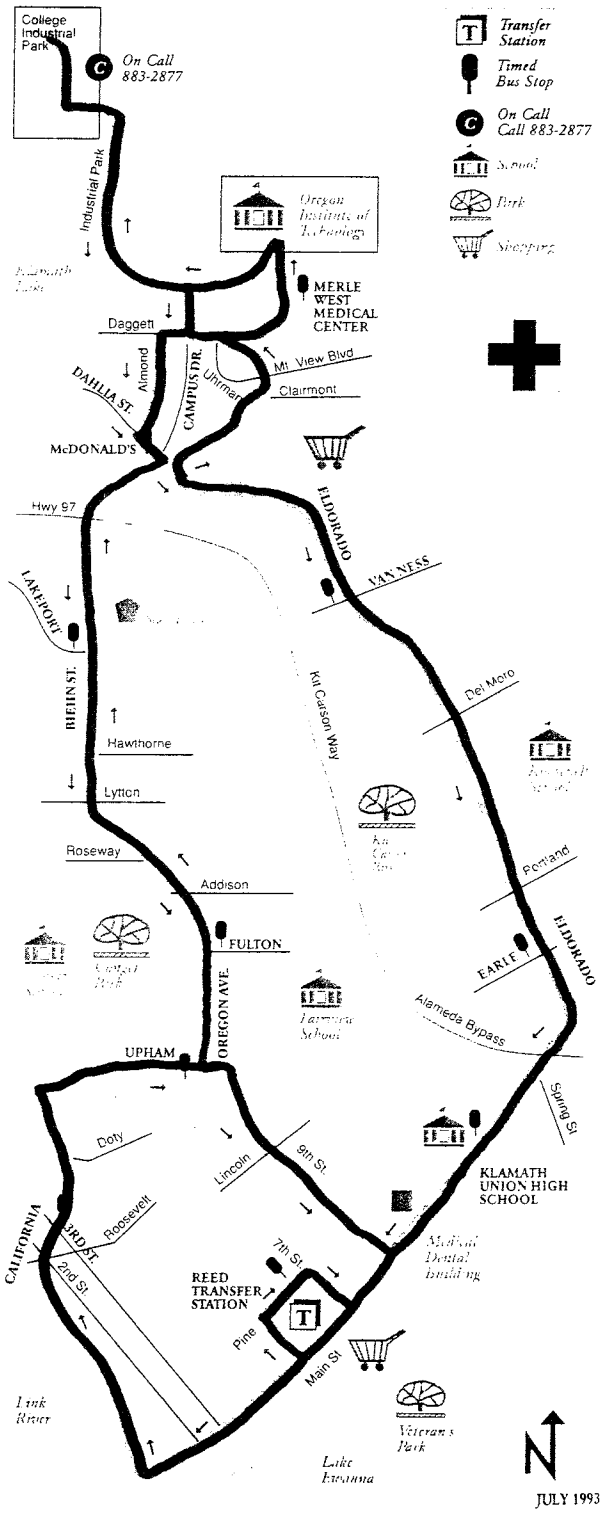


Figure 3.3
Route 2

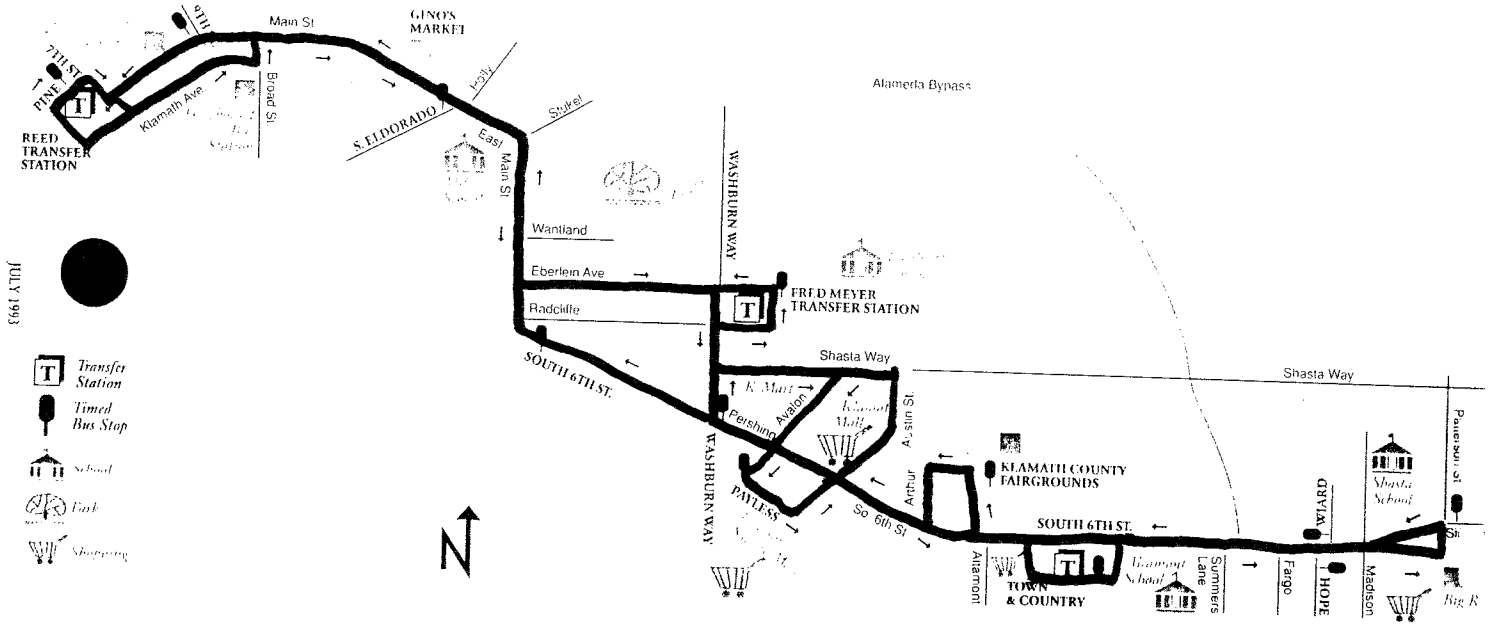


Figure 3.4
Route 3

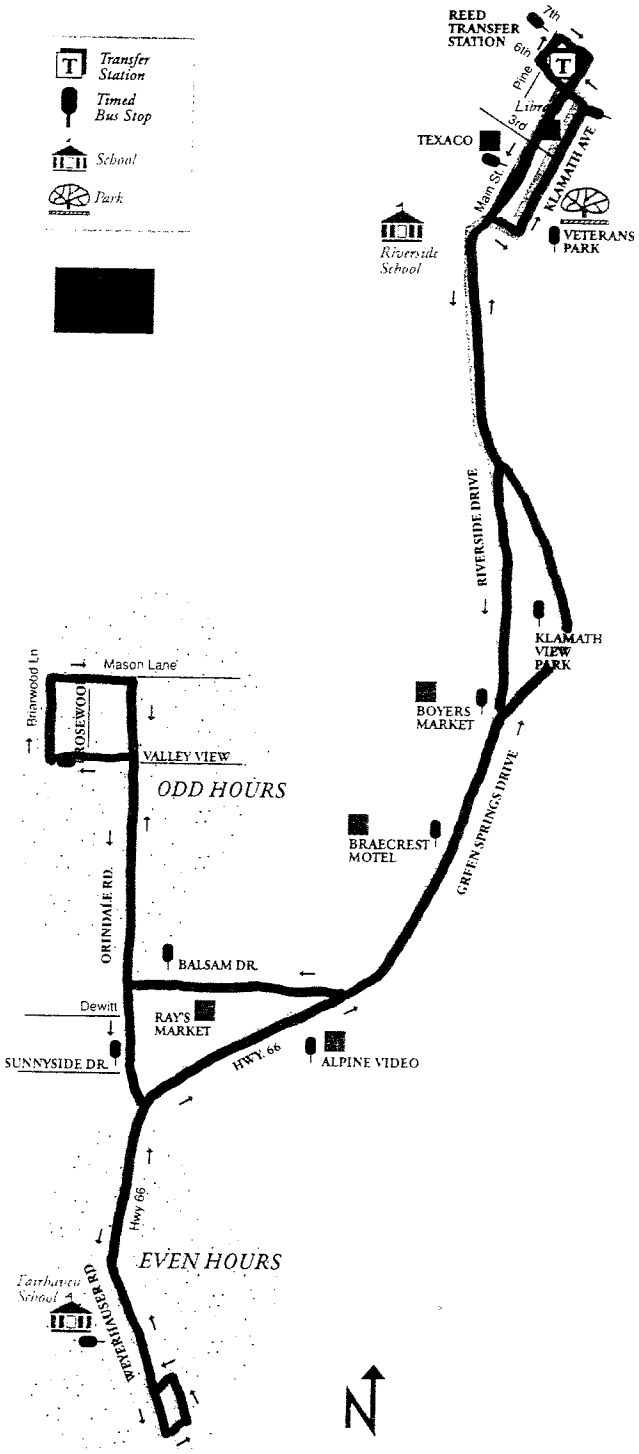


Figure 3.5
Route 4

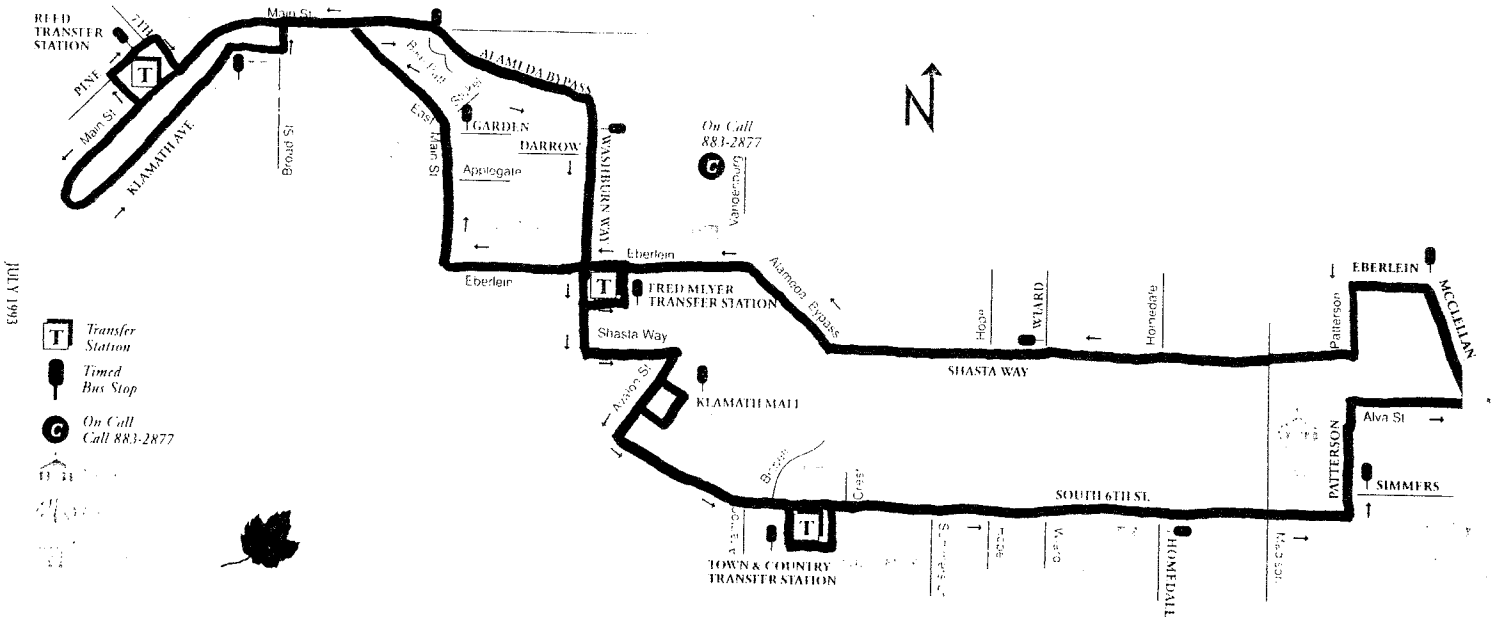
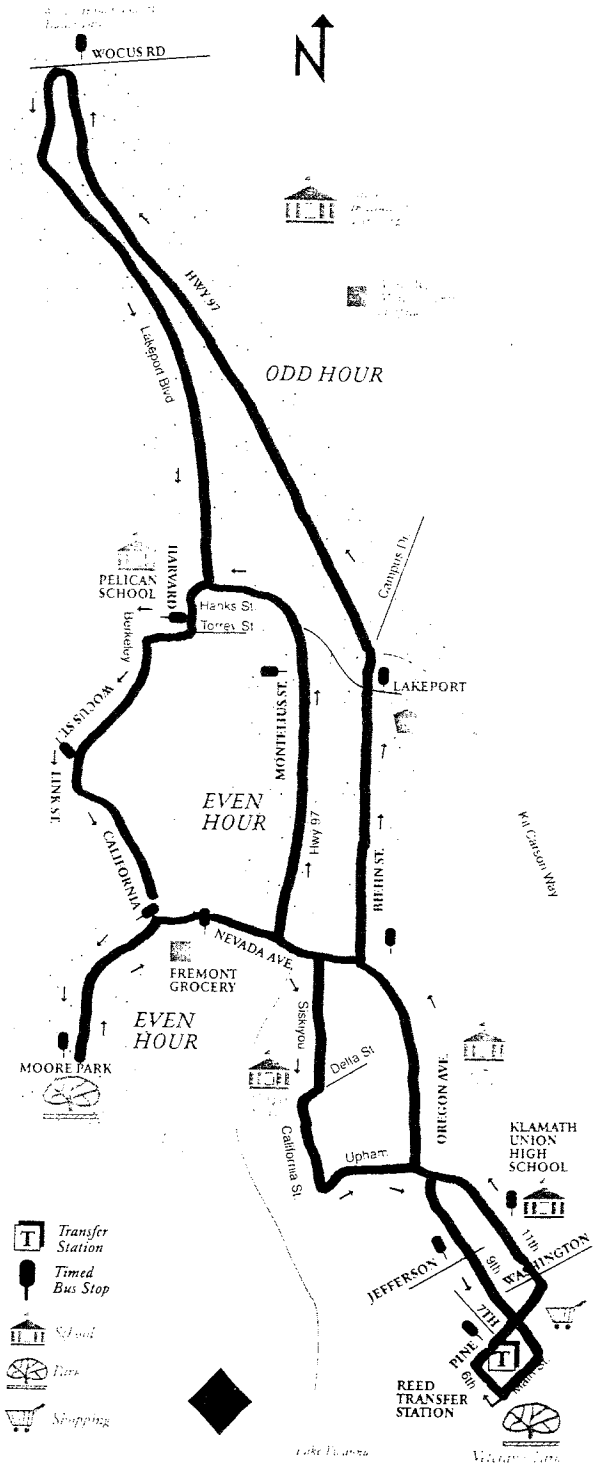
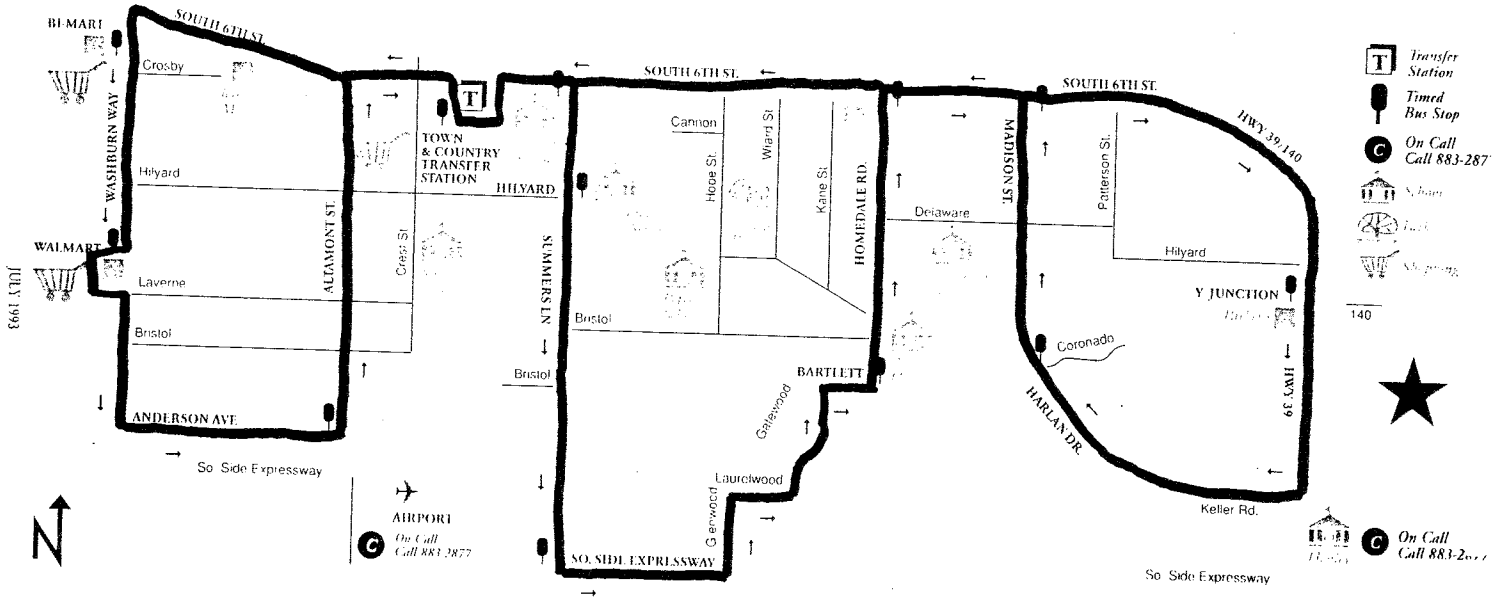


Figure 3.6
Route 5



JULY 1993

Figure 3.7
Route 6



3.1.5 Paratransit Service

Demand responsive service is available only to elderly and disabled residents. No advance reservations are needed, although riders can book ahead up to 2 weeks in advance. The fare is $1.00.

3.1.6 System Performance

Operating data for FY 91/92-93/94 is presented in **Figure 3-8**. Much of the operating data presented in the figures are estimates based on various BTS staff reports. The BTS General Manager is in the process of developing a more comprehensive and flexible system for collecting and reporting operating data. The allocation of costs and hours between fixed route and dial-a-ride service was estimated by the study team, based on documentation provided by BTS.

There was a 9.4% increase in ridership from FY 91/92 to FY 92/93, despite a decrease in the number of service hours. The General Manager attributes this increase to a successful route restructuring that occurred in mid 1993. Productivity, as measured by passengers per service hour, has increased steadily during the past three years.

Dial-A-Ride service was increased in FY 1993/94, resulting in almost a 100% increase in ridership. This increase in ridership contributed to the system-wide increase in fare revenues of over 34%. **Figure 3-9** presents the performance indicators for fixed route and Dial-A-Ride service.

From FY 91/92 to FY 92/93 actual operating costs increased slightly faster than the rate of inflation. According to the adopted budget, operating costs for FY 93/94 are expected to increase by 18% over the previous years actual costs. Although this is a significant increase it is not possible to provide a valid comparison until actual operating expenses for FY 93/94 have been tabulated. The estimated FY 93/94 cost per passenger for the fixed route is $4.10.

Figure 3.8
Operating Statistics

	FY 91/92	FY 92/93	% Change	FY 93/94	% Change
Passengers					
Systemwide	263,303	287,954	9.4%	292,367	1.5%
Fixed Route	260,174	284,539	9.4%	285,600	0.4%
Dial-A-Ride	3,129	3,415	9.1%	6,767	98.2%
Operating Costs					
Systemwide	$907,836	$967,055	6.5%	$928,412	-4.0%
Fixed Route	$696,497	$732,153	5.1%	$656,021	-10.4%
Dial-A-Ride	$211,339	$234,902	11.1%	$272,391	16.0%
Service Hours					
Systemwide	29,670	28,435	-4.2%	26,916	-5.3%
Fixed Route	22,763	21,528	-5.4%	19,019	-11.7%
Dial-A-Ride	6,907	6,907	0.0%	7,897	14.3%
Fares	$88,501	$93,119	5.2%	$124,853	34.1%

Notes:
FY 1991/92: Service included a tour route to Crater Lake.
FY 1992/93: Service included a "Downtown Shopper's Special". No Crater Lake route.
FY 1993/94: No Crater Lake route and no "Shopper's Special".
Dial-A-Ride service expanded in May 1994.

Figure 3.9
Performance Indicators

	FY 91/92	FY 92/93	FY 93/94
Pass/Serv. Hr			
Systemwide	8.9	10.1	10.9
Fixed Route	11.4	13.2	15.0
Dial-A-Ride	0.5	0.5	0.9
Farebox Ratio			
Systemwide	9.7%	9.6%	13.4%
Average Fare			
Systemwide	$0.34	$0.32	$0.43
Cost/Pass			
Systemwide	$3.4	$3.4	$3.2
Fixed Route	$2.7	$2.6	$2.3
Dial-A-Ride	$67.5	$68.8	$40.3
Cost/Serv. Hr			
Systemwide	$30.6	$34.0	$34.5

3.1.7 Peer Review

Figure 3-10 provides a comparison between BTS and four "peer" systems from the following cities: Grover City (SCAT) and Eureka in California, and Medford and Albany in Oregon. These peer systems were chosen because they are comparable to BTS in size, service area, and operations. Like BTS, all of the peer systems provide service Monday to Saturday.

Three categories were used to compare the delivery of service: Passengers/Revenue Service Hour, Rides/Capita, and Farebox Recovery.

BTS productivity, as measured by passengers per hour, matched the peer group average of 15.

Rides/capita gives a good indication of system performance with respect to service area population. The BTS system had 6.3 rides/capita, which was significantly better than the peer system average of 4.6.

The most interesting comparison concerns the farebox recovery ratio. The BTS fare recovery ratio of 13.4% is lower than the peer average and lower than all of the individual systems except Eureka Transit. One explanation for the low BTS ratio could be the fare policy. The average BTS fare system-wide is only $.36, which is very low for a public system. The fare structure should be evaluated during the next phase of the TDP.

Figure 3-10
Peer Comparison

	FY 93/94		
	Pass/Rev. Hr (1)	Rides/Capita (2)	Farebox Ratio (2)
BTS	15	6.3	13.4%
SCAT	17.4	2.7	14.0%
Eureka Transit	10.8	6.7	10.5%
Albany Transit	10.7	2.1	17.0%
Medford-RVTD	20.9	6.8	20.0%
Peer Average	15.0	4.6	15.4%

Notes: All data is unaudited, and was obtained directly from the agencies

(1) Fixed route only

(2) System-wide

3.1.8. Finance and Funding

The Basin Transit Service Transportation District was established to provide public transportation in and around Klamath Falls within specified district boundaries. The district supports its mission with a variety of funding sources. **Figure 3-11** outlines these sources and provides approximate percentages from the 1994/95 budget. A brief description of each source follows.

Figure 3-11
Funding Sources

SOURCE	PERCENT OF TOTAL REVENUE
Basin Transit District Property Tax	30%
System Generated Revenues (Fares, advertising, etc.)	16%
Oregon Public Transit Assistance	7%
State Transportation Funds	7%
FTA Section 18	15%
Working Capital	17%
Other Grants	8%
TOTAL	100%

Property Tax: Under Oregon law, the district collects a property tax to support its mission. This tax base provides approximately 30 percent of the capital and operating revenues annually. These funds contribute directly to operating costs and also provide matching funds to State and Federal Grants.

System Revenues: The transit system generates 16 percent of its own revenues through fares, advertising, the sale of surplus equipment, miscellaneous reimbursements and the collection of delinquent taxes from previous years.

Public Transit Assistance: Public Transit Assistance is a State funding program to support public transit. Approximately 7 percent of BTS's annual revenues are derived through Public Transit Assistance.

State Transportation Funds: State Transportation Funds (STF) are generated through a .02 tax on cigarette sales. These funds are available to public and social service transportation providers. Approximately 3 percent of Basin Transits revenues come

through this source. An additional 7 percent of their budget is in STF and Community Transportation Grants that flow though BTS's accounts, but support other transportation systems in the County.

FTA Section 18: Section 18 is a Federally sponsored funding program for small urban and rural transit operators. There are two categories of Section 18 funding: formula and discretionary. Basin Transit utilizes formula funds to support operations. Approximately 5 percent of BTS's overall revenues are Section 18 formula funds. Section 18 discretionary funds are used to support capital projects at Basin Transit and currently comprise about 10 percent of the total annual revenues.

Working Capital Carryover: Basin Transit has a working capital carryover from previous years that currently makes up approximately 17 percent of the overall budget.
Other Grants: Basin Transit benefits from several other special State and Federal Grant Programs such as the Transportation and Growth Management Grant that supports this project. These funds are generally dedicated to very specific planning or capital projects. These miscellaneous grants comprise approximately 8 percent of Basin Transit revenues.

3.2 OTHER TRANSPORTATION SERVICES

3.2.1 Private operators

Three private companies provide bus and van service north, south, east and west from Klamath Falls. These companies have the potential to provide some service to both the outer fringe of the Klamath Falls Urban Area and to those rural towns where residents have expressed an interest in connections to Klamath Falls.

Greyhound Bus Lines

Greyhound operates long distance "thruway" service from Klamath Falls north to Bend via Chiloquin and south to Redding California. This service consists of one roundtrip per day seven days per week. Greyhound uses a standard 40' motor coach. Vehicles are not wheelchair accessible. The trip from Klamath Falls to Chiloquin takes 30 minutes. The adult one-way fare is $4.75. The current schedule is:

dep.	Klamath Falls	6:30AM
arr.	Chiloquin	7:00AM
dep.	Chiloquin	11:40PM
arr.	Klamath Falls	12:10AM

Western Transportation Lines

Western provides van service Monday through Friday from Klamath Falls to Medford via Highway 140. Vans depart from the Greyhound station. This route passes through the Stewart-Lennox neighborhood. Service consists of one roundtrip per day, Monday to Friday. There is no weekend service. Vehicles are not wheelchair accessible. The one-way fare is $17.00 and the schedule is:

dep.	Medford	1:00PM
arr.	Klamath Falls	2:45PM
dep.	Klamath Falls	3:15PM
arr.	Medford	5:00PM

Red Ball Stage Lines

Red Ball uses two 7 passenger vans to transport passengers and small packages between Klamath Falls and Lakeview via Highway 140. Vehicles are not wheelchair accessible. The one-way fare is $17.00. Vans leave Klamath Falls twice a day Monday through Saturday. The schedule is currently being revised, but there will be one AM and one PM trip in each direction. Vans leave from the Jefferson Square Mall at the corner of Washburn and South 6th Street.

3.2.2 Social Service Agencies

The study team has examined the transportation services provided by the county's social service agencies. Some agencies use their own vehicles to provide service, while others rely on volunteers and a system of mileage reimbursement.

Klamath Basin Senior Citizens Council

Klamath Basin Senior Citizens Council operates a door to door dial-a-ride service that is available only to seniors and disabled residents in the Klamath Basin. The service utilizes three vans, one of which is wheelchair accessible. It operates Monday through Friday from 8:00AM to 5:00PM. Residents from the communities of Merrill, Malin, and Keno, as well as the Klamath Falls Urban Area, may use the service. Local trips may also be taken within the urban area. It is preferred that riders call for reservations 24 hours in advance. Drivers provide specialized door to door service that includes help with packages. When the service is full, the center refers callers to the BTS Dial-A-Ride.

1993 ridership was 10,000. The agency believes that approximately 20-25% of its clients are capable of using either BTS fixed route or demand responsive service. This represents a potential 2,000-2,500 annual trips that could be switched to BTS if BTS operated to the towns that they serve. The remaining group of clients could not use public transit because of the special door-to-door service that they require.

The Klamath Tribe

The Klamath Tribe operates a dial-a-ride service 8:00AM to 5:00PM Monday through Friday. The system uses a mini-van and two autos to connect the communities of Bly, Beatty, Sprague River, Bonanza, Chiloquin, Modoc Point, and Fort Klamath. Currently all of these towns are outside the BTS service area. Trips can be made to destinations in Klamath Falls depending upon the schedules and destinations of the passengers. Advance reservations are required and while the service is open to any member of the tribe, priority is given to the elderly and those making medical trips. At least 25% of the riders are capable of using rural fixed route transit if it were available and the schedule worked for them.

Klamath Basin Veterans Council

The Veterans Council provides mileage reimbursement or bus tickets to aged or disabled veterans for transportation to and from the Veterans Hospital in Roseburg. On rare occasions, volunteers with the council use their private vehicles to transport veterans to appointments throughout Klamath County. This special service is available Monday through Friday on an as needed basis. The service provides approximately 400 trips per year, most of which are to the Veterans hospital. Since most of these trips go to Roseburg this is not a group that can be served by extending BTS service.

Klamath County Mental Health

Door-to-door transportation services are provided to residents enrolled in the agency's program for the chronically mentally ill. A variety of trips are accommodated including shopping, medical, and social service agency appointments.

The Health Center has two vans available for service. The Center operates the service three days per week from 8:00am-5:00pm. Residents of Klamath Falls are the primary users of the service. Clients of the Center may use the service for trips throughout the county. Just over 1,000 rides are provided each year.

According to staff at the Center, the vast majority of clients are incapable of using any type of public transportation due to their disabilities. This is not a market that could easily be served by BTS.

Klamath Mental Center

Transportation services are provided to chronically mentally ill and developmentally disabled clients of the center who are between the ages of 21-70. The services are intended primarily for short outings and medically related trips.

The Center has two vans which it uses for outings. Eight county-owned autos are used for medical trips. In addition, the Center has a agreement with BTS to provide door-to-door service three days a week for several patients travelling to the Center.

There might be some potential to shift some medical trips and the BTS charter trips over to regular BTS service. Staff at the center indicated that some clients are capable of using regular public transit, but at this time they could not give a percentage nor could they estimate the number of trips they provide each year. Most of the trips to the center occur between 9:00am-5:00pm.

The Center is located on Vandenburg way near the intersection with Highway 39. BTS route 4 stops 2 blocks away on Eberlein and Vandenburg.

Rehabilitation, Education, and Community Housing, Inc. (REACH)

REACH, Inc. is a non-profit organization that provides a variety of services for the developmentally disabled, including those that live in residential group homes. Reach operates two training centers and four group homes located near the following intersections:

Training Centers -	Maywood/Crosby
	Richmond/Vine
Group Homes -	Richmond/Vine
	Mitchell/Eberlein
	Reclamation/Division
	Mitchell/White

All of the locations are within several blocks of each other, with the exception of the Maywood/Crosby site which is approximately a 1/2 mile away.

There are approximately 100 people in the program. BTS operates a special service, route 7, to assist in transporting the clients to the training centers and to outside appointments. According to staff, most of the clients are not capable of riding public transit while they are in the program. The program director did say that the BTS special service does provide a good method of introducing the clients to public transit, and that many people go on to use the regular fixed route system when they leave the program.

CHAPTER 4. RIDECHECK RESULTS

4.1 METHODOLOGY

On Tuesday, October 4, a 100% ridecheck was conducted on all 6 BTS routes. Survey personnel were assigned to ride every trip on every route in the study area. Surveyors counted boardings and alightings at every stop and recorded actual arrival time at selected time points. From this data collection effort, three pieces of information that are critical to short term planning are derived:

- Passenger Counts by Stop: These "route profiles" show in an accurate graphic format route activity down to the stop level. Route profiles for each route have been developed and are presented in this chapter.

- Route Activity by Time of Day: Analyzing activity by trip results in a picture of peaking and less active periods over the entire service day. Boardings by hour for each route are graphically displayed immediately following the corresponding route profile.

- On-Time Performance: One key to system integrity is on-time performance. Summaries of performance for each route are included in this chapter.

Appendix B provides boardings and alightings summary tables for each route.

The following sections present the basic findings of the ridecheck.

4.2 PASSENGER COUNTS BY STOP AND BY TRIP

All BTS routes, with the exception of Route 6, provide radial service from various neighborhoods to Downtown. Route 6 connects the South Suburbs with the South 6th Street corridor. Passengers can transfer at South 6th for a trip towards downtown. Although a separate transfer analysis was not apart of this study it is clear that there is a significant amount of transfer activity taking place at the three transfer centers.

The BTS ridecheck counted 1,021 boardings system-wide on the survey day. This sections discusses each route, providing ridership counts by both stop and route. Route profiles and boardings by time of day follow this section.

Route 1

Route 1 had 236 boardings with the vast majority occurring at either end of the line, either the Reed Transfer Center or OIT/Hospital. Boardings at interim stops varied between 1-10. Ridership is low (average trip is 4 riders) between 6:00-8:00am. After 8:00am ridership increases significantly to an average of 10 per trip. This remains constant until 5:30pm when levels taper off to 3 per trip.

Route 2

Route 2 had 262 boardings. It appears that this route is particularly popular with shoppers. The most productive segments are the stops surrounding the Fred Meyer Transfer Center, K-MART, and the Reed Transfer Center. Boardings are consistent at the rest of the stops, averaging between 1-10 per stop.

Ridership is light in the morning between 6:00-8:00am. At 9:00am the number of riders more than doubled and continued to increase until noon. Boardings began to drop off around 2:00pm. Given the route and the pattern of boardings it is apparent that this route serves a number of shopping trips.

Route 3

Route 3 and route 5 are combined to form a single driver workpiece. Many riders stay on the bus as it transitions from one route to the other, thus making the analysis of trips somewhat difficult.

With only 93 boardings this is one of the weaker routes. By far the busiest stop was Reed Transfer Center. Here riders either walked to downtown destinations or transferred to another route. Excluding Reed, ridership was consistent throughout the route at less than 10 boardings per stop.

Route 3 has an unusual pattern of boardings. Ridership is extremely light from 6:00am-2:00pm. At 2:00pm boardings increase to an average of 7 per trip and remain constant until the last run.

Route 4

This route had 284 boardings making it the busiest route on the system. In many ways route 4 is similar to route 2. They are both east/west routes that connect Downtown with the Fred Meyer Shopping Center and the eastern neighborhoods. Like route 2, route 4 appears to be attracting a high percentage of shopping trips. The two busiest stops are at Fred Meyer and Reed. Other significant activity occurred near the intersections of Main/E. Main and Shasta/Gary. The large number of boardings at Shasta/Gary is unusual given that the area is residential and lacks a major trip generator.

Like route 2, ridership was light during the first 2 hours of service. At 9:00am boardings more than doubled and remained at an average of 25-30 per trip until the last two hours of service.

Route 5

With only 56 riders Route 5 had the lowest ridership of any route in the system. Route 5 splits into two slightly different segments depending upon whether the bus departs Reed on an "odd" or "even" hour. Almost the entire route is composed of one-way loops.

On the portions of the route where the odd and even segments overlap there was a consistent number of boardings at many of the stops. Where the routes did not overlap ridership was almost non-existent. The unproductive segments include Moore Park, Hwy 97, Lakeport, and Montelius. Reed was the busiest stop for the route.

The hourly boarding pattern is different from routes 1-4. There is a morning peak averaging 7 riders per trip and lasting until 10:30am. At that time boardings drop to an average of two per trip until 12:30pm. In the afternoon ridership climbed steadily to a total of 9 riders at 3:00pm before dropping back to 4 per trip for the rest of the day.

Route 6

Route 6 had the second lowest level of ridership. Only 90 people used the bus. All of this route is one-way service except for the segment of South 6th Street between Altamont and Madison. Although boardings were distributed throughout the route it is clear that the vast majority of this route is unproductive. There were long stretches with no boardings including the eastern loop that starts and ends at Madison/South 6th Street.

Most of the boardings occurred at Town and Country Transfer station which would indicate that this is either a shopping destination or a transfer point for trips further west and north.

Summary

The heaviest boarding activity for all of the routes occurred at the three transfer centers. Since these three centers area also major shopping destinations it is unclear at this time what percentage of the activity is related to shopping at what percentage is due to transfer activity. However, input from BTS staff seems to indicate that at least 40% is of the activity is related to transfers.

4.3 ON-TIME PERFORMANCE

On-time performance for each route was calculated using the ridecheck data. This analysis of on-time performance is intended only to provide an example of a typical day and is not intended to be a reflection on annual system-wide performance.

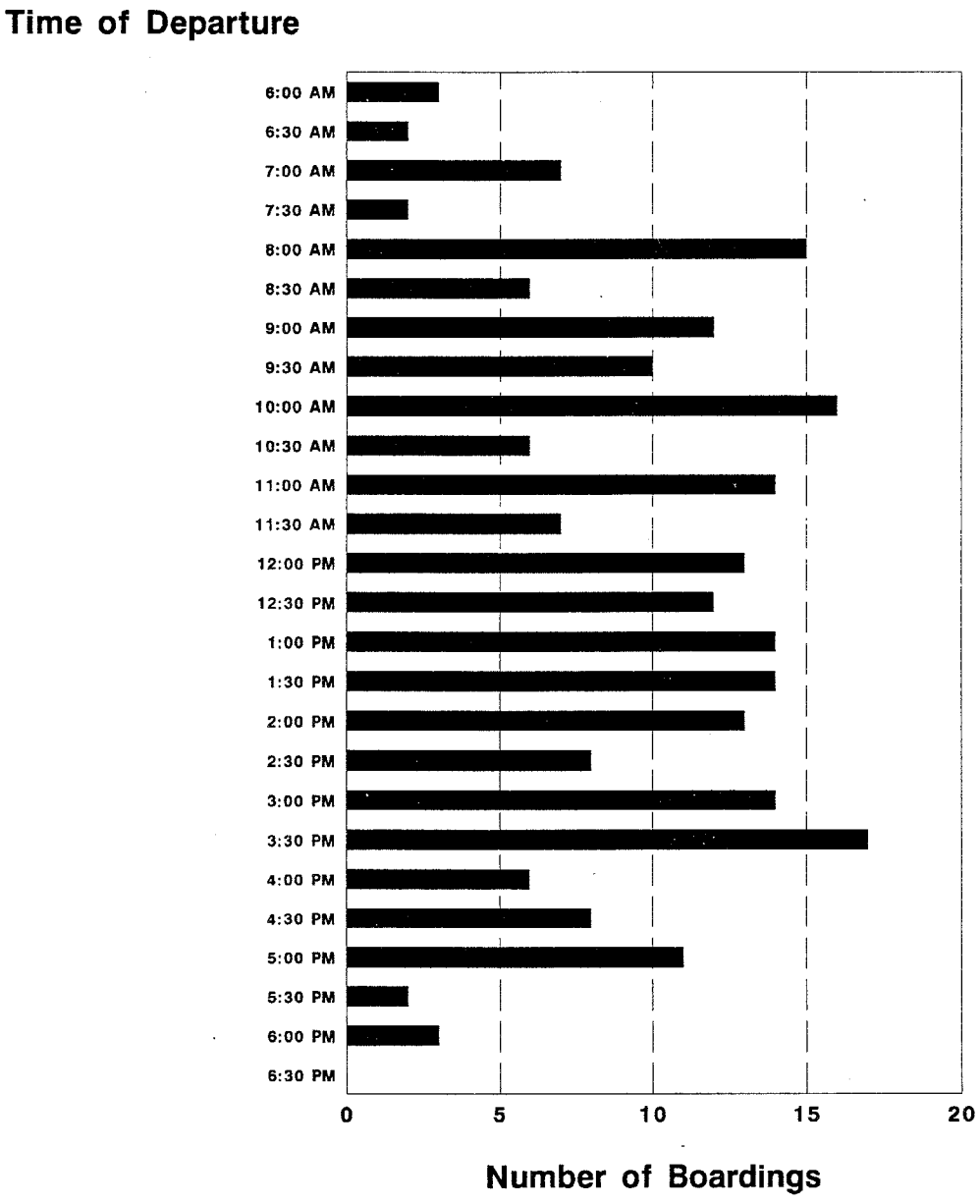
Surveyors were instructed to record arrival times at selected time points along each route. Generally this amounted to 2-4 time points per trip spaced no more than 5-10 minutes apart.

On the day of the survey the 10:00am run of route 3 was missed due to a mechanical problem. In addition several of the routes experienced delays of a few minutes due to problems with wheelchair lifts. On-time performance data has been adjusted to account for these problems.

System-wide on-time performance was better than 90%. BTS staff does periodic checks of running times for all routes, but they do not do regular tabulations of on-time performance. Comparison of the ridecheck data and the data from staff indicates that the 90% figure was a little below average for this system.

Route	Observations more than 1 minute early	Observations more than 5 minutes late	Total Observations	Percent On-time
1	2	2	52	92%
2	1	4	52	87%
3	0	2	52	96%
4	2	5	52	86%
5	0	6	52	88%
6	1	5	52	88%
System-Wide	6	24	312	90%

Figure 4-1
Route 1 - Boardings per Hour



Nelson\Nygaard 10/94

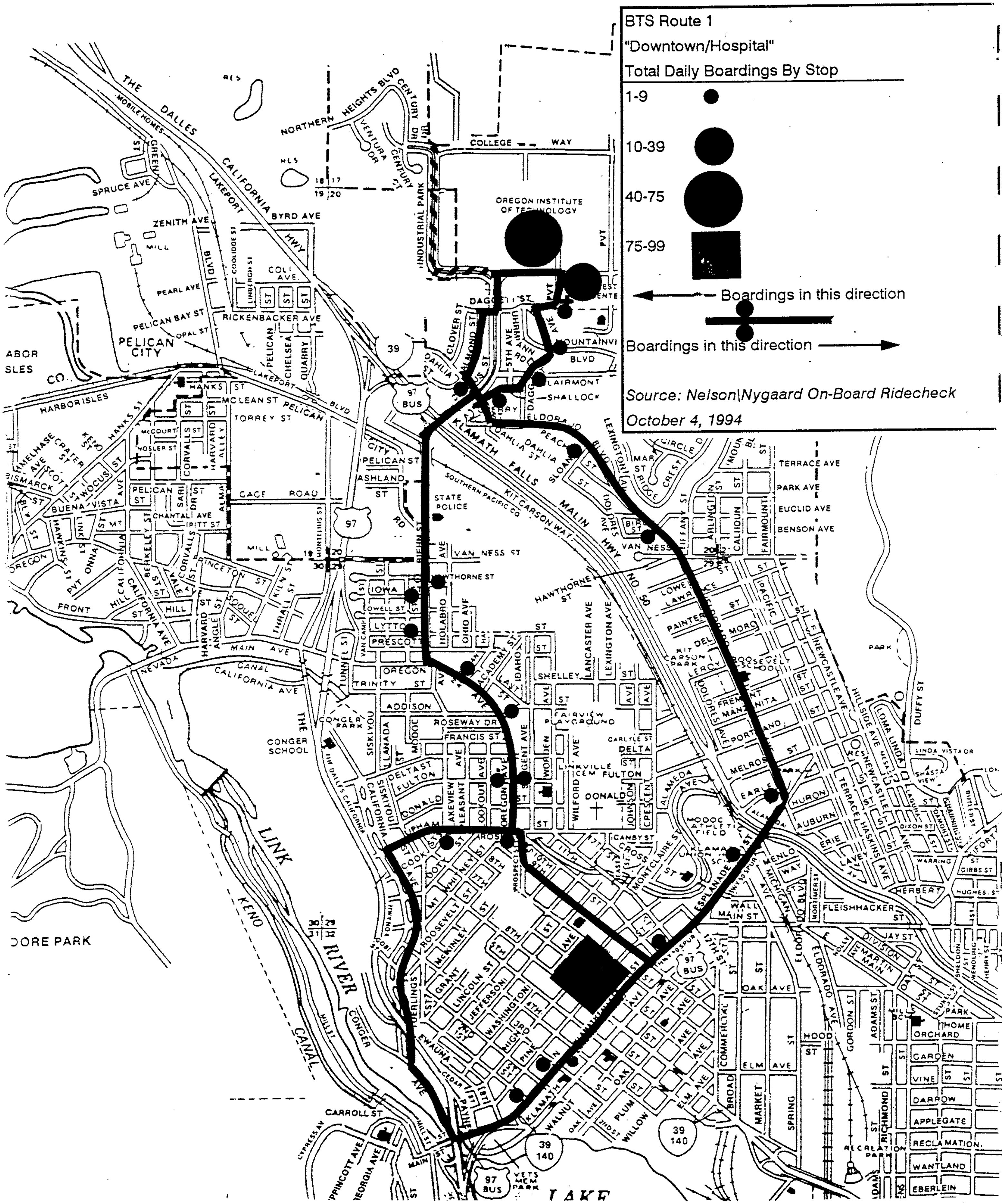
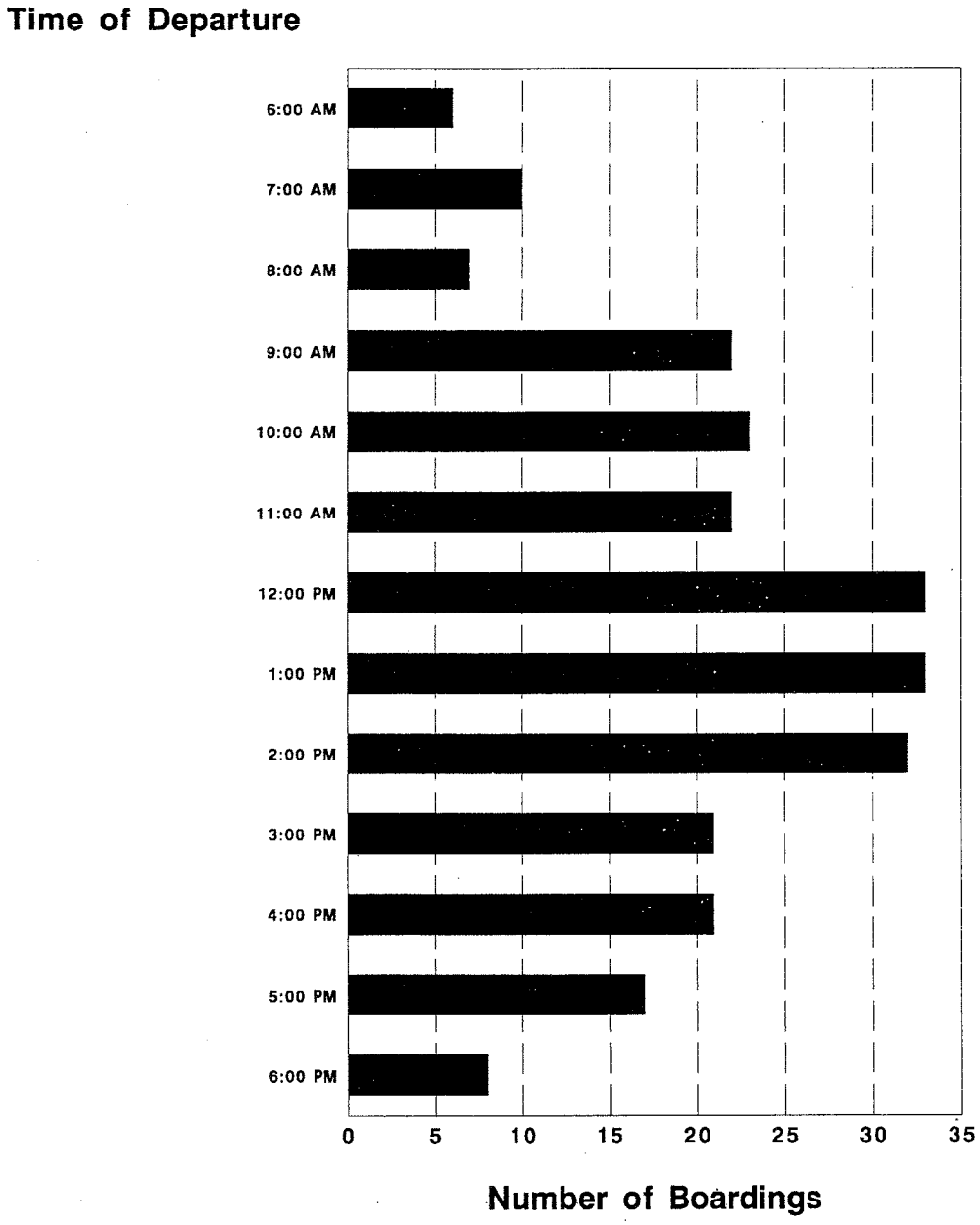

BTS Route 1
"Downtown/Hospital"
Total Daily Boardings By Stop
1-9
10-39
40-75
75-99
Boardings in this direction
Boardings in this direction
Source: Nelson\Nygaard On-Board Ridecheck
October 4, 1994
OREGON INSTITUTE OF TECHNOLOGY
KLAMATH FALLS
LINK RIVER
LAKE

Figure 4-2
Route 2 - Boardings per Hour



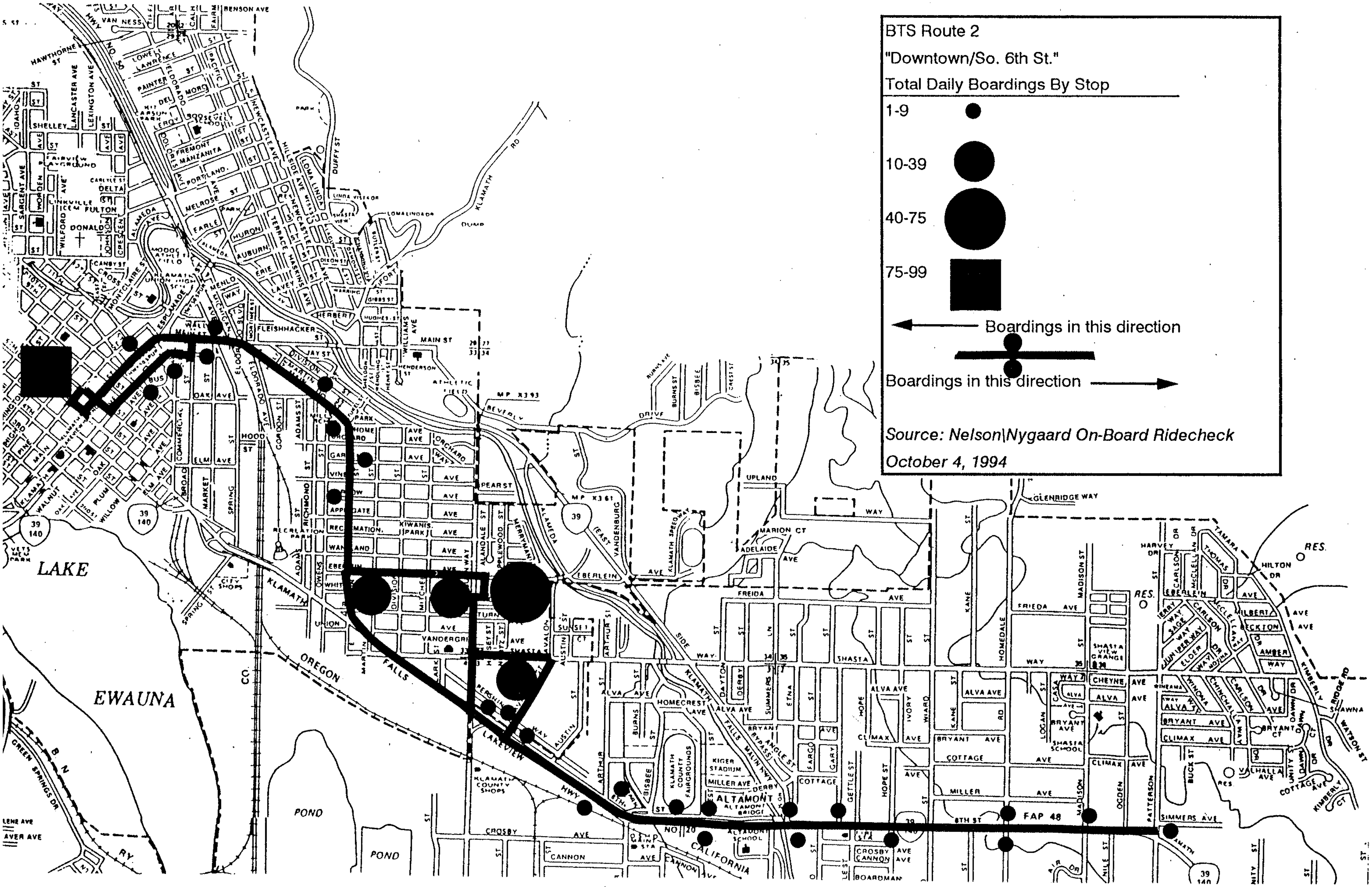
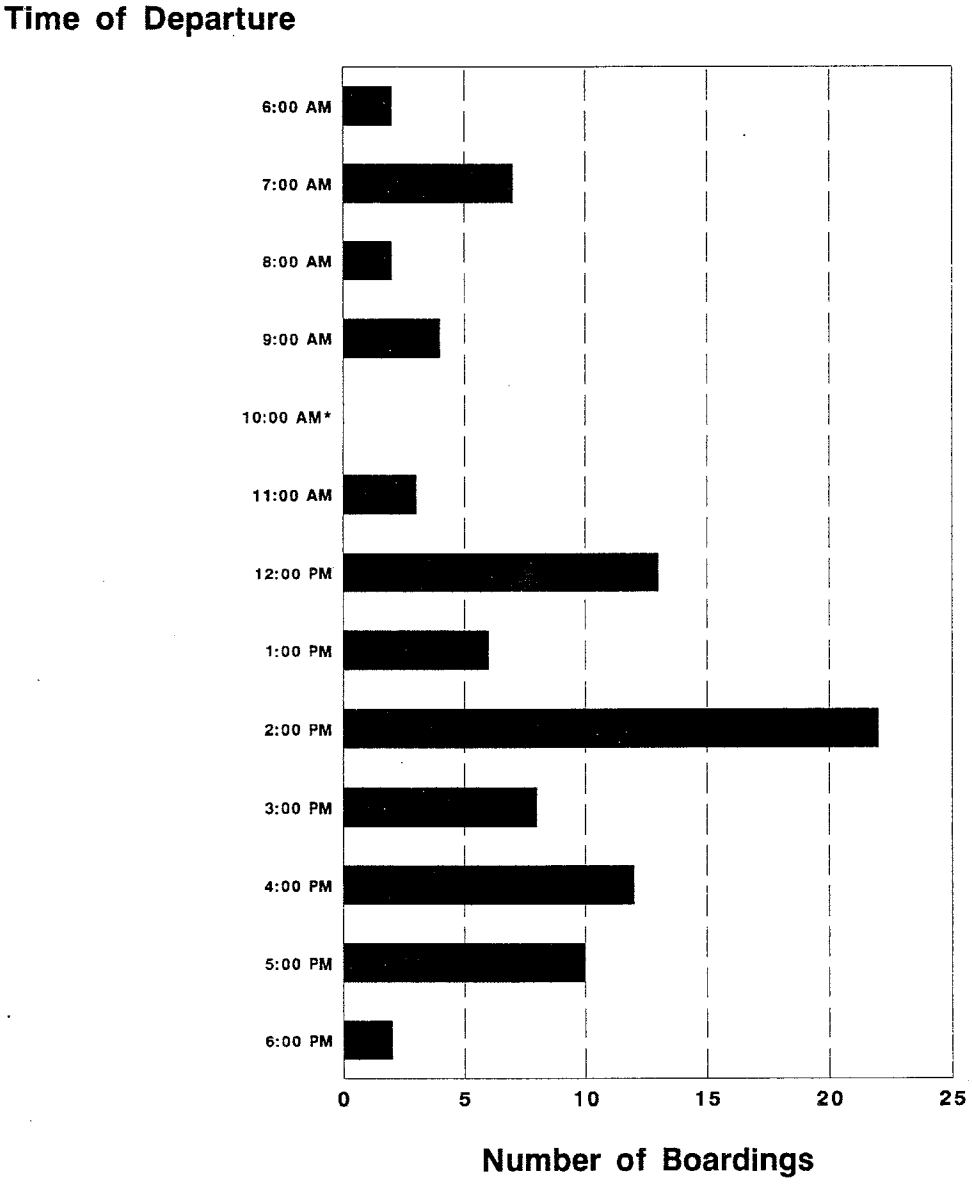

BTS Route 2
"Downtown/So. 6th St."
Total Daily Boardings By Stop
1-9
10-39
40-75
75-99
Boardings in this direction
Boardings in this direction
Source: Nelson\Nygaard On-Board Ridecheck
October 4, 1994
LAKE
EWAUNA
POND
ALTAMONT
CALIFORNIA
KLAMATH
OREGON
FALLS
LAKEVIEW
FAP 48
SIMMERS AVE
MAIN ST
ALAMEDA
MP X393
MP X361
UPLAND
GLENRIDGE WAY
HOMEDALE
KANE
FRIEDA AVE
MADISON ST

Figure 4-3
Route 3 - Boardings per Hour



*Out of Service

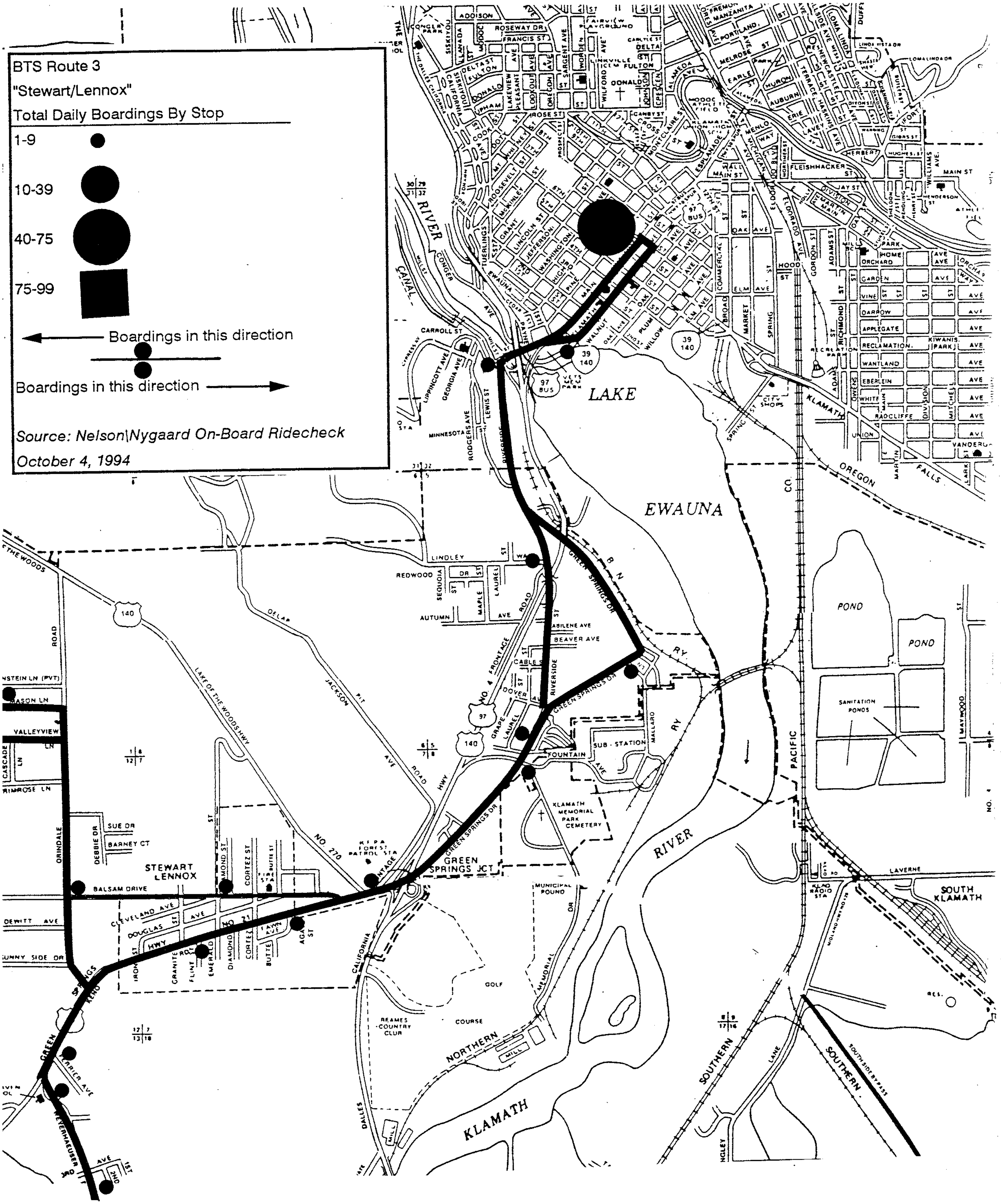
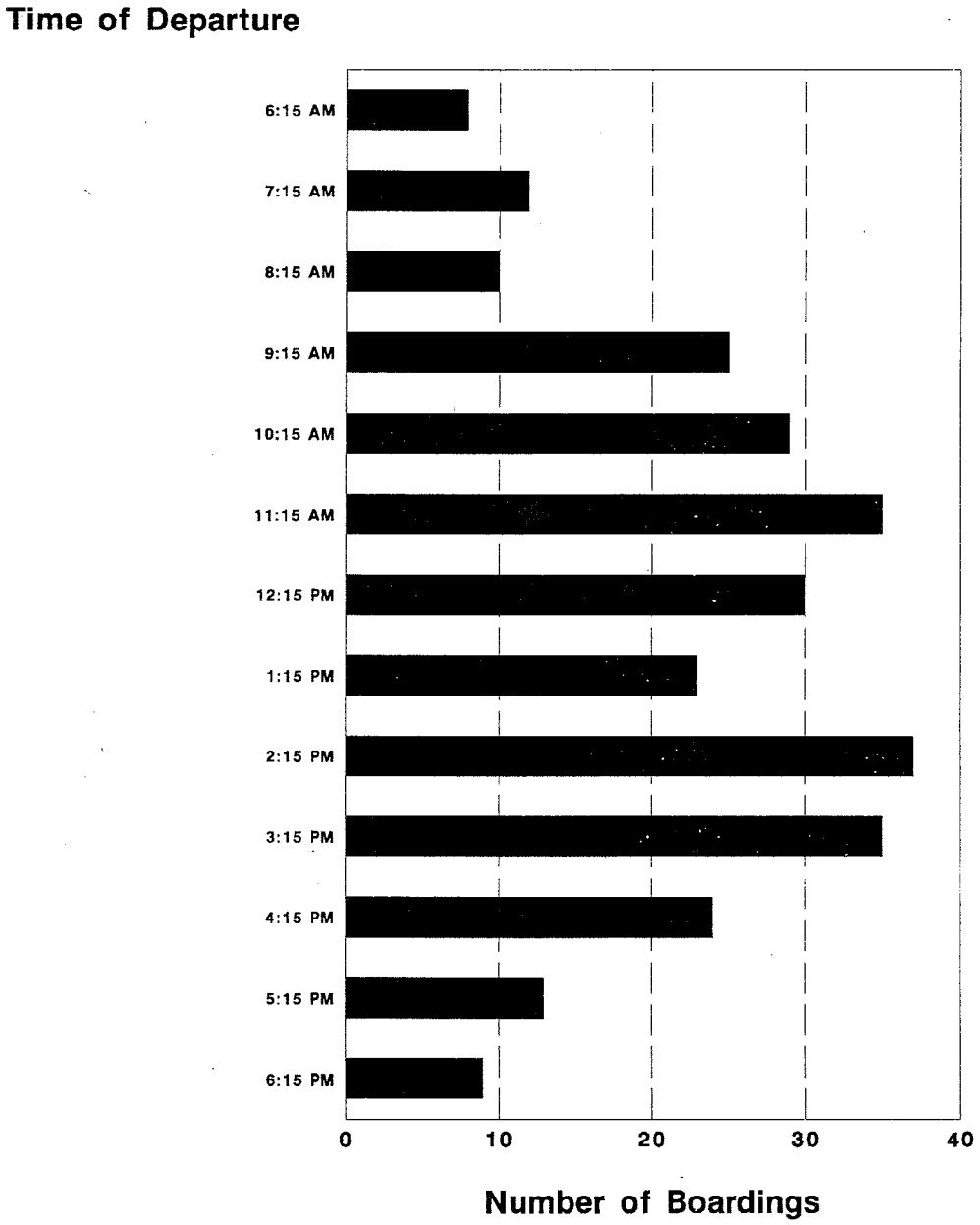

BTS Route 3
"Stewart/Lennox"
Total Daily Boardings By Stop
1-9
10-39
40-75
75-99
Boardings in this direction
Boardings in this direction
Source: Nelson\Nygaard On-Board Ridecheck
October 4, 1994
LAKE
EWAUNA
RIVER
KLAMATH
STEWART LENNOX
GREEN SPRINGS JCT
SOUTH KLAMATH
POND
POND
SANITATION PONDS
KLAMATH MEMORIAL PARK CEMETERY
REAMES COUNTRY CLUB
GOLF
COURSE
NORTHERN
SOUTHERN
PACIFIC
BALSAM DRIVE
VALLEYVIEW
LINDLEY
REDWOOD
AUTUMN
ABILENE AVE
BEAVER AVE
FOUNTAIN
SUB - STATION
LAVERNE

Figure 4-4
Route 4 - Boardings per Hour



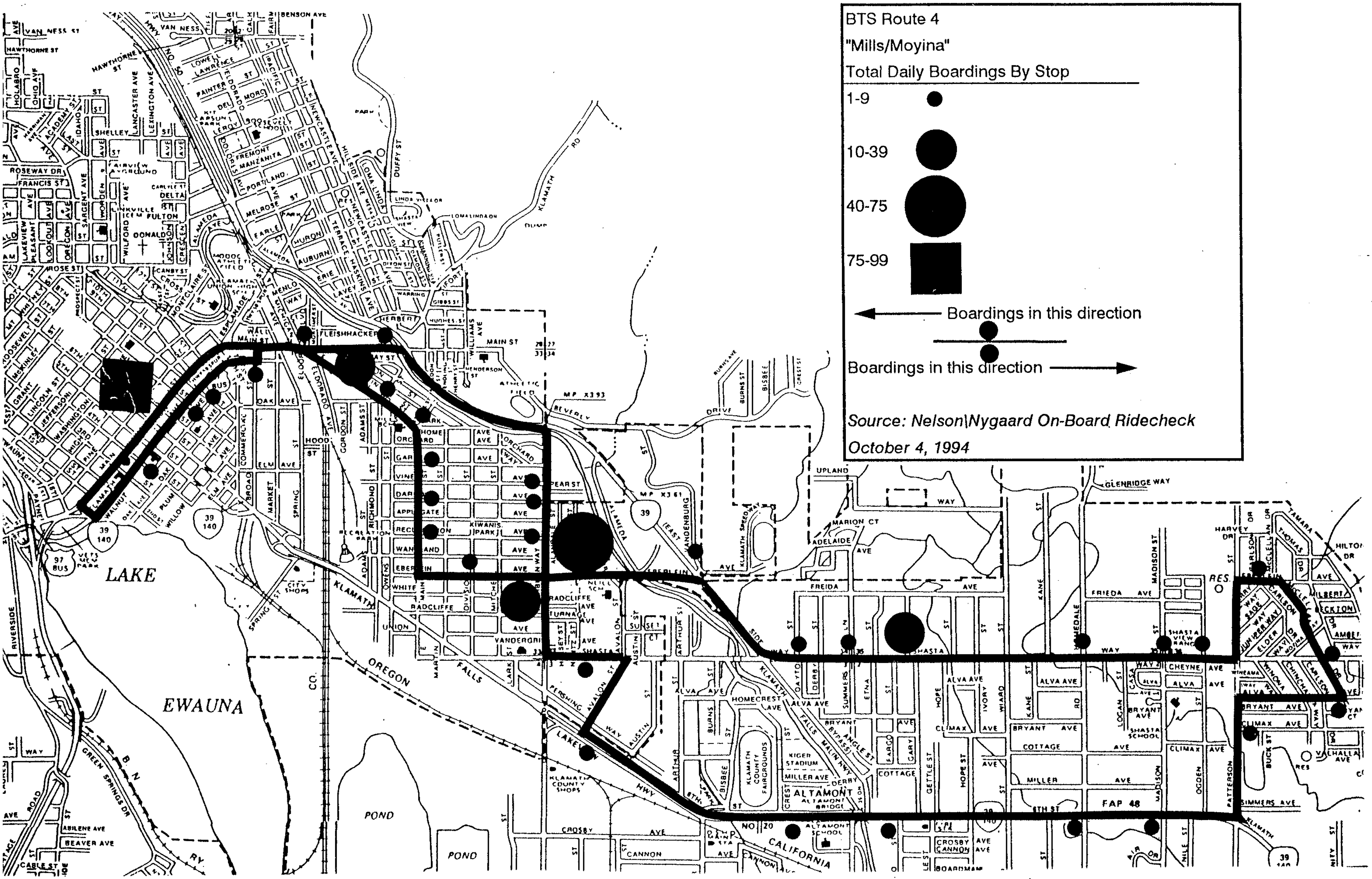
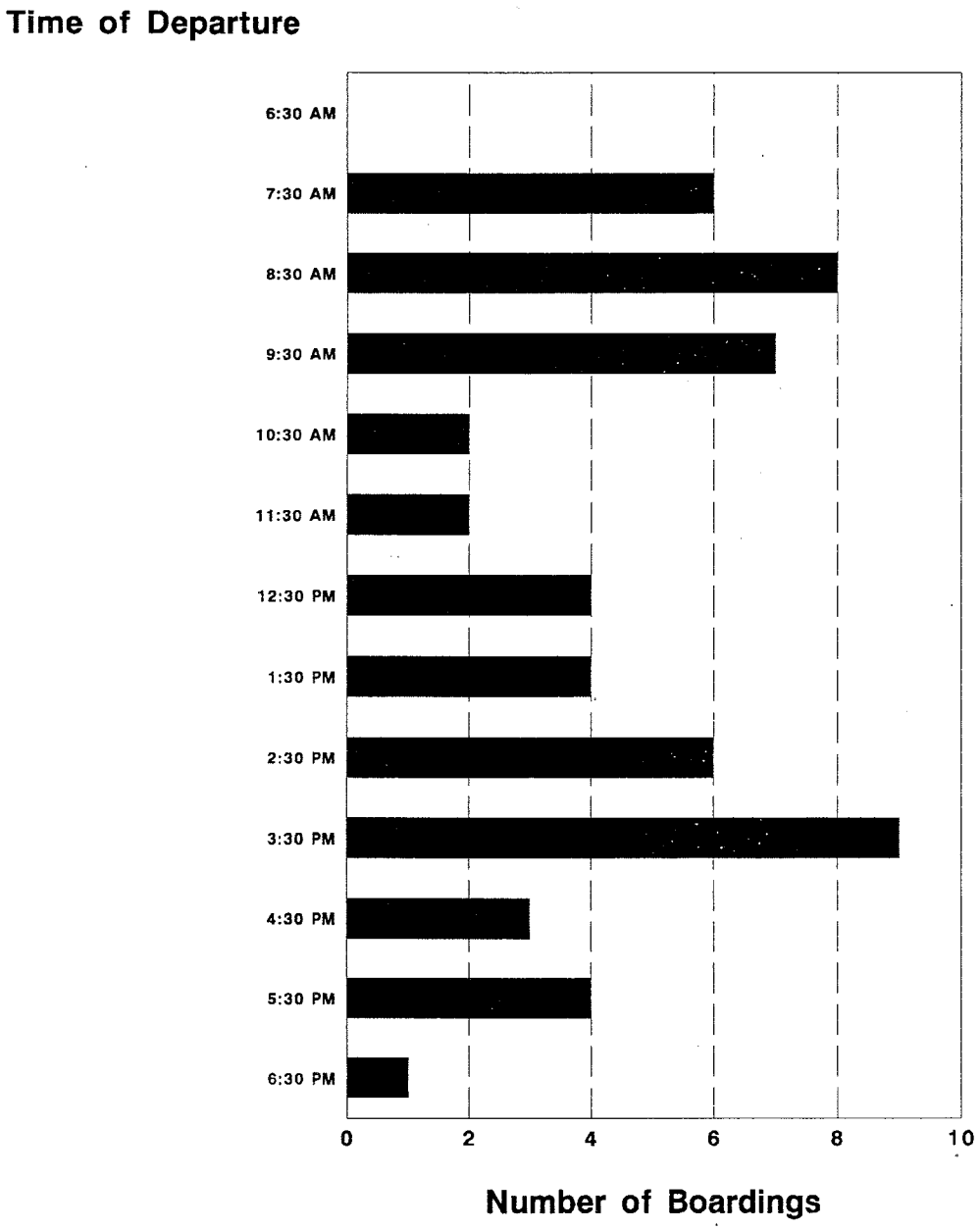

BTS Route 4
"Mills/Moyina"
Total Daily Boardings By Stop
1-9
10-39
40-75
75-99
Boardings in this direction
Boardings in this direction
Source: Nelson\Nygaard On-Board Ridecheck
October 4, 1994
LAKE
EWAUNA
POND

Figure 4-5
Route 5 - Boardings per Hour



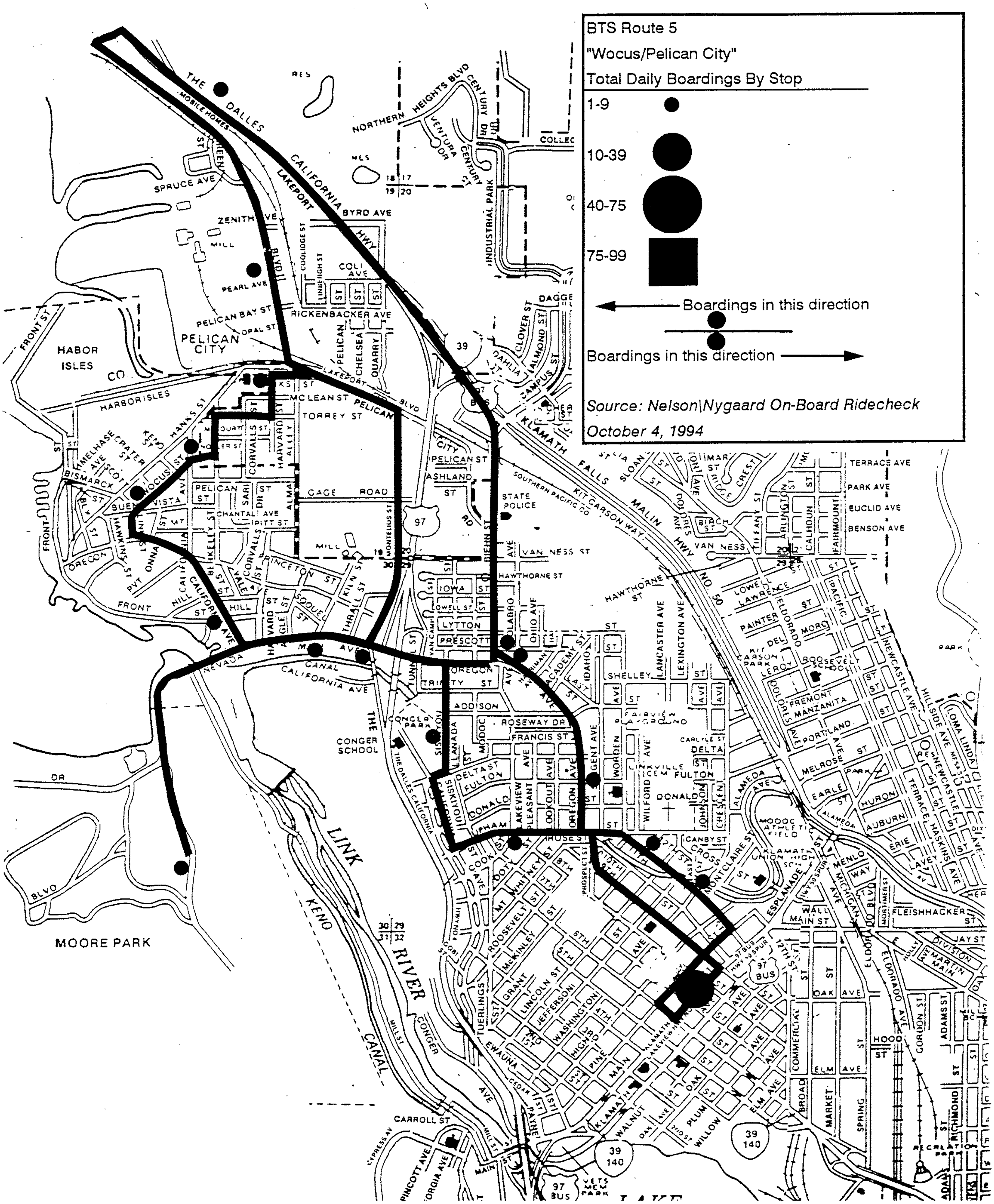
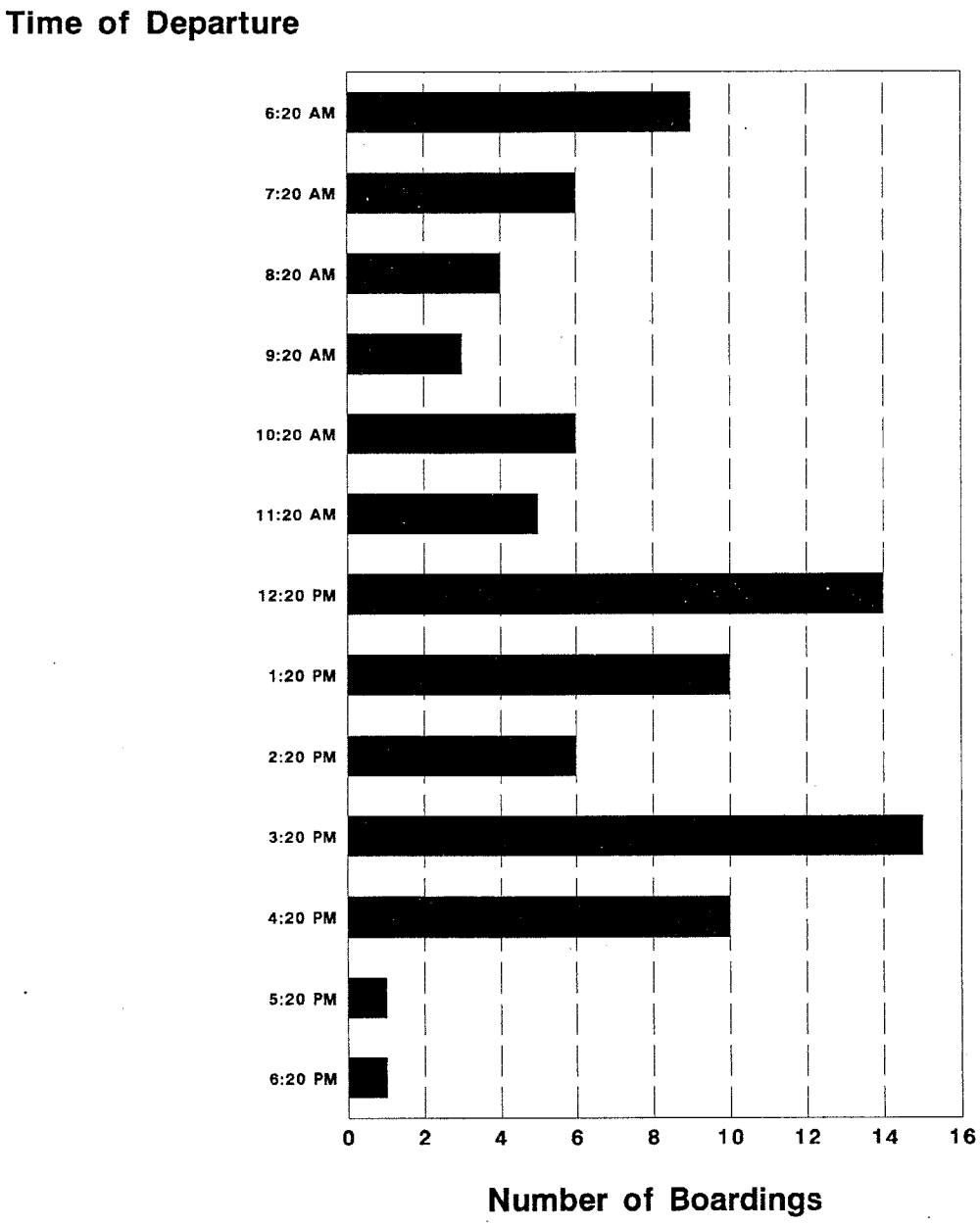
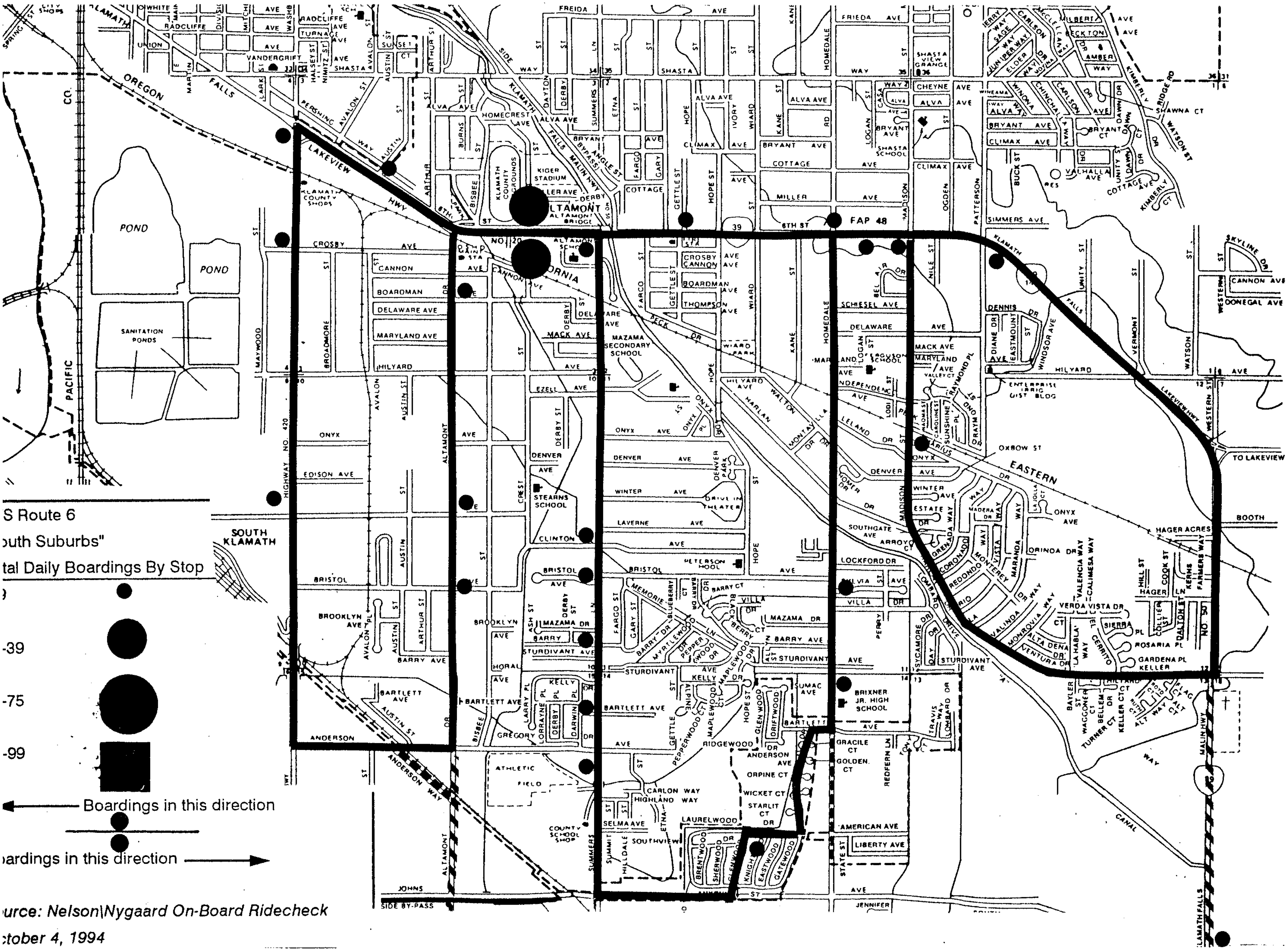

BTS Route 5
"Wocus/Pelican City"
Total Daily Boardings By Stop
1-9
10-39
40-75
75-99
Boardings in this direction
Boardings in this direction
Source: Nelson\Nygaard On-Board Ridecheck
October 4, 1994

Figure 4-6
Route 6 - Boardings per Hour




S Route 6
outh Suburbs"
tal Daily Boardings By Stop
-39
-75
-99
Boardings in this direction
oardings in this direction
urce: Nelson\Nygaard On-Board Ridecheck
ctober 4, 1994
EASTERN
LAKEVIEW
ALTAMONT
SOUTH KLAMATH
POND
SANITATION PONDS
PACIFIC
OREGON
TO LAKEVIEW
MAZAMA SECONDARY SCHOOL
STEARNS SCHOOL
BRIXNER JR. HIGH SCHOOL
KLAMATH COUNTY FAIRGROUNDS
KIGER STADIUM
FAP 48
HIGHWAY NO. 420
BOOTH
MALIN HWY

CHAPTER 5. TELEPHONE SURVEY RESULTS

An important perspective of this Transit Development Plan is that of the average citizen, a person who would not necessarily have been included in the other types of surveys done for this project. A random survey of residents at large is one of the best ways to gather information about such persons. A random telephone survey was conducted to provide an understanding of the commute habits and opinions of the general public both within the Klamath Falls Urban Area and in the four rural communities.

5.1 METHODOLOGY

Klamath Falls Urban Area

During the week of October 3, 1994, a random sample of households within the Klamath Falls Urban Area were contacted by telephone. Interviews were conducted until a target number of surveys were completed. Interviews lasted approximately 5 minutes, with telephone interviewers coding the questionnaire forms while interviewing respondents. A copy of the survey instrument is included in the **Appendix B**.

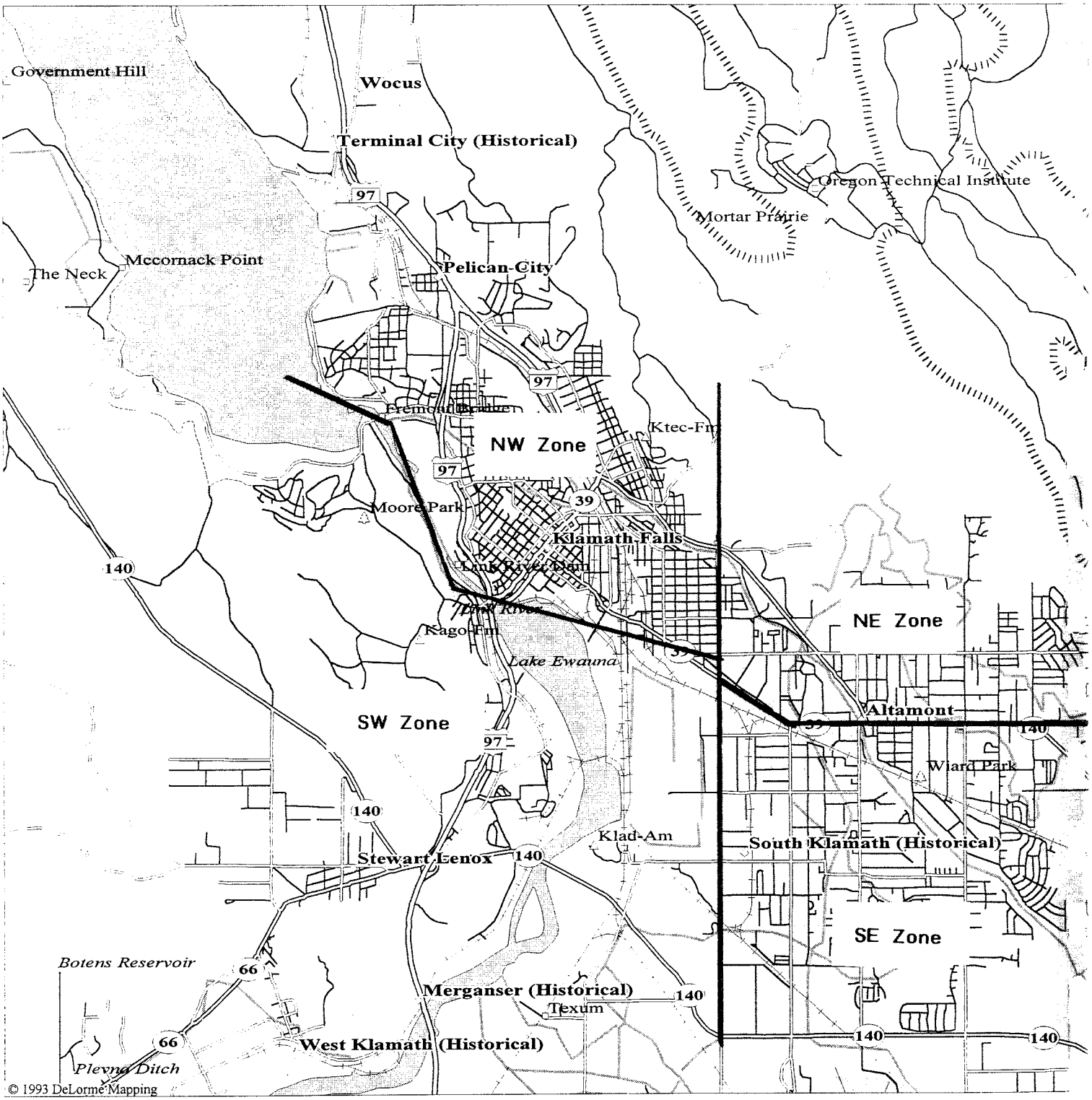
As presented in **Figure 5-1** the Urban Area was divided into four zones. The north/south boundary included the Klamath River and South 6th Street. The east/west boundary was Washburn Way.

When a resident answered the phone the interviewer asked a number of screening questions to confirm that the resident lived in one of the four zones. After confirming residence and explaining the survey the interviewer asked to speak with the youngest male 16 years or older with the second preference being the youngest female age 16 or older. This order of preference was established in order to offset the usual preponderance of female respondents and achieve more balance among the numbers of male and female respondents. Results were tabulated separately for each zone.

A total of 406 valid interviews were completed. Given the present Urban Area population of 45,500, this sample size results in a confidence level of 95% $\pm$ 5%. The number of interviews by zone was:

NW Zone	108
SW Zone	60
NE Zone	97
SE Zone	141

Figure 5.1
Telephone Survey Zones



Rural Communities

The populations of Merrill, Malin, Chiloquin, and Keno are too small to allow for a statistically valid telephone survey. However, in those communities a telephone survey is still the most efficient process of gauging public opinion. The survey of rural residents was not intended to be statistically significant, but merely a process of gathering information. Approximately 50 interviews were completed in each of the four communities. A copy of the survey instrument is included in **Appendix B.**

5.2 TELEPHONE SURVEY RESULTS- KLAMATH FALLS URBAN AREA

This section summarizes the results of the Klamath Falls Urban Area survey. A graphic analysis of responses by zone is provided. In some cases, where appropriate, answers were also tabulated to provide a city-wide response.

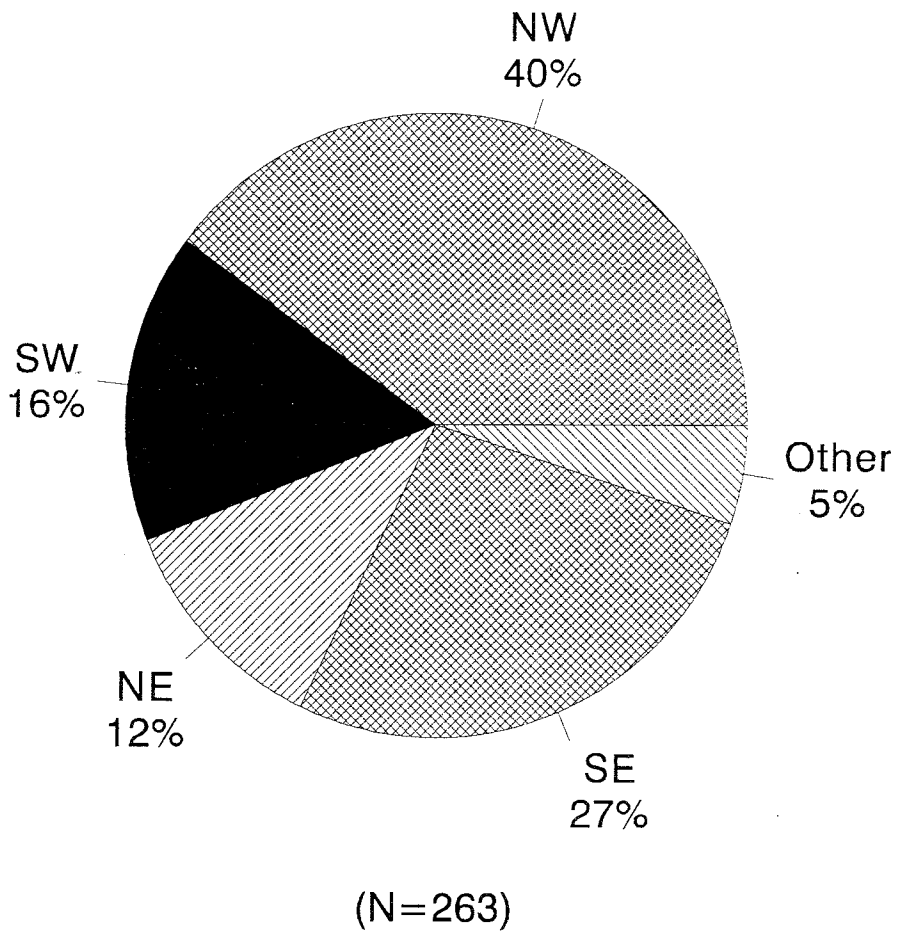
5.2.1 Commute Destination

Respondents were asked to identify the zone in which they worked or went to school.

City-wide

As presented in **Figure 5.2**, 40% of the respondents indicated that they work or go to school in NW. An additional 27% said that they work in SE. The rest were split evenly between NE and SE, with a small percentage commuting out of the area.

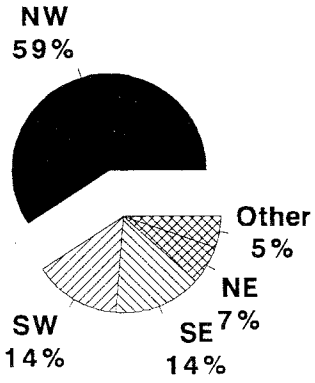
Figure 5-2
Commute Destination - City-wide



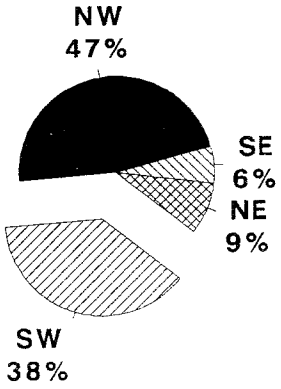
Zones

Figure 5.3 provides an opportunity to examine the percentage of residents who live and work, or go to school, within the same zone. In the SW, NE and SE, the majority of residents commute to jobs outside their zone of residence. Only in the NW do the majority of respondents (58%) live and work in the same zone. The NE zone had the smallest percentage of residents who live and work in the same zone (25%).

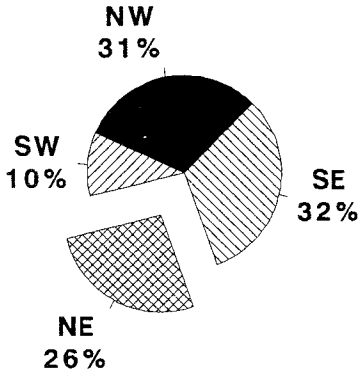
Figure 5-3
Commute Destination - By Zone of Residence



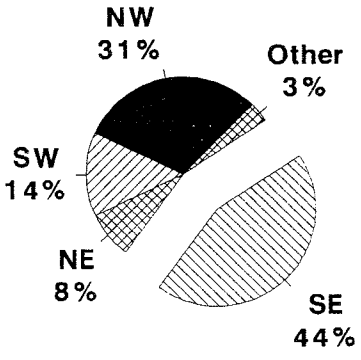
NW Zone (n = 76)



SW Zone (n = 34)



NE Zone (n = 63)



SE Zone (n = 82)

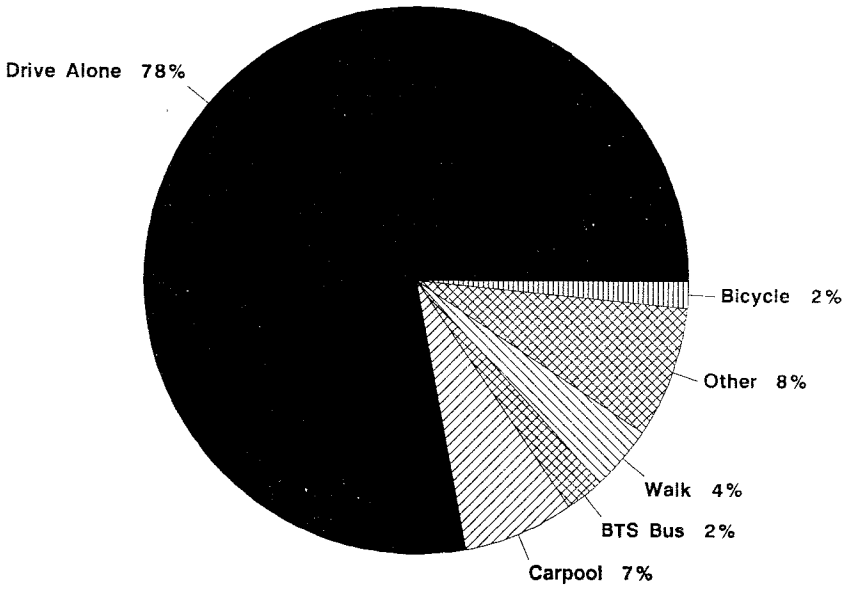
5.2.2 Commute Mode

A series of questions was asked about the respondent's commute. These questions were intended to elicit information about what travel mode respondents used to get to work or school, the timing of their travel, and the number of vehicles available to their households.

Commute Mode

City-wide: Over 3/4 of the respondents (78%) drive alone to work or school as presented in **Figure 5.4**. Approximately 4% walk and only 2% said they use public transit. This breakdown is not unusual in small urban areas.

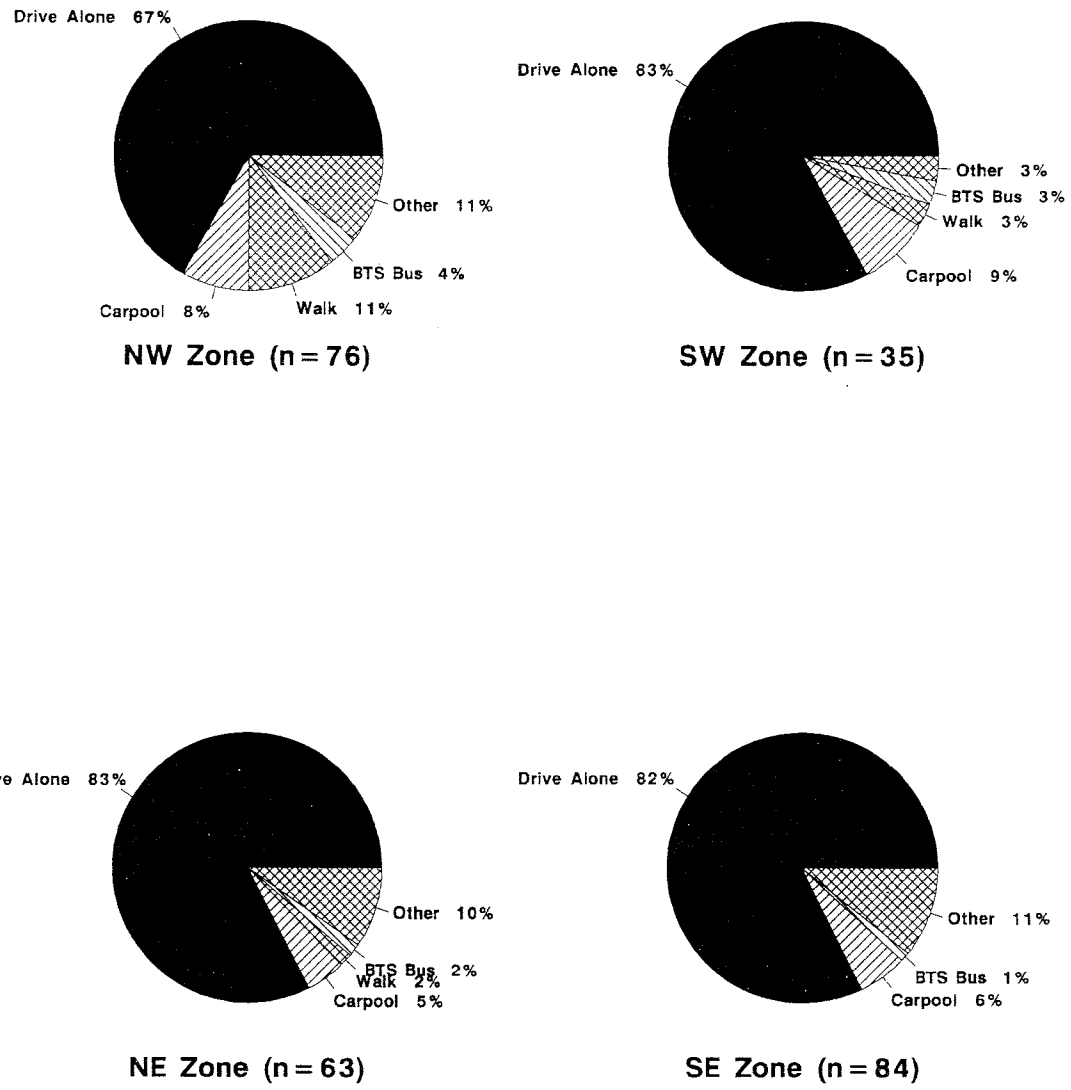
Figure 5-4
Commute Mode - City-wide



(N = 258)

Zones: In the SW, NE and SE, the modal split was very similar to the results for the entire city. Approximately 83% of residents drive alone to work, while another 5-9% carpool. The rest are distributed evenly between BTS bus, walking, or other. **Figure 5.5** displays the results.

Figure 5-5
Commute Mode - By Zone of Residence



In the NW only 67% of respondents said they drive alone. The percentage of people who said they walk (11%) is more than four times higher than any of the other zones. This zone also has the largest percentage of residents who commute by BTS bus (4%). One possible explanation for the high percentage of BTS riders is that this zone has some of the most frequent and comprehensive service in the area.

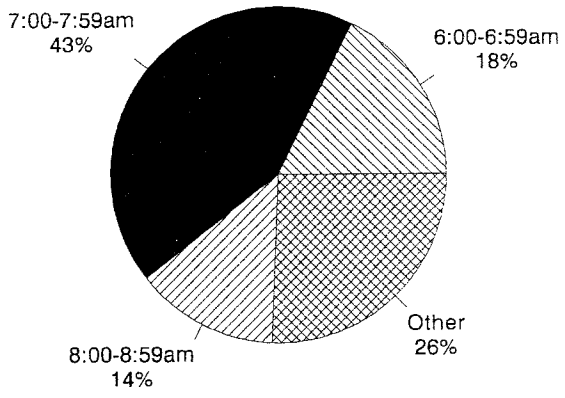
The percentage of people walking may be high due to the proximity of many residences to the Downtown area.

Bad weather does not affect the choice of commute mode, except in the NW where many of the people who walk switch to driving alone.

Timing of Commute

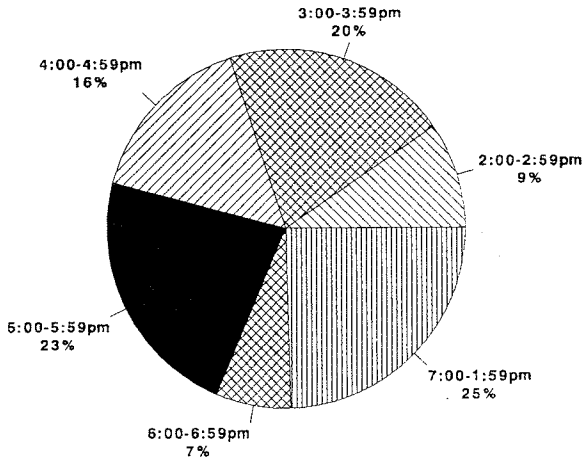
Residents were asked to identify the time of day that they leave home to commute to work or school. They were also asked whether they commute at approximately the same time every day. In most cases respondents leave from home in the morning and return in the evening, although there are some people who have other schedules. 80% of all respondents said that they commute at the same time every day. Roughtly 1/4 of all respondents commute outside traditional commute hours, underscoring the importance of all day service. **Figures 5-6 through 5-7** present the citywide results while **Figures 5-7 through 5-9** show the detail by zone.

Figure 5-6
What Time Do You Leave Home - City-wide



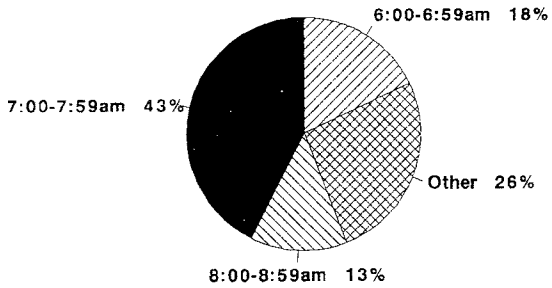
(N=211)

Figure 5-7
What time Do You Leave Work - City-wide

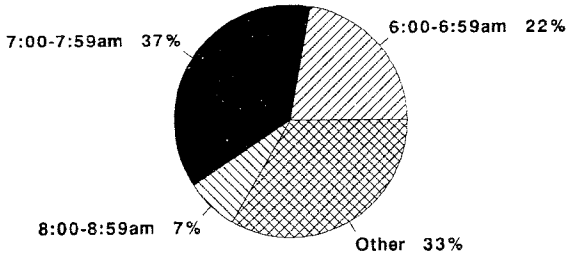


(N = 211)

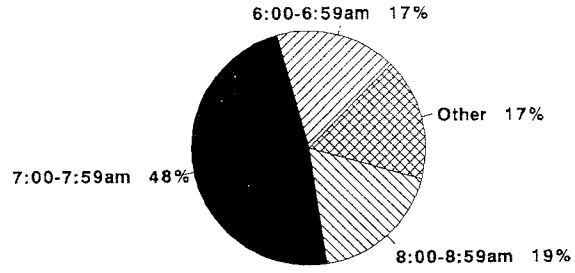
Figure 5-8
What Time Do You Leave Home - By Zone of Residence



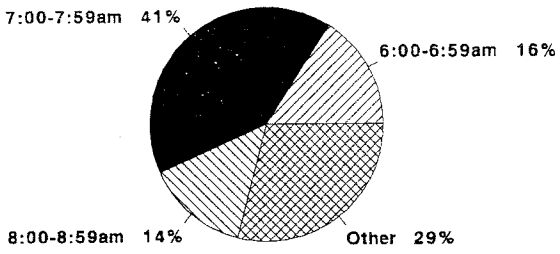
NW Zone (n = 61)



SW Zone (n = 27)

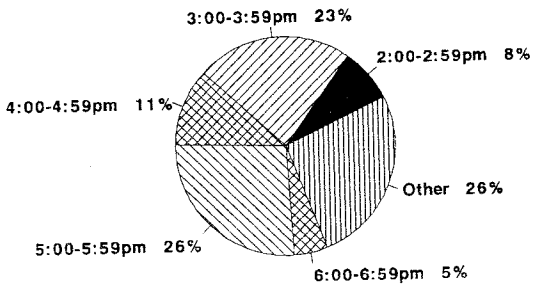


NE Zone (n = 54)

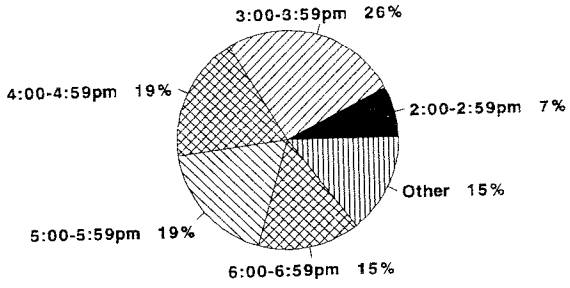


SE Zone (n = 69)

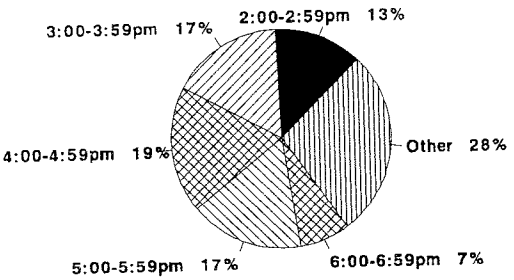
Figure 5-9
What Time Do You Leave Work - By Zone of Residence



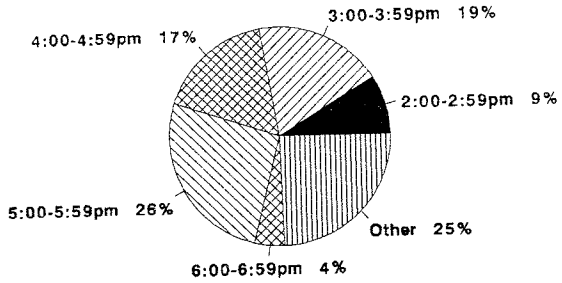
NW Zone (n = 61)



SW Zone (n = 27)



NE Zone (n = 54)



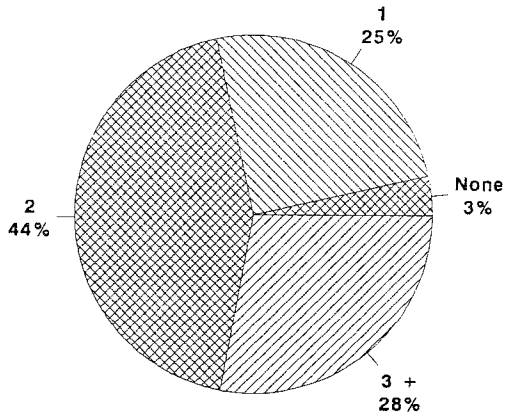
SE Zone (n = 69)

Number of Vehicles Per Household

Respondents were asked how many motor vehicles were accessible for immediate use by persons in their households. Responses for this question were quite similar across all four zones, with no significant differences reported. Due to the similarity, one figure illustrating the city-wide percentages is included. In general there is a strong correlation between the number of vehicles owned and the amount of vehicle use, and a negative correlation between vehicles owned and usage of other modes of transportation including public transit. In other words, the more vehicles there are per household, the more vehicle trips are made, and the less use of public transit and other modes of travel occurs.

City-wide: Only 3% of households reported that they did not have a vehicle as presented in **Figure 5-10**. The largest percentage of households had two vehicles (44%). 25% of all responding households said they had only one vehicle. Over 28% of respondents said they had three or more vehicles.

Figure 5-10
Number of Motor Vehicles In Household - City-wide



(n = 406)

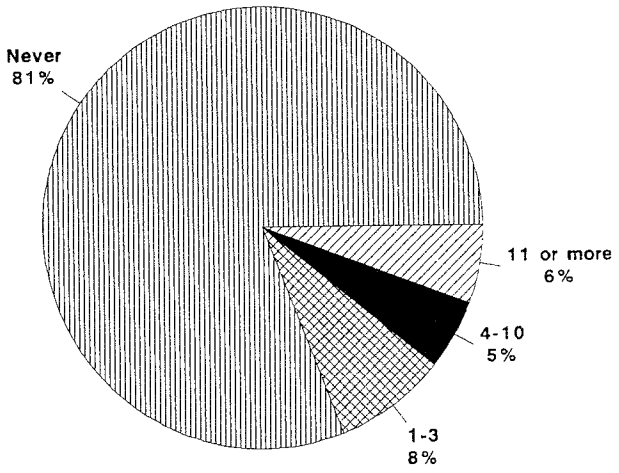
5.2.3 General use of the BTS system

Respondents were asked how many times they had ridden BTS during the past year.

City-wide

More than 3/4 of all respondents (81%) said they had not used BTS at all during the past year. Of those who did use it (see **Figure 5-11**) the majority had been on board less than four times (8%). 5% rode the bus between 4-10 times and only 6% could be considered at least occasional riders (11 or more trips).

Figure 5-11
Use of BTS - City-wide



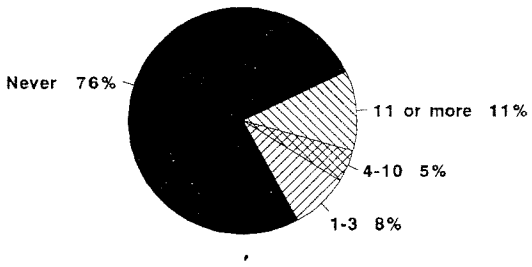
(N = 405)

Zones

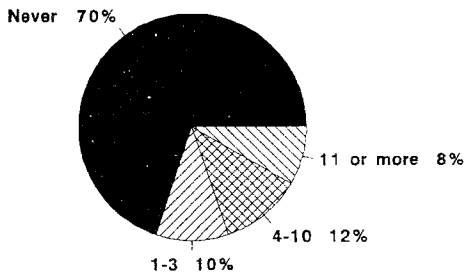
The SW had the largest group of respondents who had used BTS at least once in the previous year (30%). This is surprising given that the SW has the least amount of BTS service. Of the other three zones at least 24% from the NW, 18% from the NE, and 12% from the SE had ridden BTS. **Figure 5-12** displays the results.

The zones with the largest percentage of frequent riders are NW (11%) and the SW (8%).

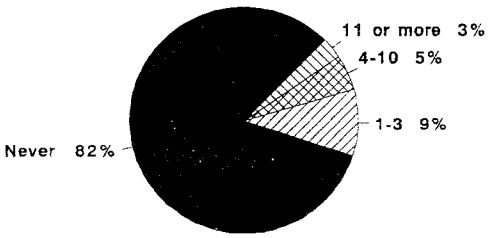
Figure 5-12
Use of BTS - By Zone of Residence



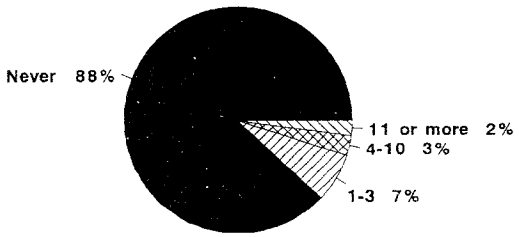
NW Zone (n = 107)



SW Zone (n = 60)



NE Zone (n = 97)



SE Zone (n = 141)

5.2.4 Public Transportation Improvements

Respondents were asked to identify those changes that would encourage them to use transit more often. Respondents were read a list of possible improvements and were allowed to choose as many responses as were relevant to them. Since most of the improvements would have to implemented on a city-wide basis only city-wide results were tabulated. The results are displayed in **Figure 5-13**.

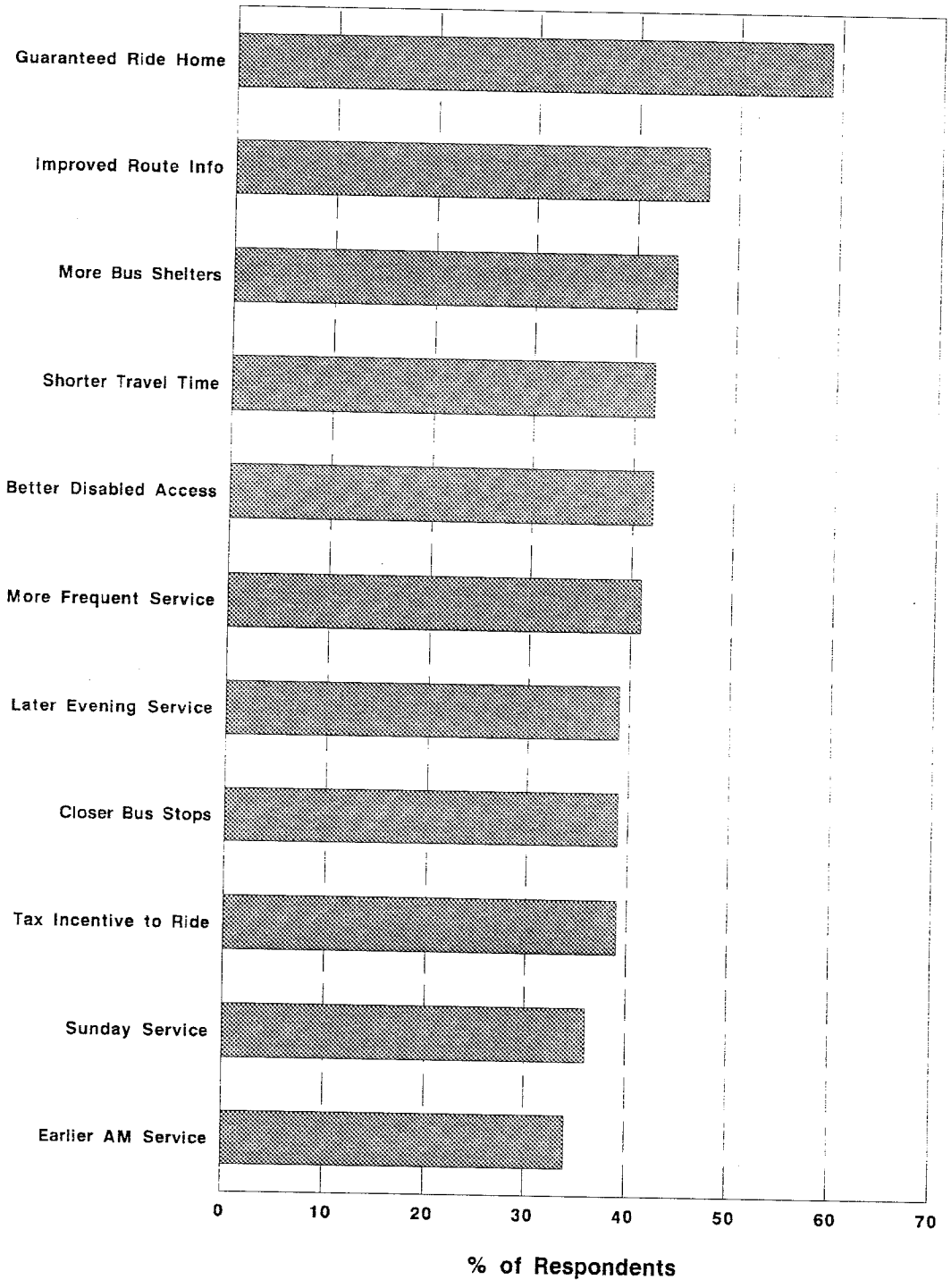
City-wide

A "guaranteed ride home" program was the most popular response with almost 60% of respondents choosing that improvement. Respondents were told that this program was designed only to accommodate "emergency trips" but it is possible that respondents mis-interpreted what an emergency might mean. Generally in surveys for similar systems the choice of a guaranteed ride home has ranked near the middle of incentives.

Following a guaranteed ride program the most important improvements include improved route information, more bus shelters, shorter travel time, better disabled access, and more frequent service. All of these improvements were chosen by at least 40% of the respondents.

The least requested improvements are a tax incentive to ride, Sunday service, and earlier morning service.

Figure 5-13
Public Transportation Improvements - City-wide



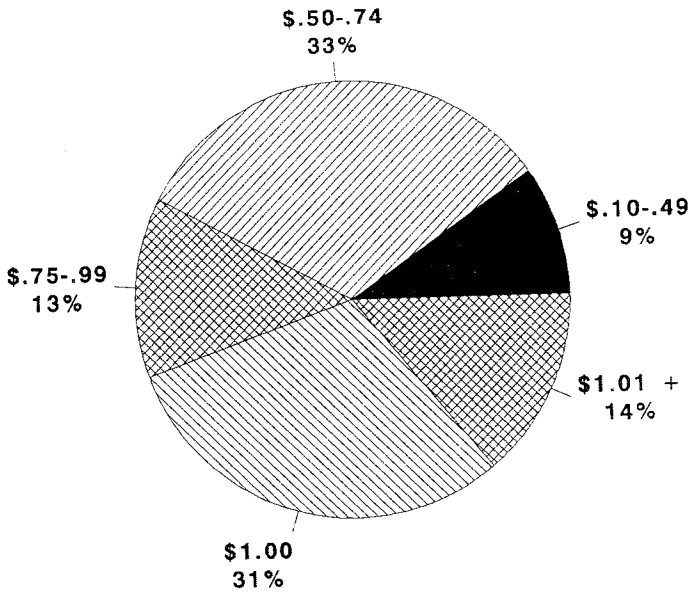
5.2.5 Maximum One-way Fare

Respondents were asked what was the maximum one-way fare they would be willing to pay to take public transportation within the Urban Area. This was an open ended question, allowing respondents to state any amount or fare they chose, regardless of the type of trip or service they considered relevant to them. **Figure 5-14** presents the results.

City-wide

One-third of respondents indicated that they would pay a fare in the range of $.50-.74. The current adult fare is $.70. Another 1/3 (31%) would pay $1.00. Only 14% said they would be willing to spend more than $1.00.

Figure 5-14
Maximum One-Way Fare - City-Wide



(n = 276)

5.2.6 Funding Sources to Support Public Transportation

Respondents were read a list of proposed funding sources and were asked if they favored or opposed each one as a method to support public transportation. Not surprisingly any proposal which had a direct monetary effect on respondents was opposed. The only funding source which a majority of respondents would support was a tax on motel or hotel rooms (59%). Funding sources rejected by respondents include:

- Increase in vehicle registration fees
- Increase in payroll tax
- Increase in property tax
- Increase in local gas tax
- Specific developer fees

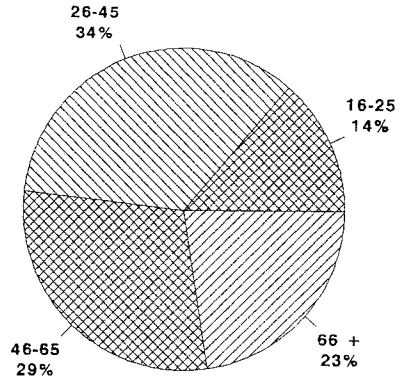
5.2.7 Respondent Demographics

The telephone survey elicited information from respondents about their age and occupation. Gender was perceived and recorded by the interviewer. These demographic characteristics are discussed below.

Age

Age distribution of the sample at all levels of aggregation was reasonably representative. (See **Figure 5-15**). The highest percentage of residents were between 26-45, which corresponds to the age group that is currently largest. The survey slightly over-sampled the senior citizens (age 66+) and under sampled those between 46-65. However, the sample is reasonably consistent with the 1990 census data.

Figure 5-15
Age - City-wide

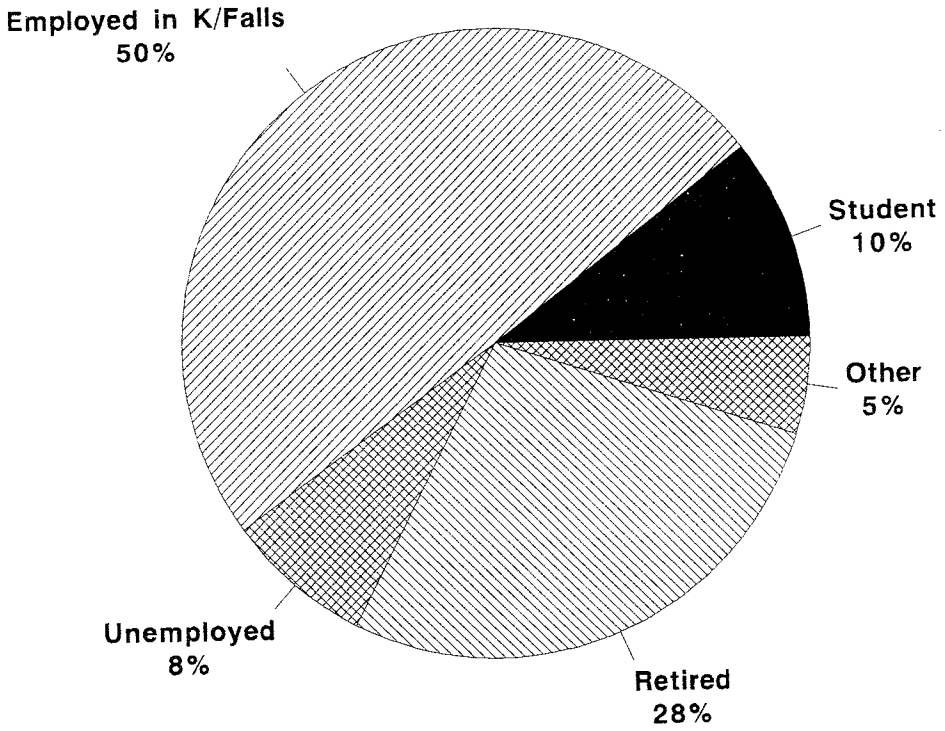


(n = 406)

Occupation

Respondents working in the Klamath Falls Urban Area comprised an even 50% of the sample, followed by retirees (28%), students (10%), unemployed (8%), and others (5%). (See **Figure 5-16**).

Figure 5-16
Occupation - City-wide



Gender

The surveyor requested a male respondent first because telephone surveys typically oversample women, who are more likely to be at home. The survey was successful in achieving an even split between men and women.

Male	49%
Female	51%

5.3 TELEPHONE SURVEY RESULTS- RURAL COMMUNITIES

This section summarizes the responses of the rural respondents by community. Because the communities are so different from each other there is no benefit in aggregating the data.

Respondents were asked a screening question to determine if they lived within five miles of either Keno, Chiloquin, Merrill, or Malin. If the answer was no then the interview was terminated.

Currently none of these communities are served by public transit.

5.3.1 General Use Of Public Transit

Respondents were asked if they, or someone in their family, would use public transit if it met their needs. 62% of the respondents in Chiloquin said yes, followed by 56% in Malin, 47% in Keno, and 46% in Merrill. (See **Figure 5-17**).

5.3.2 Use Of Public Transit Within The Community

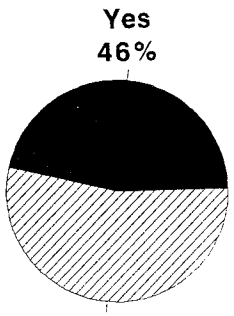
Respondents who expressed an interest in transit were asked a number of questions about their desire to use local public transportation within their communities.

Public transit in the community

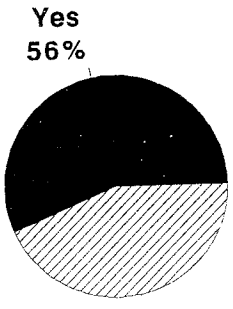
When asked if they would use public transit within their communities very few respondents said no. Again, only those who expressed an interest in transit were asked this question

	Yes	Maybe	No
Chiloquin	81%	16%	3%
Malin	56%	22%	22%
Keno	46%	50%	4%
Merrill	42%	46%	13%

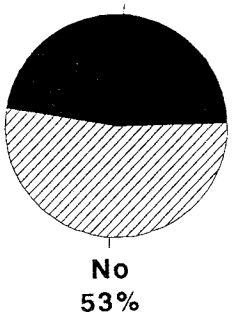
Figure 5-17
Would You Use Public Transit?



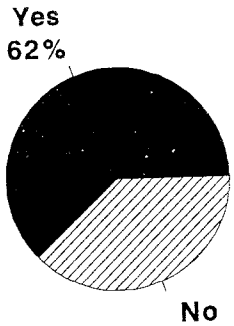
Merrill (n = 52)



Malin (n = 48)



Keno (n = 51)

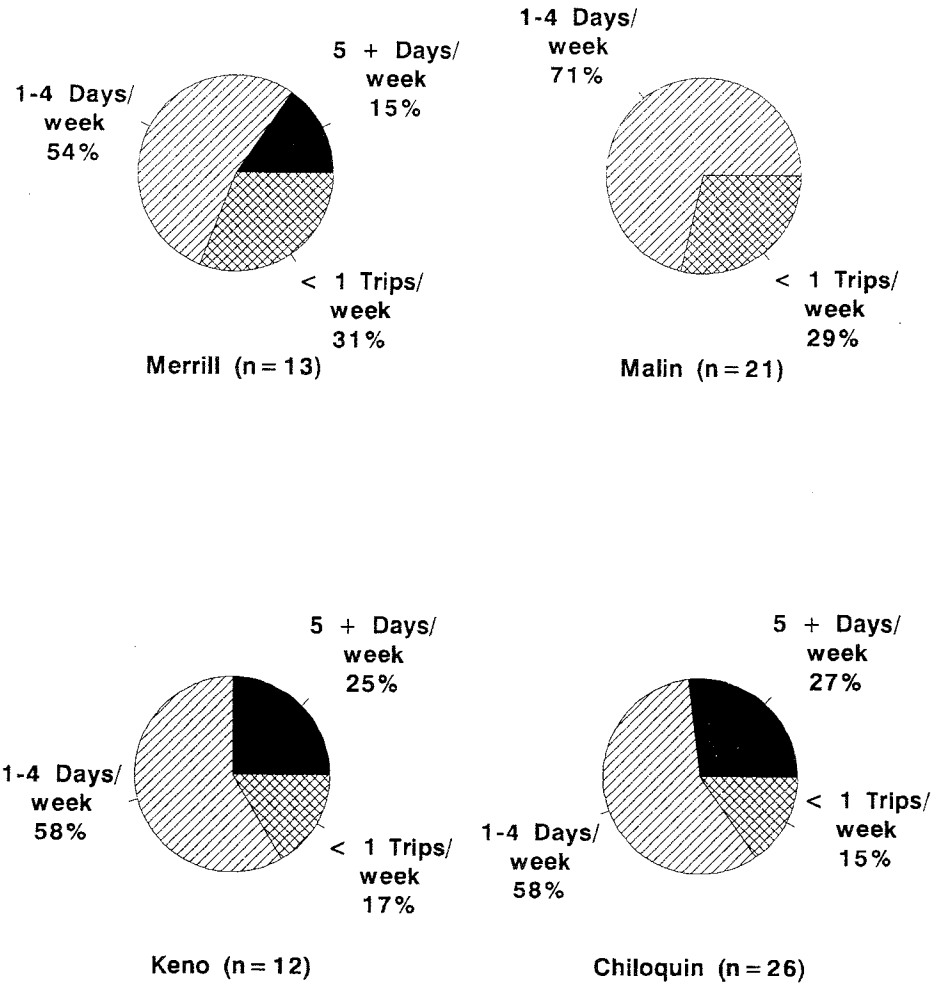


Chiloquin (n = 50)

Frequency of Use (Local)

Interviewers asked those respondents who replied yes, or maybe, to the above question to estimate how many times per week they would use the service. The results are displayed in **Figure 5-18**. In all four towns, a majority of those interested would need service more than once a week, but not every day.

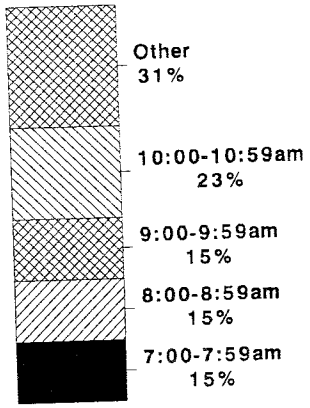
Figure 5-18
How often will you ride? (Local)
(Asked only of those expressing interest in local service)



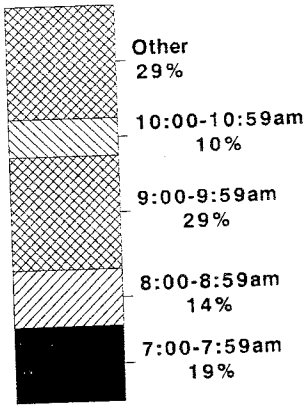
Trip Time

Respondents were asked what time they would like to leave home. Responses are displayed in **Figure 5-19**. Return trip times are presented in **Figure 5-20**. Although there is some concentration of commute-hour demand, the high number of late-morning departures and early-afternoon returns reflects the predominance of shopping and errands among small-town local transit trips.

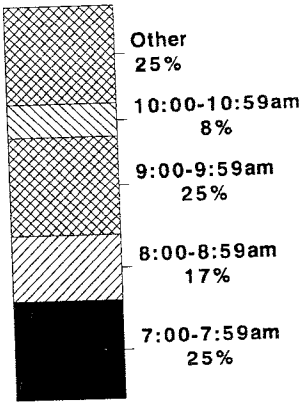
Figure 5-19
What time would you like to leave home



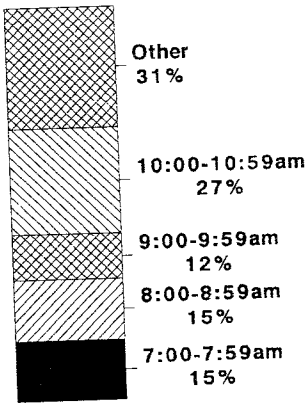
Merrill (n = 13)



Malin (n = 21)

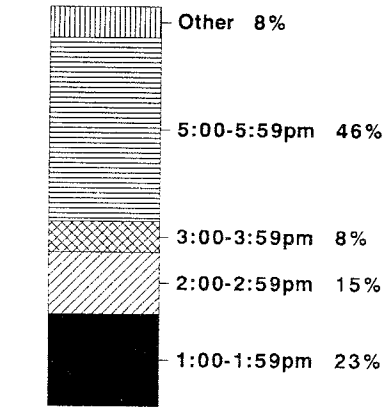


Keno (n = 12)

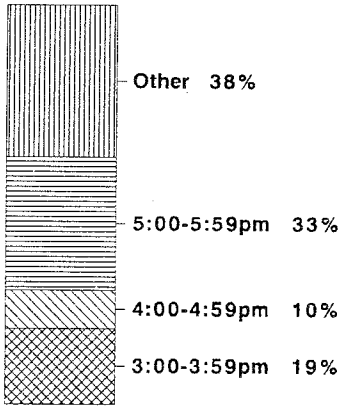


Chiloquin (n = 26)

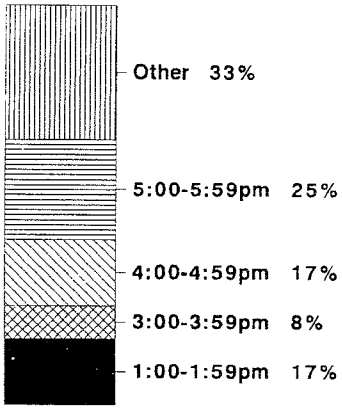
Figure 5-20
What time would you like to return?



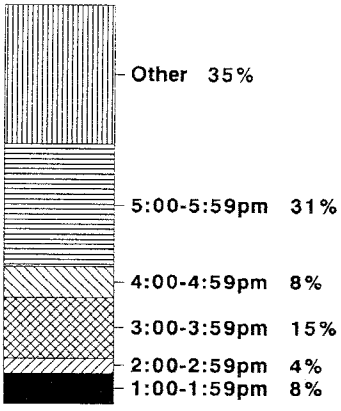
Merrill (n = 13)



Malin (n = 21)



Keno (n = 12)

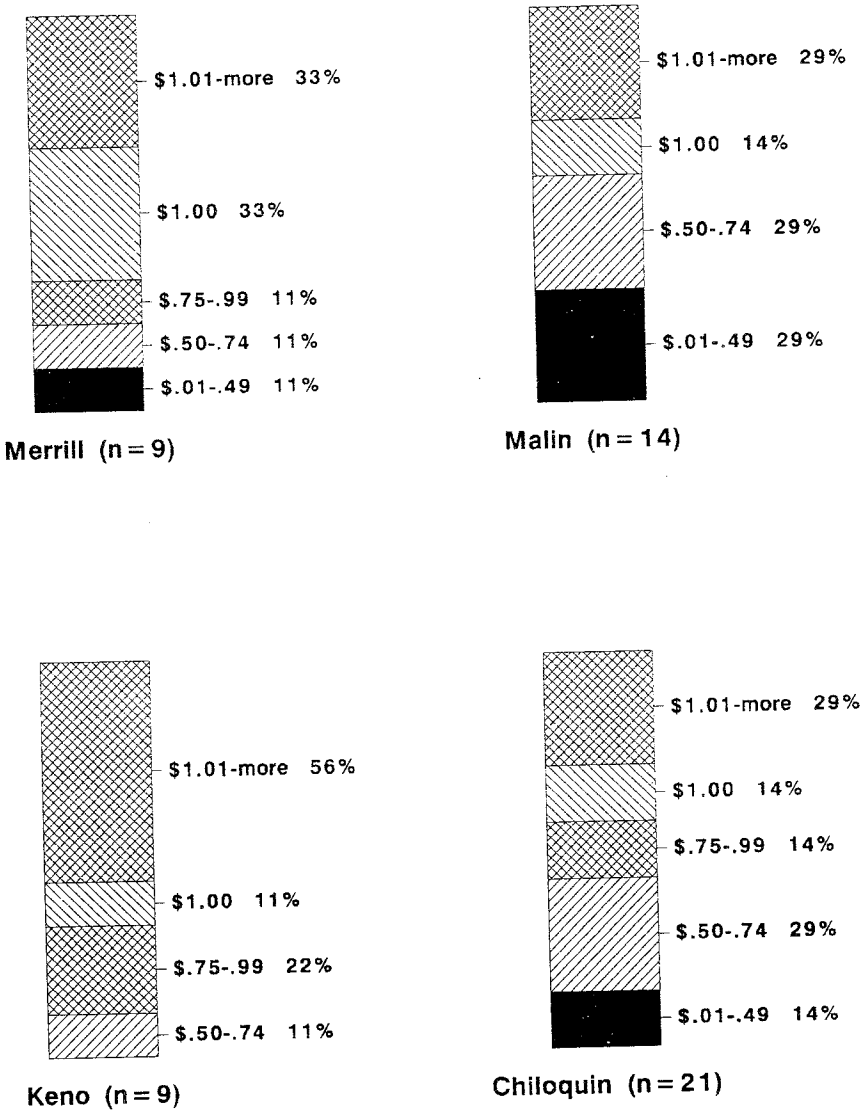


Chiloquin (n = 26)

Fares

Respondents who were interested in local service were asked what one-way fare they would be willing to pay for in-town service. This was an open ended question, allowing respondents to enter any amount or fare they chose. Results are shown in **Figure 5-21**. The median response was around $1.00 in all four communities, though slightly lower in Chiloquin.

Figure 5-21
Maximum One-way Fare



5.3.3 Public Transit to Klamath Falls

During the second part of the interview respondents were asked several questions about public transit service to Klamath Falls.

Would you use public transit to Klamath Falls

Respondents who indicated that in general they would use public transit were asked if they would use a public transit service to Klamath Falls. As shown in **Figure 5-22**, at least 70% of the respondents from each community said yes.

Frequency of Use

For those who expressed interest in transit to Klamath Falls, responses were very similar in all four communities. The majority would use the service more than once a week, but not every day. Results are presented in **Figure 5-23**.

Trip Time

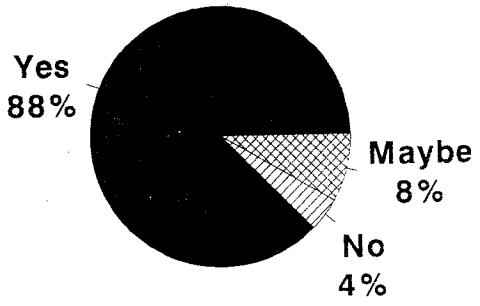
Respondents were asked what time they would prefer to leave home for Klamath Falls and what time they would prefer to return. The estimated travel time from most of these communities to central Klamath Falls is 30-40 minutes.

In Merrill, Keno, and Chiloquin there was a fairly even split between traditional morning commute trips (35-45% between 6:00-8:59am) and late morning trips (36-52% between 9:00-10:59am). None of the three had a particularly strong peaking hour. Between 15-27% of the respondents indicated that they would leave during the afternoon.

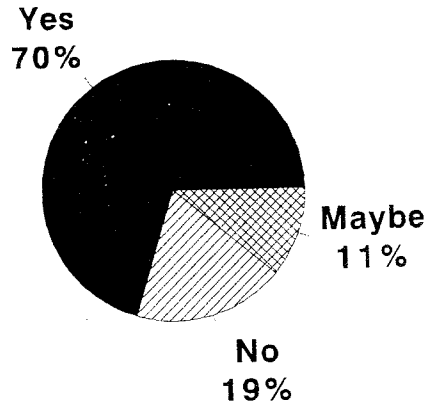
Responses from Malin residents indicate that only 1/5 (21%) of those interviewed would depart during the morning commute hours. Fully half said they would like to leave during the late morning from 9:00-10:59am. The results are shown in **Figure 5-24**.

For the return trip the results were more divergent, although approximately 1/4 of the respondents in each community want to return home outside the 1:00-5:59pm period. **Figure 5-25** presents the data for return trips.

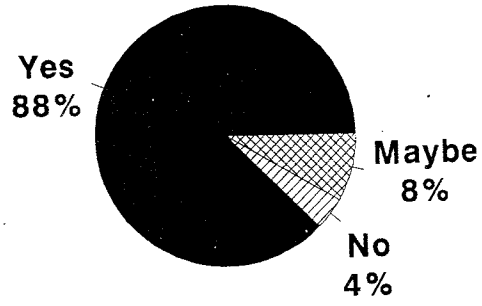
Figure 5-22
Would you use public transit to Klamath Falls?
(Asked only of those who would use public transit)



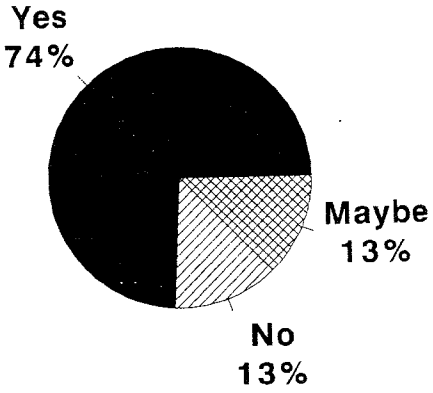
Merrill (n = 24)



Malin (n = 27)

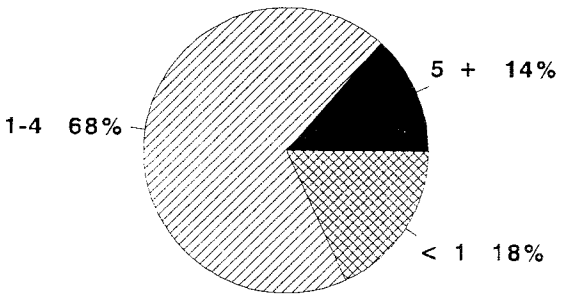


Keno (n = 24)

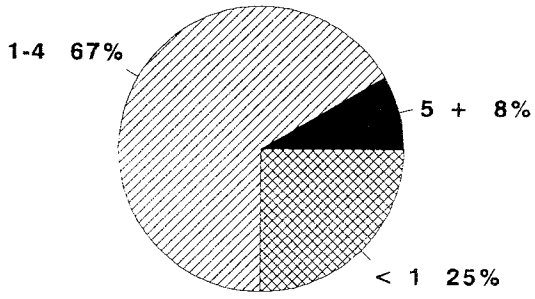


Chiloquin (n = 31)

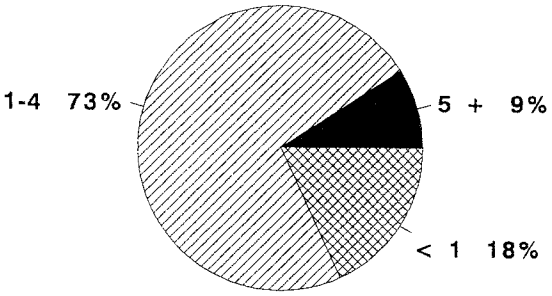
Figure 5-23
Number of trips per week



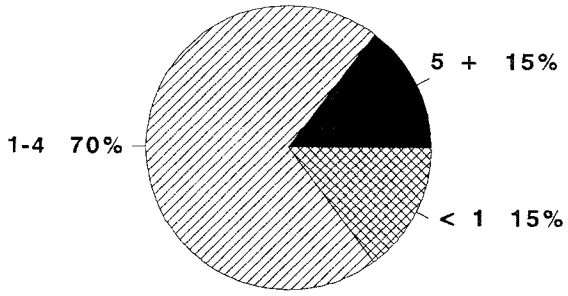
Merrill (n = 22)



Malin (n = 24)

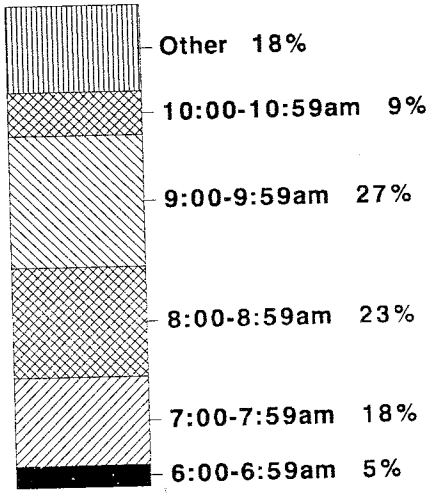


Keno (n = 22)

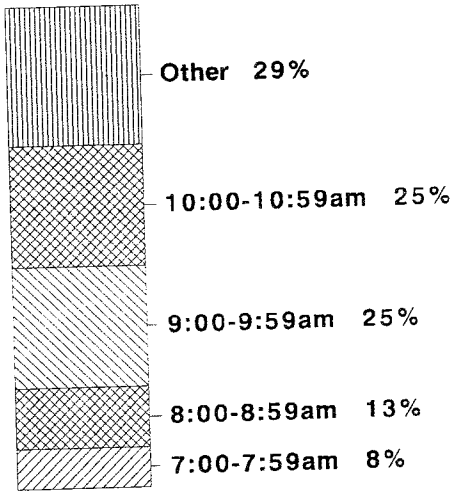


Chiloquin (n = 27)

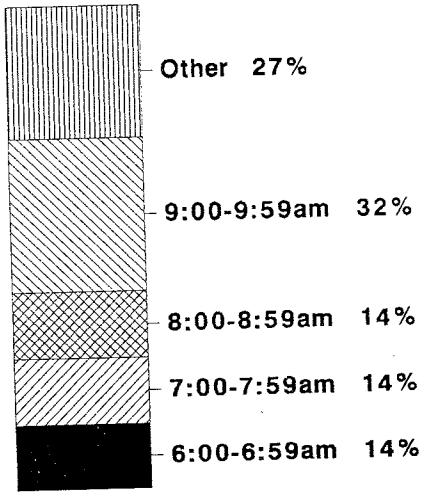
Figure 5-24
What time would you leave home



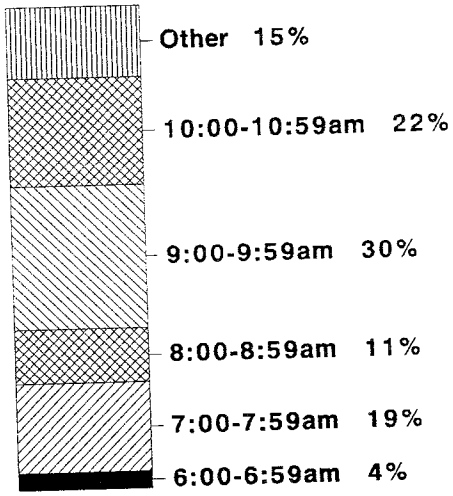
Merrill (n = 22)



Malin (n = 24)

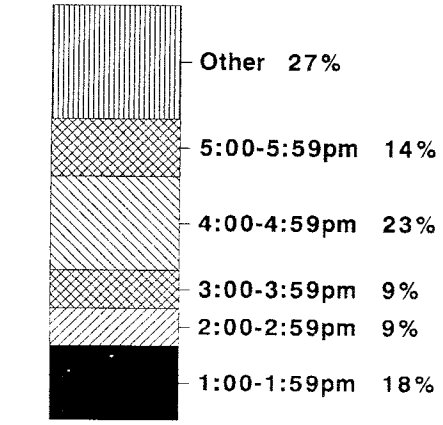


Keno (n = 22)

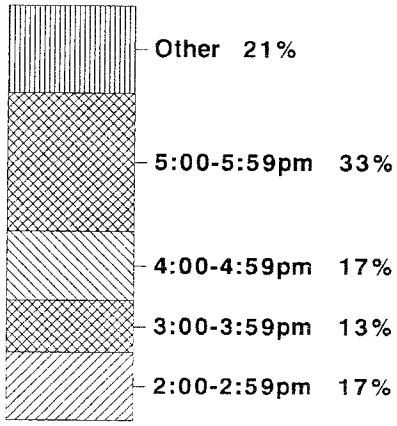


Chiloquin (n = 27)

Figure 5-25
What time would you like to return home



Merrill (n = 22)



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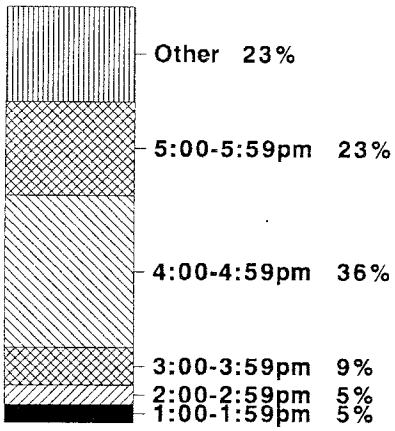
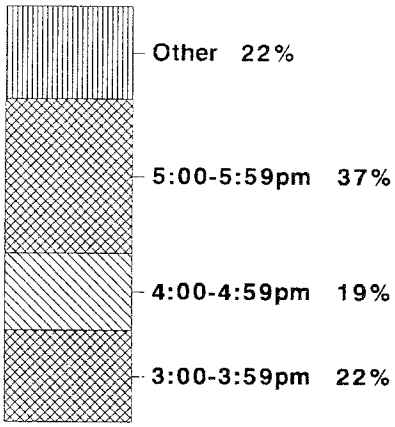


Keno (n = 22)



Chiloquin (n = 27)

Maximum One-Way Fare

Respondents were asked what was the maximum one-way fare they would be willing to pay for service to Klamath Falls. This was an open-ended question, allowing respondents to state any amount they chose. The results are displayed in **Figure 5-26**.

The median fares in each community were:

Merrill	$3.01 or more (38%)
Malin	$1.01-$2.00 (53%)
Keno	$1.00 or less (44%)
Chiloquin	$2.01-$3.00 (39%)

5.3.4 Sources Of Funding For Public Transit

Respondents were asked whether public transit service should be publicly funded, regardless of whether they would use it. With the exception of Keno, more than 50% of the respondents from each community said public transit should be publicly funded. The results are presented in **Figure 5-27**.

When questioned about possible sources of funding for public transit rural respondents produced answers which were very similar to responses from Klamath Falls residents. Not surprisingly, any funding source which would have a direct monetary impact on respondents was opposed.

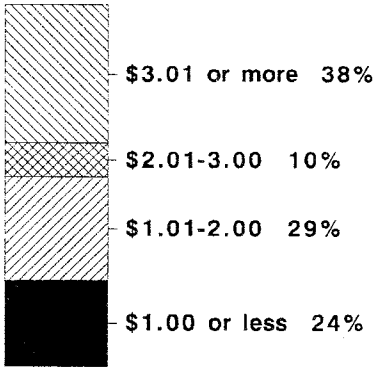
Respondents throughout the four communities would approve a tax on motel and hotel rooms, as well as specific developer fees to support public transit. The majority of respondents would not support:

- Increase in vehicle registration fees
- Increase in payroll tax
- Increase in property tax
- Increase in local gas tax

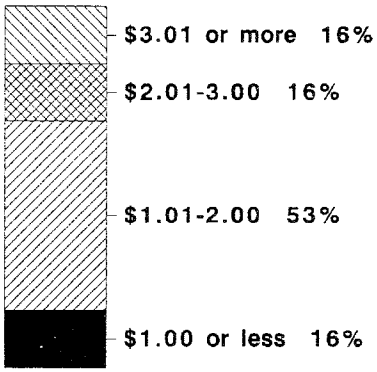
Number of Vehicles in Household

All of the households in both Merrill and Malin indicated that they had at least one vehicle available (See **Figure 5-28**). In addition, 98% of the homes in both Chiloquin and Keno stated that they had at least one vehicle. These responses do vary slightly from the census data. It is possible that many of the homes which do not have a vehicle also do not have a phone, and thus would not have been reached by the telephone survey.

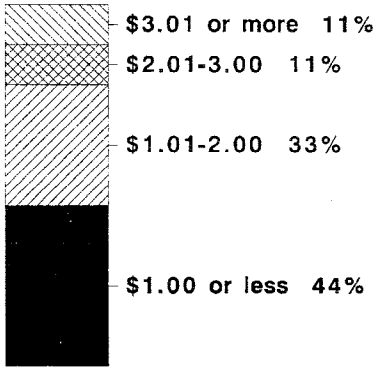
Figure 5-26
Maximum One-Way Fare



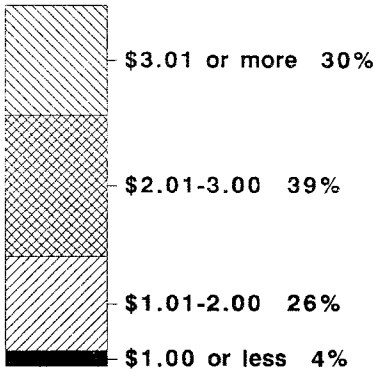
Merrill (n = 21)



Malin (n = 19)

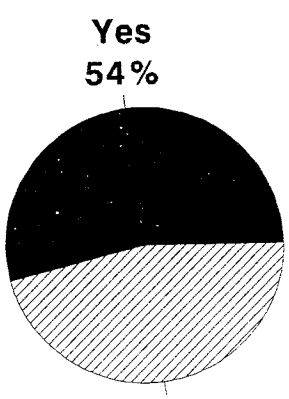


Keno (n = 18)

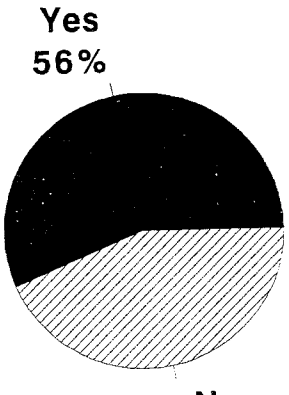


Chiloquin (n = 23)

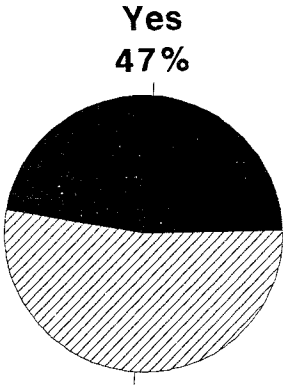
Figure 5-27
Should transit be publicly funded



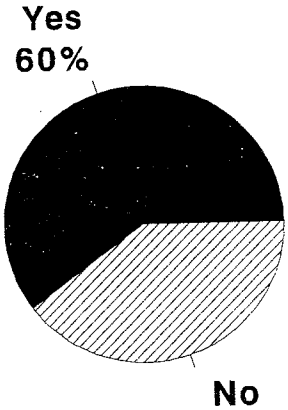
Merrill (n = 52)



Malin (n = 48)

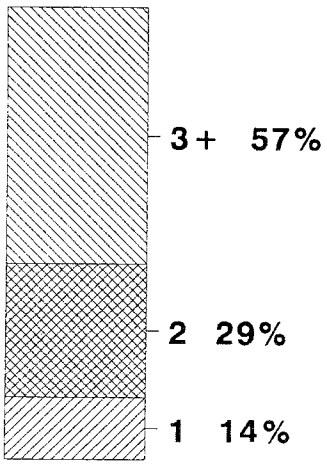


Keno (n = 51)

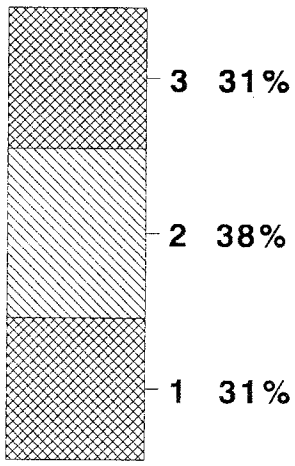


Chiloquin (n = 50)

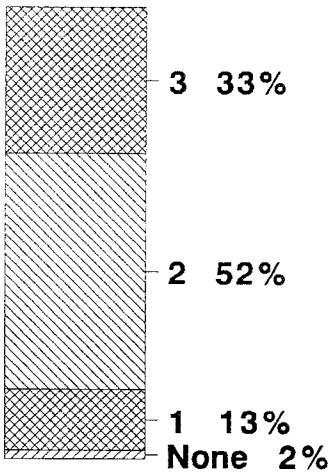
Figure 5-28
Number of Vehicles in Household



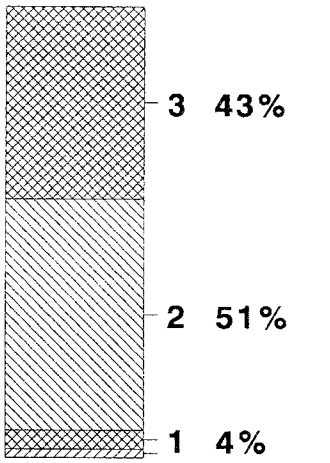
Merrill (n = 51)



Malin (n = 48)

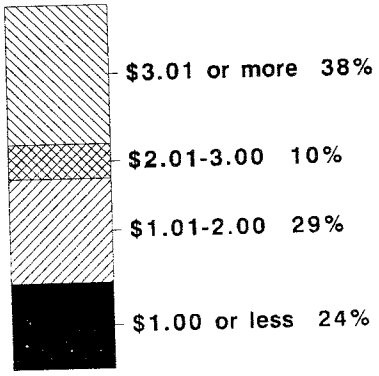


Keno (n = 51)

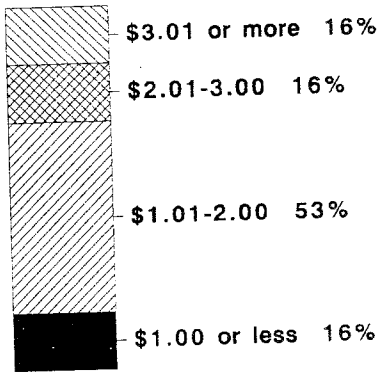


Chiloquin (n = 50)

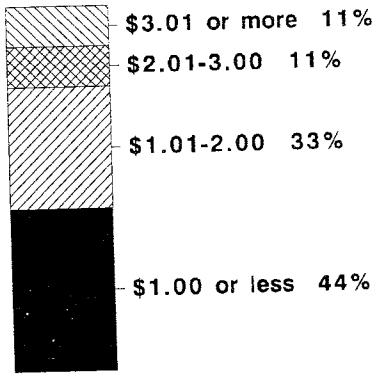
Figure 5-29
Maximum One-Way Fare



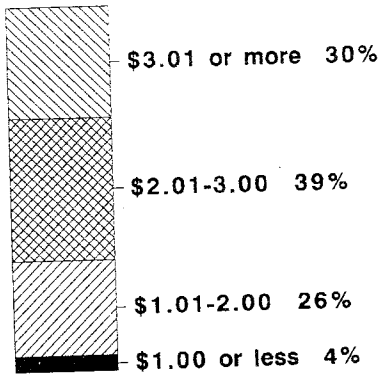
Merrill (n = 21)



Malin (n = 19)



Keno (n = 18)



Chiloquin (n = 23)

5.3.4 Sources Of Funding For Public Transit

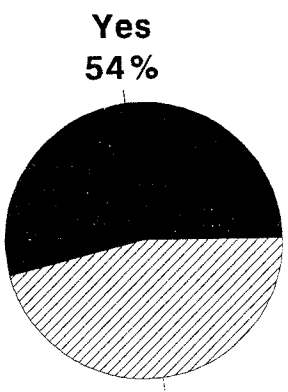
Respondents were asked whether public transit service should be publicly funded, regardless of whether they would use it. With the exception of Keno, more than 50% of the respondents from each community said public transit should be publicly funded. The results are presented in **Figure 5-27**.

When questioned about possible sources of funding for public transit rural respondents produced answers which were very similar to responses from Klamath Falls residents. Not surprisingly, any funding source which would have a direct monetary impact on respondents was opposed.

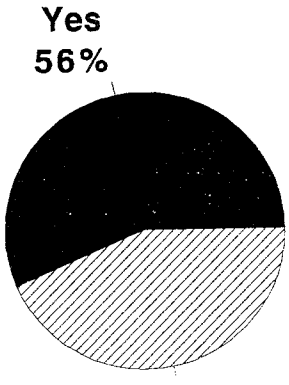
Respondents throughout the four communities would approve a tax on motel and hotel rooms, as well as specific developer fees to support public transit. The majority of respondents would not support:

- Increase in vehicle registration fees
- Increase in payroll tax
- Increase in property tax
- Increase in local gas tax

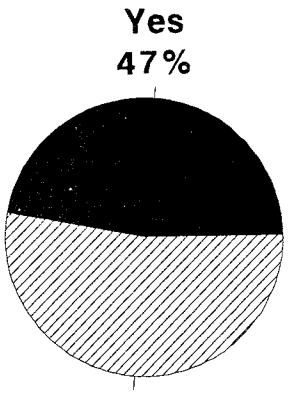
Figure 5-30
Should transit be publicly funded



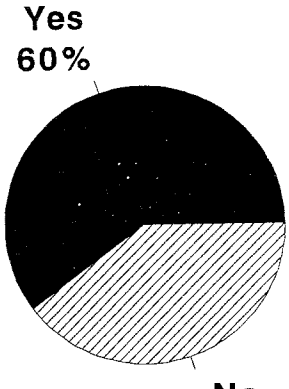
Merrill (n = 52)



Malin (n = 48)



Keno (n = 51)

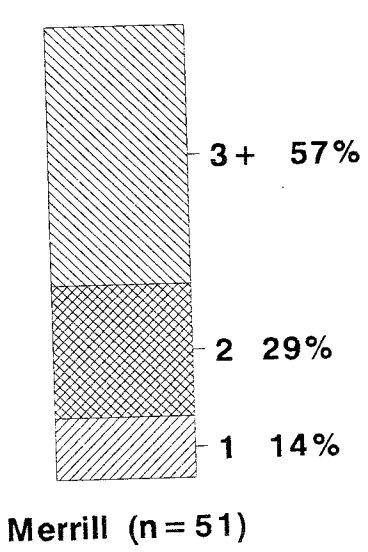


Chiloquin (n = 50)

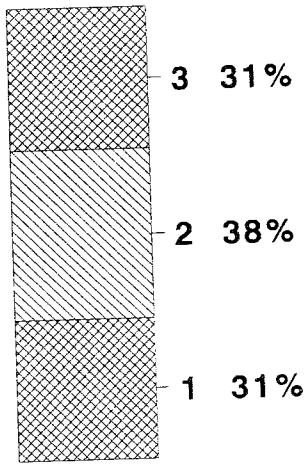
Number of Vehicles in Household

All of the households in both Merrill and Malin indicated that they had at least one vehicle available (See **Figure 5-28**). In addition, 98% of the homes in both Chiloquin and Keno stated that they had at least one vehicle. These responses do vary slightly from the census data. It is possible that many of the homes which do not have a vehicle also do not have a phone, and thus would not have been reached by the telephone survey.

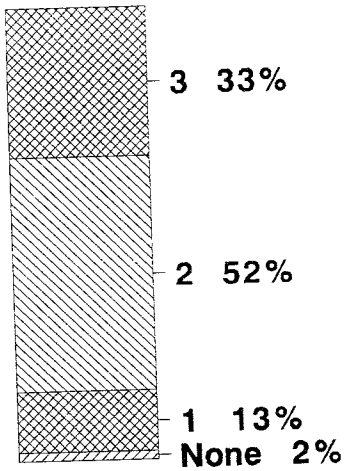
Figure 5-31
Number of Vehicles in Household



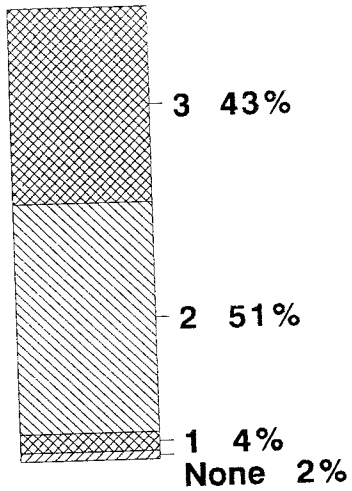
Merrill (n=51)



Malin (n=48)



Keno (n=51)



Chiloquin (n=50)

CHAPTER 6. FIXED ROUTE SERVICE PLAN

For the BTS service area, the following needs have been identified through the existing conditions evaluation:

- faster service to attract commuters.
- more bidirectional service, replacing one-way loops.
- faster crosstown service between OIT and the southeast area.
- more frequent service.

This chapter presents a program of improvements aimed at meeting these needs. The No Growth scenario addresses these needs *without increasing operating cost.* This scenario was presented in the draft version of this chapter and implemented by BTS on August 28, 1995. Throughout the remainder of this chapter, the existing system refers to the system that existed before August 28, while the No Growth Scenario refers to the system that was implemented on that date.

In addition, this chapter outlines the benefits of service expansion scenarios up to a system of 9 buses, which may be appropriate within 20 years as the region grows.

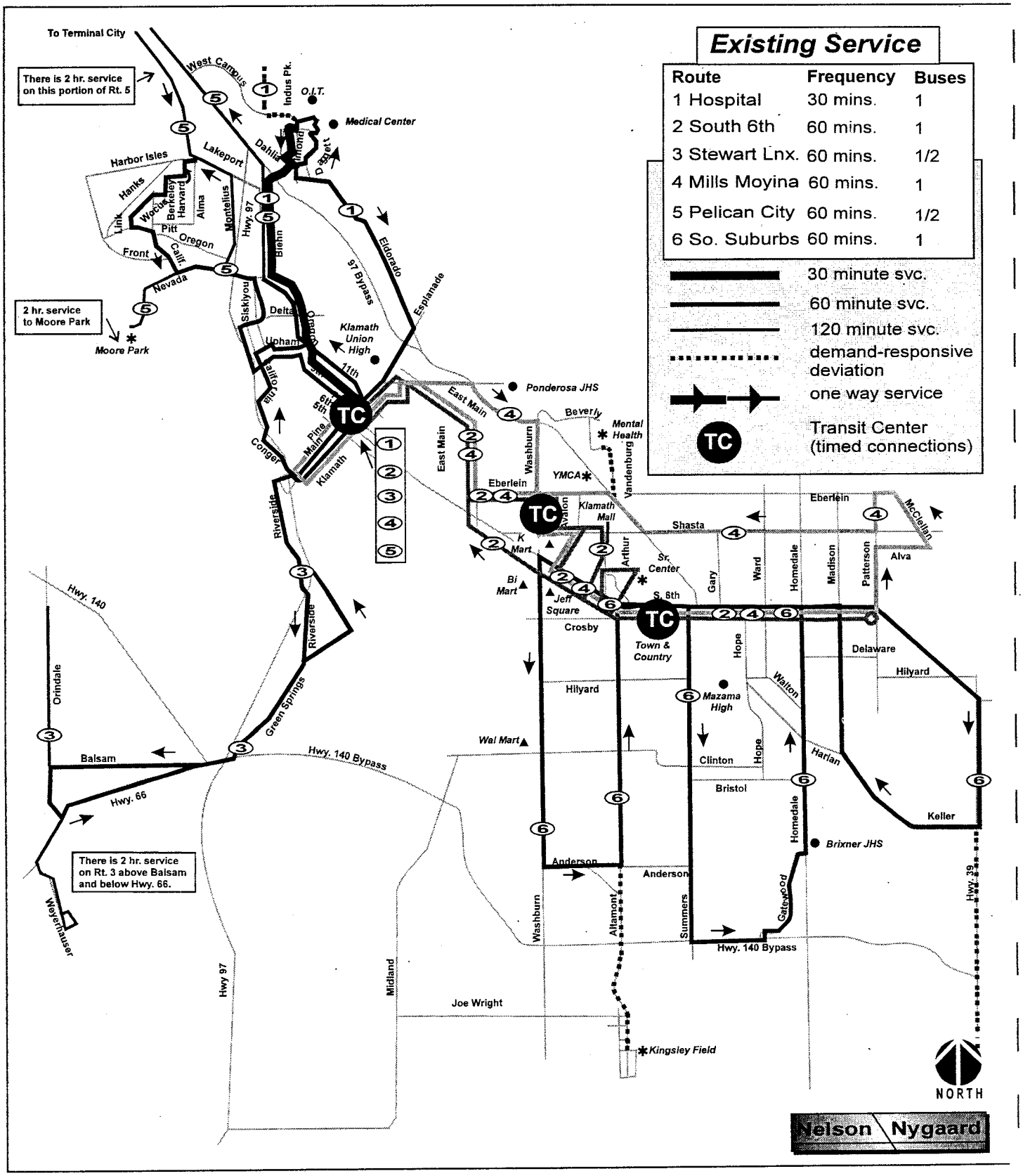
6.1 PLANNING ISSUES AND TRADEOFFS

6.1.1 Timed Transfer

Timed transfer points are virtually essential in a small-city or suburban system. By scheduling buses to meet at key transfer points at the same time each hour, transit systems allow passengers to make connections without long delays. Passengers are often ambivalent about timed-transfer, since they would prefer not to have to transfer at all. *The following service plans aim to minimize the number of people who must transfer, and the number of times people must transfer, to complete their trips.* However, it is essential to note that no transit system can run direct, no-transfer service from everywhere to everywhere else, so the only way to serve passengers going from anywhere to anywhere else is to make it convenient for them to make connections.

The old "existing" system (**Figure 6-1**) is based on *three* timed transfer points. At the Reed Transit Center downtown, Routes 1, 2, 3, 4, and 5 all meet. At Fred Meyer, Routes 2 and 4 connect with each other again. Finally, at Town & Country transit center, Route 2 connects with Route 6.

Figure 6-1
Existing System



This is an unusually high number of transfer points for such a small system, and it makes the operations complex to manage and difficult to understand. *All of the following plans simplify this system by eliminating the transfer point at Town & Country, and consolidating the system around two major transfer points*, one downtown and one in the vicinity of Klamath Mall or Jefferson Square.

The transit center near Klamath Mall is referred to in this plan as the Eastside Transit Center, since its exact permanent location is not established. Any site within 1/2 mile south or east of Klamath Mall (including Jefferson Square, Town & Country, or the fairgrounds) could be used. It would depend on which site offered the best amenities and safety considerations for passengers and drivers. Jefferson Square has been selected for interim implementation purposes, but the final site could be elsewhere in this area if better amenities are available. Sites northwest of Klamath Mall, including Fred Meyer, will not be viable as timed transfer points because of tight running time on two of the proposed routes.

6.1.2 Equity vs. Efficiency, Fixed Route vs. Demand Responsive Service

The old route structure provided all parts of the service area with essentially the same level of service, even though some parts of the service area are much more transit-oriented than others.

Equity must remain an important concern in any agency whose funding base draws equally from throughout a district. However, this must be balanced against the poor cost-effectiveness of running largely unused service to many areas at many times of day. *This plan solves this dilemma by focusing fixed route service on those areas where it has the potential to be productive.* This means eliminating fixed route service in a few unproductive areas, while enhancing it in other areas where the demand is greatest. However, in order to ensure that all BTS-area residents still have access to service, the Dial-a-Ride system could be used to provide a lifeline service to areas with no fixed routes. The Dial-a-Ride system, normally limited to elders and people with disabilities, would also provide service to members of the general public whose origins or destinations were more than 1/2 mile from a fixed route.

Three areas are identified for conversion from fixed route to Dial-a-Ride service:

- The Wocus turnaround area around North Highway 97 & Lakeport.
- The Orindale Road/Green Acres area north of Stewart-Lennox.
- The Henley area.

In addition, there are newly developing areas in the region which would be served in the same way, such as the foothills developments well north of Shasta Way.

These areas have several features in common. They have only sparse development, typically residential units on very large lots or interspersed among agricultural or other open space uses. Because of this low density development pattern, they have no potential to generate enough development to support fixed route service. *Most studies of transit and land use identify 5 units per acre as the minimum density required to support fixed route transit service.* This plan generally proposes maintaining fixed route service in some areas where densities are as low as 1-2 units/acre, particularly in order to serve denser areas or isolated sites with important transit destinations. However, in areas where average densities are below 1 unit per acre, there is simply no point in trying to provide fixed route service. Demand-responsive service is a far more efficient way to meet the needs of these areas.

Demand in these areas is so low, in fact, that we believe it can be accommodated on the Dial-a-Ride system without adding capacity to that system. The Dial-a-Ride system's minimum commitment is to meet all requests that are received a day in advance. This commitment would be extended to non-elderly, non-disabled persons whose origin or destination is more than 1/2 mile from a fixed route. In the worst case, this might cause some reduction in Dial-a-Ride availability for *same-day* reservations, but these are a lower priority for the Dial-a-Ride system. More aggressive trip-chaining in the dispatch of Dial-a-Ride service could also provide increased capacity.

It should be noted that much of the South Suburbs area is of such low density that fixed route service has only marginal hope of ever being productive. This plan originally considered eliminating fixed route service to much of this area as well. However, since the proposed routes have some time to spare, we recommend retaining fixed route service to this area, but restructuring it to make it as productive as possible. The long range solution for maximum productivity is to encourage dense development, including mobile home parks, apartments, and major commercial destinations to locate along established transit routes, reducing the pressure on BTS to expand its service territory. New development which requires new transit service (that is, development beyond the limits of the proposed route network) should generate the incremental funding needed to support that expansion.

6.2 NO-GROWTH IMPROVEMENT PLAN

Substantial improvement can be made in the existing system without adding any operating cost. A no-cost improvement plan is shown in Figure 6-2. This plan, which was implemented on August 28, 1995, provides the following advantages:

- Half-hourly service linking South 6th, the Eastside Transit Center, Klamath Mall, Fred Meyer, downtown, and the OIT area. No transfers would be required to travel between these points, and expanded evening service would be provided.

- Elimination of most one-way loops, leaving bidirectional service on virtually all segments.

- Dramatic improvement in the simplicity of the system.
- Consistent hourly service pattern for Pelican City and Stewart Lennox, replacing the present bi-hourly variations.

The No-Growth scenario is actually an increase in revenue hours, but it does not increase paid driver hours. Because of shift requirements in the present labor contract, the current system pays for some hours that are not being used. The proposed scenario rearranges shifts to make better use of these hours. The scenario may generate some increase in fuel and other vehicle-related cost, but driver time, which is the overwhelming element of operating cost, should not increase significantly.

The following describes the route structure in detail:

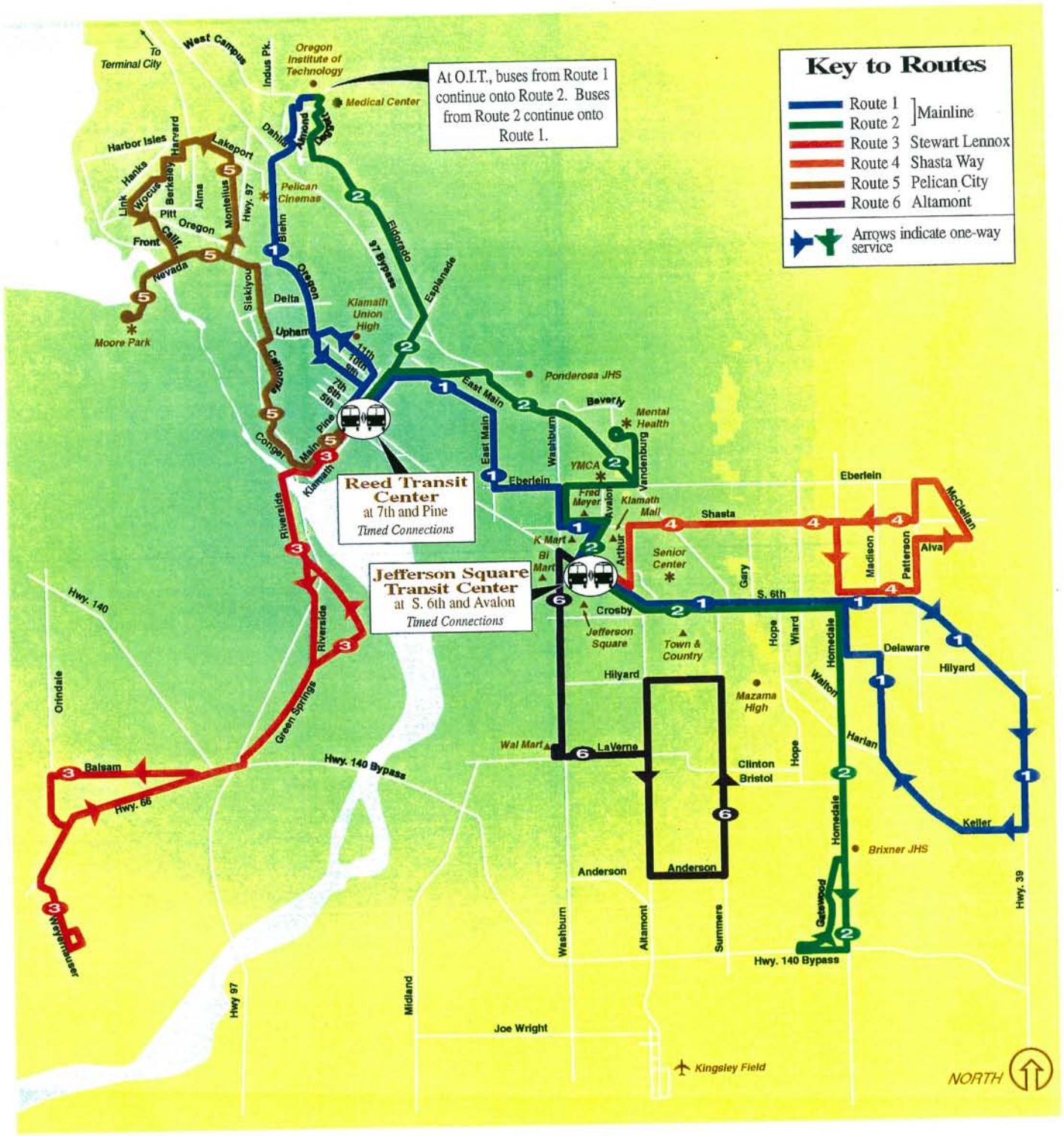
6.2.1 Routes 1 and 2-Mainline

Routes 1 and 2 jointly constitute a "mainline" providing half-hourly service linking South 6th, Klamath Mall, Fred Meyer, downtown, and the OIT area. Each route runs hourly, so that half hourly service is available wherever they run together.

At OIT, the north end of the route, arriving Route 1 buses continue onto Route 2, and arriving Route 2 buses continue onto Route 1. This is necessary because Routes 1 and 2 would require 2 buses each if considered alone, but require only 3 buses if they are run together in this way. In addition, the through-routing at OIT preserves the possibility of riding through, say, from the Pelican Cinemas on Biehn St. to a destination on Eldorado. In fact this linkage is improved, like many linkages in the system, because it can now be done the same way in both directions.

Between Downtown and the Eastside (Jefferson Square) Transit Center, Route 1 would operate both ways via East Main and Eberlein while Route 2 would operate both ways via Main, Eastside Bypass, Beverly, Vandenburg, and Eberlein, serving the Mental Health center, Juvenile Hall, and YMCA. Both routes would serve Fred Meyer.

Figure 6-2
No-Growth Improvement Scenario



To speed up this busiest of BTS lines, minor deviations along South 6th have been eliminated. Town & Country is no longer a transfer point, and the present offstreet stop is considered unsafe by the drivers. The fairgrounds deviation, which serves the Senior Center, is replaced by a demand responsive deviation. This leaves the mainline as a simple, straight, fast service running the length of South 6th between Avalon and Homedale. The only reason to deviate in this area is to serve a timed-transfer point, currently located at Jefferson Square. Mainline buses no longer lay over at this transit center. Instead, they pass through in both directions while the Route 4-6 bus waits there.

At South 6th & Homedale, Routes 1 and 2 separate to replace parts of the present Route 6. Route 1 continues via South 6th to loop clockwise via Highway 39, Keller, and Madison back to South 6th. (It approaches 6th via Delaware, Homedale in order to have a common stop with Route 2 at Albertsons.) Route 2 continues via Homedale to the bypass, right on the bypass, and right through the Gatewood area, returning via Homedale. The remainder of Route 6 (Washburn, Summers Lane, and Altamont) is replaced by the new Route 6: Altamont described below.

The mainline constitutes a majority of the BTS fixed route system, using three buses out of a total of five. The rest of the system consists of feeder routes to this mainline.

6.2.2 Route 3-Stewart Lennox and Route 5-Pelican City

These routes operate with one bus switching back and forth between them to provide hourly service on both. However, these routes are simplified by eliminating the bi-hourly variations and one way loops. Instead, all trips run hourly by the same route, using the segments that the ridecheck has shown to be most productive.

On Route 3, this means eliminating the Orindale Road/Green Acres branch. This branch serves mostly "ranchette" style development at average densities well below one unit/acre, and only one boarding was recorded all day during the survey. Although drivers sometimes report picking up three or even four people per day in this branch, this still fails to justify running the branch as a fixed route service. Instead, we recommend running all service to the Weyerhaeuser branch, which generates more ridership. The Weyerhaeuser branch is also closer to future industrial development areas, and it will be easier to modify service for those areas if the Weyerhaeuser branch is established as the basic route.

On Route 5, the ridership is almost all on the segments served by both variants. We recommend establishing the simpler Pelican City/Moore Park variant as the basic route, and using Dial-a-Ride to serve the Wocus turnaround. In the expansion scenarios (see below) fixed route service is also provided on Highway 97 as far as West Campus Drive, serving the Super 8 motel and other development in that area.

Route 5 is also simplified by running both directions via California/Siskiyou, replacing the complicated one-way variation that currently exists. Route 1 operates both directions on

9th/10th/Oregon/Biehn. This eliminates the need to operate on Upham Street, a segment that causes severe problems in the winter, while still providing service within a short walk of all homes in that area.

Routes 3 and 5 operate a 13-hour service day, from 6:00 AM to 7:00 PM.

6.2.3 Route 4-Shasta Way and Route 6-Altamont

New Routes 4 and 6 share a single bus, in the same way that Routes 3 and 5 do. Each route is a half-hour round trip, and would be served once an hour. The two routes would both connect with a mainline at a new Eastside (Jefferson Square) Transit Center.

Route 4: Shasta Way runs from the Eastside (Jefferson Square) Transit Center via Shasta Way to Homedale. It then loops via Homedale, South 6th, Patterson, and through Moyina Heights on the present route, returning via Shasta Way. The service to South 6th is intended to provide access to Albertsons, and also to provide an alternative for Route 2 passengers destined for points east of Homedale on Shasta Way.

Route 6-Altamont provides two way service between the Eastside (Jefferson Square) Transit Center and WalMart via Washburn. It continues east on LaVerne from WalMart and ends in a loop via Altamont, Hilyard, Summers, Anderson, Altamont back to LaVerne, covering the segments of Altamont and Summers served by the present Route 6.

On weekdays, Routes 4 and 6 operate a 13-hour service day, from 6:00 AM to 7:00 PM.

6.2.4 Weekend Service

Since stop-by-stop ridership data was not collected for Saturdays, there is less information to support recommendations for changing weekend service. We recommend operating the entire system of five buses on Saturdays, as is currently done, from 10:00 AM to 5:00 PM. However, performance data by segment should be monitored on the new system. If some segments carry little or no ridership on Saturdays, it may be appropriate to eliminate them, and possibly reallocating them to a skeletal Sunday service consisting of the Mainline only or to longer Saturday hours on the Mainline.

6.3 6-BUS EXPANSION SCENARIO

If a single bus could be added to the system, the restructuring shown in Figure 6-3 is recommended. This system provides the following improvements over the No-Growth Scenario:

- Direct service between Pelican City and OIT, and from Pelican City to Klamath Mall and Eastside Transit Center.

- Express service linking OIT with Eastside Transit Center in under 20 minutes, compared to 30 minutes in the No-Growth Scenario. This would speed up access to OIT from all points south or east of Eastside Transit Center. The difficulty of this trip is a major issue in the existing system, and although the No-Growth Scenario eliminates a transfer from this trip, it does not speed up the trip significantly.

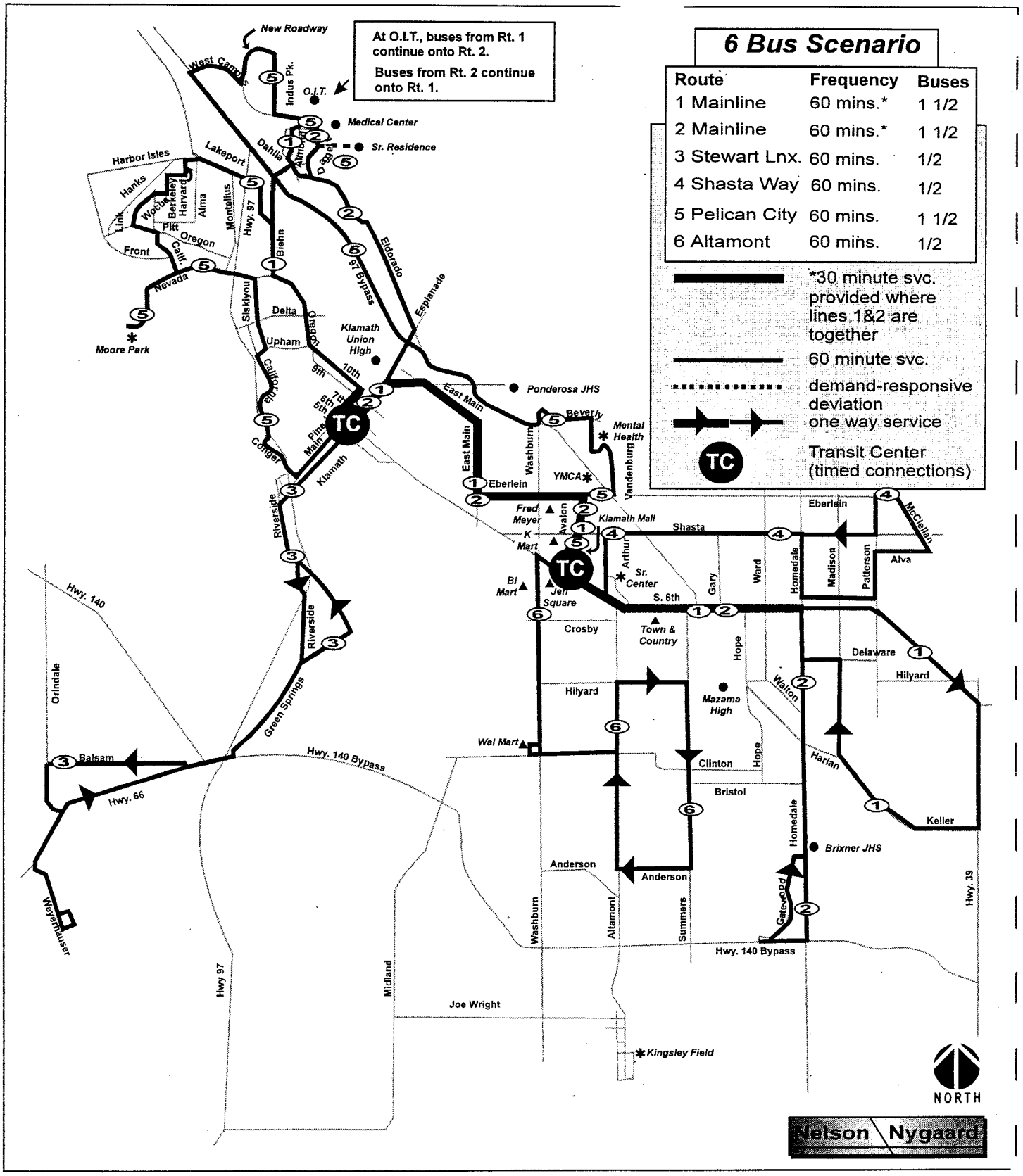
- All-day service to the industrial park west of OIT and the Mental Health Center and Juvenile Hall on Vandenburg, replacing demand-responsive deviations to these points.

- Service to commercial destinations on North Highway 97 east of West Campus Road.

These benefits are achieved by adding a bus to Route 5. The Pelican City loop would be replaced by a bidirectional route through Pelican City (eliminating service on Montelius, where there is virtually no development and therefore no ridership) continuing via Pelican Cinemas, Highway 97 to the Super-8 Motel, and then via West Campus road and a new roadway through the industrial park to the hospital and OIT. From here, the route would return to the Highway 97 bypass and use the bypass from there to Washburn. (Stops should be provided on the slow segment of the bypass at Esplanade and at Main.) From Washburn the route would run via Beverly, Vandenburg serving the Juvenile Hall, and Mental Health, then via Eberlein, Avalon to the Eastside Mall Transit Center.

With the extension of Route 5, Route 2 is modified to run like Route 1 between downtown and Eastside Transit Center (via East Main, Eberlein), instead of via the bypass.

Figure 6-3
6-Bus Expansion Scenario



6.4 FURTHER EXPANSION UP TO 9 BUSES

Since frequency is the single most important determinant of the attractiveness of the service, BTS's next priorities after the 6-bus system should be to enhance the frequency of service. Upgrading frequencies to 30 minutes on Routes 3, 4, 5, and 6 would add three more buses to the system for a total of nine. Figure 6-4 shows the resulting system.

This improvement should be a higher priority than any further expansion of the coverage area. If new development outside the present coverage area demands expanded service, the incremental cost of the service should be at least partly borne by the development, so that BTS can focus its resources on maintaining service quality rather than excessively dissipating its resources.

6.5 FACILITY AND CAPITAL IMPROVEMENT NEEDS

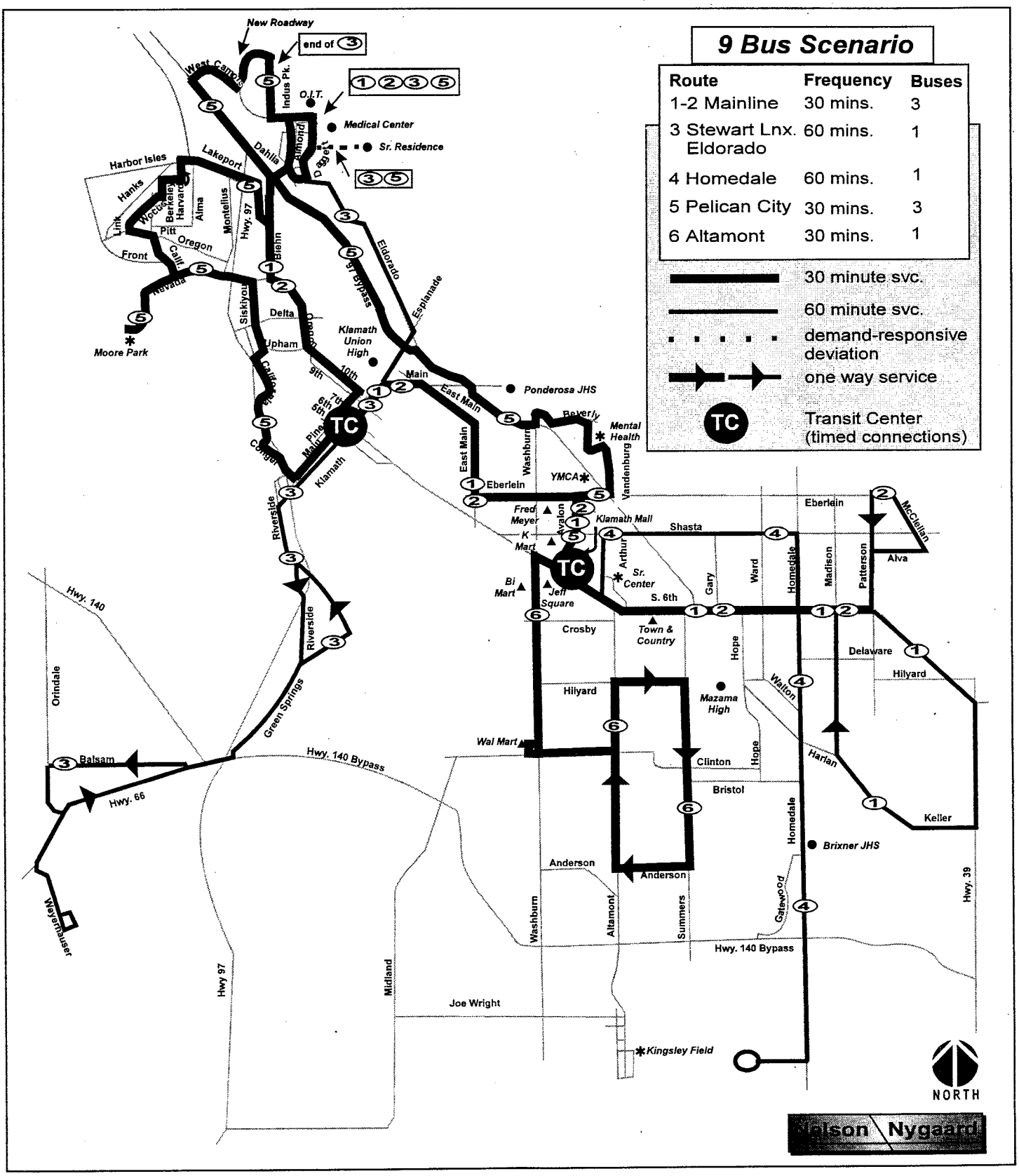
There are several physical improvements that will be needed for the proposed system to operate effectively. Some of these are BTS projects, while others are the purview of the County or City.

6.5.1 Eastside Transit Center

A new transit center site is needed somewhere in the triangle defined by Klamath Mall, Jefferson Square, and Town & Country. Any one of those sites would be acceptable, as would a site in the Fairgrounds area or anywhere else in between. The transit center would provide connections between one feeder bus (Routes 4 and 6) and the Mainline buses. Mainline buses would not lay over at the transit center, but would pass through as the Route 4/6 bus waits. A minimal facility would require:

- Room for three buses to be present at once.
- A safe way for buses to arrive and depart to/from South 6th in either direction, and to Shasta Way.
- A safe, ADA-compliant way for passengers to walk from one bus to another, and a safe place to wait.
- A restroom that drivers can use. Frequently, this is provided by arrangement with a nearby business.

Figure 6-4
9-Bus Expansion Scenario



Other desirable amenities include:

- Shelters
- Benches
- Phones
- Information Displays

Commercial destinations are certainly preferable as transit center sites, since this permits better use to be made of the high quality of service that the center provides. As the above list of requirements indicates, the needs of a minimal transit center are so simple that they can frequently be built into new developments with minimal added cost to the developer, simply through coordinated planning between BTS, the city or county planning staff, and the private parties involved.

6.5.2 Traffic Control Needs

BTS implementation of the proposed routes would require improvements to several unsafe intersections. These include:

- Washburn & LaVerne, in front of WalMart
- Avalon & Shasta

These intersections are unsafe for the current volumes of cross-traffic, even before BTS is considered. If signals cannot be funded, four-way stops are strongly recommended as an interim solution to make these intersections safe for BTS, motorists, and pedestrians.

6.6 EVALUATION OF ALTERNATIVES

Figure 6-5 shows our best estimate of potential ridership and productivity in each of the scenarios described above.

The ridership estimates are based on common industry experience about the effect of each kind of service improvement proposed. They reflect the expected effect of the service changes after they have been in place and aggressively marketed for 1-2 years.

The No-Growth scenario (which increases revenue hours but not paid hours) has the potential to increase ridership from the present 285,000 to almost 350,000. Because this scenario makes better use of resources that already exist, the productivity of the system will go up somewhat.

Further expansion will increase ridership further, but productivity should not be expected to rise further solely as a result of these improvements. Major expansions usually have a slight downward effect on productivity, but this does not necessarily mean that they are a bad idea. Rather, the effect on productivity must be balanced against the benefits to the community of higher transit ridership.

Finally, these estimates do not take into account any growth in population in the region. To determine a projected ridership for, say, the nine-bus scenario in a given future year, our estimate should be factored up by the projected percentage growth in area population between now and that year. This assumes, however, that future growth occurs in a way that can be accommodated within the route structures proposed. There is still an extensive amount of undeveloped land served by the proposed routes. To the extent that new development occurs on this land, it will tend to drive up ridership and productivity without requiring more BTS resources. On the other hand, if new development requires BTS to expand its coverage area beyond what is shown in these scenarios, the result will be further dissipation of resources, higher operating costs, and lower productivity. In this respect, the viability of transit in the region depends directly on the future land use decisions of the city and the county.

Figure 6-5
Estimated Hours and Ridership for Service Plan Alternatives

SCENARIO		WEEKDAY SERVICE			SATURDAY SERVICE				RIDERSHIP			PRODUCTIVITY		
	RTE	Buses	Length of Day	Revenue Hours	Buses	Length of Day	Revenue Hours	ANNUAL HOURS	Wkdy	Sat	Annual	Wkdy	Sat	Annual
EXISTING	1	1	13	13	1	7	7	3679	236	79	64271	18	11	17
SYSTEM	2	1	13	13	1	7	7	3679	262	131	73622	20	19	20
(5-BUS)	3	0.5	13	6.5	0.5	7	3.5	1840	93	47	26133	14	13	14
	4	1	13	13	1	7	7	3679	284	142	79804	22	20	22
	5	0.5	13	6.5	0.5	7	3.5	1840	56	28	15736	9	8	9
	6	1	13	13	1	7	7	3679	90	45	25290	7	6	7
	TOTAL	**5**	**78**	**65**	**5**	**42**	**35**	**18395**	**1021**	**471**	**284856**	**16**	**13**	**15**
NO	1	1.5	16	24	1.5	7	10.5	6666	452	201	125757	19	19	19
GROWTH	2	1.5	16	24	1.5	7	10.5	6666	452	201	125757	19	19	19
(5-BUS)	3	0.5	13	6.5	0.5	7	3.5	1840	98	49	27440	15	14	15
	4	0.5	13	6.5	0.5	7	3.5	1840	104	52	29261	16	15	16
	5	0.5	13	6.5	0.5	7	3.5	1840	59	29	16523	9	8	9
	6	0.5	13	6.5	0.5	7	3.5	1840	86	43	24278	13	12	13
	TOTAL	**5**	**84**	**74**	**5**	**42**	**35**	**20690**	**1251**	**576**	**349016**	**17**	**16**	**17**
6-BUS	1	1.5	16	24	1.5	7	10.5	6666	396	176	110037	16	17	17
SYSTEM	2	1.5	16	24	1.5	7	10.5	6666	396	176	110037	16	17	17
	3	0.5	13	6.5	0.5	7	3.5	1840	98	49	27440	15	14	15
	4	0.5	13	6.5	0.5	7	3.5	1840	104	52	29261	16	15	16
	5	1.5	13	19.5	1.5	7	10.5	5519	228	105	63682	12	10	12
	6	0.5	13	6.5	0.5	7	3.5	1840	86	43	24278	13	12	13
	TOTAL	**6**	**84**	**87**	**6**	**42**	**42**	**24369**	**1308**	**602**	**364736**	**15**	**14**	**15**
9-BUS	1	1.5	16	24	1.5	7	10.5	6666	392	175	108937	16	17	16
SYSTEM	2	1.5	16	24	1.5	7	10.5	6666	392	175	108937	16	17	16
	3	1	13	13	1	7	7	3679	177	84	49447	14	12	13
	4	1	13	13	1	7	7	3679	125	62	35114	10	9	10
	5	3	13	39	3	7	21	11037	365	168	101891	9	8	9
	6	1	13	13	1	7	7	3679	138	69	38845	11	10	11
	TOTAL	**9**	**84**	**126**	**9**	**42**	**63**	**35406**	**1589**	**733**	**443171**	**13**	**12**	**13**

NOTE: THESE RIDERSHIP ESTIMATES SHOW THE EFFECT OF SERVICE IMPROVEMENTS GIVEN THE PRESENT POPULATION. THEY SHOULD BE EXPANDED BY THE PROJECTED RATE OF POPULATION GROWTH TO DERIVE AN ESTIMATE FOR ACTUAL RIDERSHIP IN A PARTICULAR FUTURE YEAR.

CHAPTER 7. MARKETING PLAN

BTS already has a strong marketing program. Awareness of the system in the area is high, even though most residents have not tried using it. The improvements to the BTS Service Plan will result in a system that is simpler and easier to market. An aggressive but cost-effective marketing and information program is a critical part of ensuring the success of the plan. Such a program could dramatically increase ridership even beyond the conservative estimates included in the Service Plan.

7.1 PUBLIC INFORMATION AS MARKETING

The public information function is a key element of overall marketing, and is often overlooked. Many agencies undertake expensive marketing programs without first ensuring that information is easily available on-street or by phone. Without easy access to public information, new passengers attracted by promotional efforts will find the system alienating and will be less likely to use it for all their needs.

On the other hand, a strong public information program is also a strong marketing program. Every citizen of Klamath Falls will see the agency's bus overhead signs and bus stop signs. These can function not only as information, but also as "miniature billboards", advertising the fact that this or that service is available.

It is important to maximize this casual marketing value of information services such as signage. On the other hand, it is important to not let marketing interfere with clear information. Information sources should always strive to communicate the necessary information as clearly and concisely as possible, without distracting material. Promotional material included with information should be careful not to distract from the primary goal of clear information. *Clear information is ultimately the best marketing.*

The public information function has four major elements:

1. Bus signage.

2. Bus stop signage.

3. Schedule brochure and other publications.

4. Phone information.

Before developing signage, however, it is important to have a decision about how routes will be numbered and named.

7.2 ROUTE DESIGNATIONS

Route Numbers

The service plan in Chapter 6 includes a proposed scheme of route numbers. There is no particular scheme to these numbers, although it is helpful that the first numbers are assigned to the most important mainline routes. Apart from this, the existing numbers are respected as much as possible, for example by retaining the numbers 3 and 5 for the Stewart Lennox and Pelican City routes, since these routes change relatively little. Since 3 and 5 will operate as a pair, like 4 and 6, it would be slightly preferable for each pair to have consecutive numbers, but the advantage is slight.

Route Names

Although route names appear on the covers of the present schedule brochures, these names are not used consistently throughout the information system. For example, they are not precisely echoed on the overhead signs.

Where practical, route names are very helpful to make the system easily understood. Route names typically specify the one or two major streets on which a route operates. They are distinct from destination names, which refer to the final stop on a route. San Francisco Muni and Portland's Tri-Met are two examples of transit systems that use route names to good effect.

The proposed No Growth route structure is simple enough that route names are possible. Possible names would be:

1 & 2 Mainline

3 Stewart Lennox

4 Shasta Way

5 Pelican City

6 Altamont (or 6 Washburn)

The name captures the most essential feature of each route, without attempting to describe the route in detail.

7.3 OVERHEAD SIGNAGE

BTS buses have relatively readable electric signs, which have the advantage of being easily changed as service improves. Reprogramming of the electric overhead signs will be an important element of the implementation of new service.

The current electric signs are programmed to show a series of messages in turn, listing all of the major destinations along a route. This approach is actually less informative than it appears to be, because passengers usually do not have time to see the entire "program" of the sign, unless the bus is stopped at the transit center.

Most major agencies that use electric signs have found that it is best to program these signs so that all the information can be seen in the time a passenger has to view an approaching bus. Single-panel unchanging signs are ideal, of course, but it is often necessary to switch back and forth between two panels of information. More than that, however, makes the sign too complicated and too hard to read in the time available. The extensive detail presented on the present overhead signs, listing all major destinations along the route, is more appropriate for fixed bus stop signage, which is discussed in a separate section below.

The advantage of the simple route names suggested above is that each can fit onto an overhead sign together with the route number. For the simple routes 3, 4, 5, and 6 in the No Growth scenario, this route name is all that is needed. For the more complicated Mainline, which passes through the transit centers in two different directions, some information about destination is needed.

For this reason, the following overhead signage is suggested for the No Growth scenario. Route 1 and 2 signs would alternate between panels:

1 MAINLINE
1 to OIT

1 MAINLINE
1 S 6TH/KELLER

2 MAINLINE
2 to OIT

2 MAINLINE
2 S 6TH/HOMEDALE

Routes 3 through 6 would have single-panel signs.

3 STEWART LENNOX

4 SHASTA WAY

5 PELICAN CITY

6 ALTAMONT

This scheme requires drivers to change their signs twice on each round trip. This is easily done using the button console above the drivers seat. On Routes 1 and 2, the sign should be changed when arriving at the end of the line, so that the new destination is displayed while the bus is laying over. On Routes 3 through 6, the sign should be changed just before arriving at the transit center. Some transit agencies post signs at these points to remind drivers to change their overhead signs.

Note that for through-routed pairs Route 3/Route 5 and Route 4/Route 6, separate signs are recommended, to be changed on each trip. The current Routes 3 and 5 show a complex sign that lists both routes at the same time, so that it is not clear which route the bus is serving now. Since there is only one bus sharing these routes, this is understandable, but it is clearer if the sign shows what route the bus is on now, rather than listing everything it will do in the course of its hourly cycle. Many passengers are confused by the idea of one bus serving several routes, and separate signage makes it possible for passengers to ignore the fact of through-routing if they don't need to know about it.

7.4 BUS STOP SIGNAGE

Current BTS signage shows the BTS logo and the information number, and in some cases the time in each hour that the bus stops there. These signs are useful to passengers who already know the route, or who have called the phone information line.

Providing more comprehensive information at bus stops can dramatically reduce the passenger's need to seek telephone information, and therefore makes it much easier to use the system spontaneously. Good bus stop signage can also dramatically reduce calls to the information line, saving on staff time.

Bus stops can be appropriate places to list all the destinations of interest on a route, instead of listing this on the overhead signs. Bus stop signs also need to help a passenger know which direction on a two-way route they need to go. For this reason, the following information should be given about each route stopping at a sign, in declining order of priority:

- Route number
- Route name, as it appears on the overhead sign.
- Direction of the bus on this route at this stop
  (e.g. on Route 4, "to Klamath Mall" or "to Moyina Heights")
- Approximate time each hour that the bus stops here.
- Hours of the first and last trip each day.
- A list of key destinations served by this route.

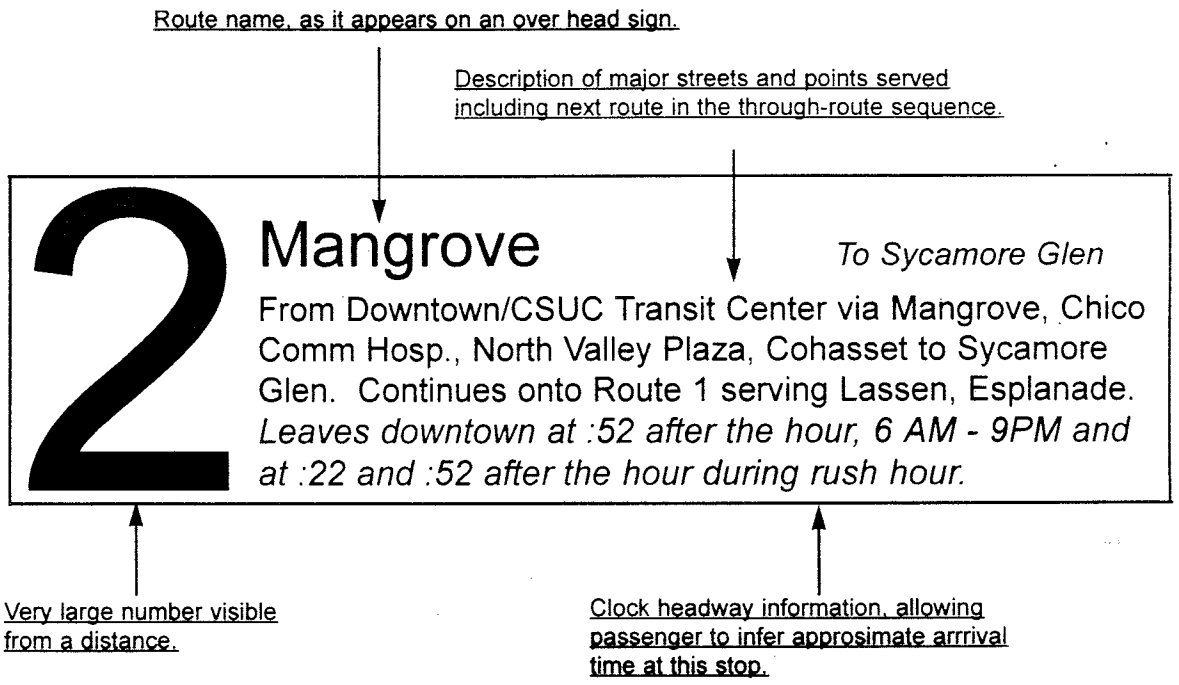
The last of these is optional, and can create excessive clutter. The information should be presented with the above priorities in mind, for example by using declining font sizes so

that the route number and route name stand out against the more detailed information that follows.

Decals at All Stops

Replacement of the present signs does not need to be a top priority. However, as soon as it is feasible, a new system of signs showing more detailed information would be helpful. The best sign for this purpose is one that shows the BTS logo at the top but then has an open space in which decals can be placed. The following decal from the City of Chico shows useful information that can be placed on a bus stop sign, organized according to the priorities suggested above.

Figure 7-1
Bus Stop Decal



Special Signage at Major Stops

BTS should consider developing special signs for its transit centers. At the downtown transit center, each route should have a separate designated stop, since all or most buses will be there together. Routes 1 and 2 can share stops, but must have a different stop for each direction of travel. This will help passengers distinguish between the direction that the bus is traveling, which for many passengers will matter more than whether the bus is Route 1 or Route 2.

Standard signs and decals can be used at transit center stops, although many systems provide special signs for this special location, featuring especially prominent route numbers and information.

Shelter Information Displays

Bus shelters at transit centers currently contain information displays under Plexiglas covers. The information brochure (see below) should continue to be designed so that it can be placed in this display, leaving enough extra space for various rider bulletins as needed.

Advanced Signage

The signage described above is adequate to provide a comprehensive information system for the new service. Many other signage tools could be added as resources permit, but are not essential to the success of the new service. These include the following.

- Small information pockets can be added to bus stop poles, into which schedule and map information can be inserted. Since these are long and narrow, they typically require specially designed information materials. They are also difficult to protect from vandalism and are labor intensive to update and maintain.

- Actual system maps posted on bus stop signs, either beneath the existing sign or replacing it. The system maps shown in the service plan could be blown up to 150% of their present size to fit a standard 18"x12" sign. A "You are here" dot could be added. However, this would not substitute for some of the critical information on the proposed decals, including which direction the bus is going and what time it will arrive.

All of these ideas have merit, but can wait until well after the new service has been implemented and any necessary modifications have been made. Even then, the costs of ongoing maintenance must be considered. All too often, transit agencies rush into buying advanced signage without budgeting for the staff time required to maintain it and keep it up to date. (For example, San Francisco's BART stations include beautiful detailed maps of the connecting local bus service around the station; unfortunately, they show the bus system as it existed in 1972.) *Any signage that cannot be updated annually in a cost-effective way will ultimately do more harm than good.*

7.5 SCHEDULE BROCHURE

BTS provided separate schedule brochures for each route. This is a common practice in larger systems where there are many routes. However, almost all systems of BTS's size have found it simpler, both for the agency and the customer, to publish a single brochure showing the entire system and all of its schedules. Even large systems are increasingly finding demand for these comprehensive brochures.

A single schedule brochure was designed for BTS as part of this planning study. It offers the following advantages:

- It shows all the routes together on a single map, so that passengers can see not just the individual routes but also how they interrelate and connect with each other. This was not possible with the complex system, but is possible with the No-Growth system, implemented in August, 1995.

- Basic information common to all routes, such as fares, transfers, phone numbers, etc., are presented in the new brochure. Overall, the new single brochure reduced the printing costs to the district as well as the amount of redundant information a passenger must carry.

- Expanded basic information is easier to provide in a single brochure. Rules of riding should be presented in the brochure, including not just the basics (eating, drinking, radios) but also matters of courtesy such as yielding certain seats to elderly passengers or exiting out the rear of the bus so that people can board in front. A system brochure is an ideal place to explain just about anything that passengers either need to know or often ask about, and more of this can be done in a system brochure than in individual route brochures.

Design of the new schedule brochure features the following:

- It includes a **clear and readable system map**, similar to the map in the service plan.

- It includes **timetables** for each route in standard format with columns for each timepoint and rows for each trip, similar to the samples shown in our service plan appendix. *Every location mentioned as a timepoint in the schedule is marked clearly on the map.*

- **Multiple colors** (one for each route) is very effective and used in the brochure. Routes 1 through 6 each have an unique color code.

- The brochure is simple enough to be reproduced inexpensively, and lightweight enough to be carried. All the information is presented on as little as four 8.5 x 11" pages. This is printed as a folding brochure on two sides of an 11 x 17" sheet, representing the entire system in only twice the space previously taken for the brochure on a single route.

The new brochure has been widely distributed. It is available at most of the following locations:

- All public buildings, including the library
- Senior centers and all congregate meal sites, or other senior service locations.
- CSUC campus locations. (Brochures should be distributed at registration.)
- Social Security office, GAIN office, Unemployment office.
- Hospitals, medical clinics, and other medical destinations.
- Parks and Recreation facilities
- Major employment locations
- All public schools. (Rider information should be distributed to all enrolled students in grades 5 through 12 at the beginning of each school year.)
- In "take one" boxes in buses.

7.6 ADVERTISING

Major system changes, such as those recommended in the Service Plan, require special marketing consideration *focused on people who are not currently riding.* A very effective campaign, which was developed in Santa Rosa, California, included the distribution of new rider guides (schedule brochures), along with a free ride coupon to every household as an insert in the local newspaper. Direct mail campaigns have also been used effectively, as a means of both thanking regular riders for adapting to changes, and to encourage the first time rider on to the new system.

The new schedule brochure is well designed and functions as advertising. In preparation for the new service, BTS should make one mass mailing of brochures to all residents of the service area. Thereafter, the agency should identify a method of providing brochures to new residents.

Advertising should be used as needed to supplement this primary direct-mail approach.

Newspaper ads should have a specific purpose in mind. If the purpose is to inform the public about the changes proposed for the system, the system should be described as clearly as possible, ideally including a system map. A phone number for additional information should be provided and a brochure should be sent to anyone who calls.

Print ads should be carefully designed to reach the market segment targeted for the ad. For example, an ad aimed at senior citizens should include large typefaces and should feature information they would be interested in such as access to grocery shopping or to places that honor senior discounts.

Advertising that is tied to a particular event or purpose is especially effective. Special event schedules should be printed in the local paper routinely. All print advertising should

include the system's logo or symbol. In addition, a tear out free trip coupon could test the effectiveness of the print ad while encouraging ridership. An effective ad could be developed and printed locally for approximately $500.

A combination of media, including both print and radio advertising often yields the best results. However, radio advertising, is expensive, and generally requires professional assistance in developing a campaign.

Several systems, including Santa Maria in California, have developed a unique barter arrangement with a local radio station. Radio time is exchanged for advertising the radio station on transit vehicles.

CHAPTER 8. CAPITAL PLAN

This chapter presents a ten-year capital improvement plan for Basin Transit Service (BTS). Over the next ten years, the capital needs are primarily replacing vehicles that reach their useful lifecycle. Other capital expenditures relate to system enhancements such as a proposed transit center and new bus stop shelters to augment the existing shelter program.

The following section describes the capital improvement projects in the ten-year capital plan, and estimates their costs. Strategies for funding these projects are discussed in Chapter 9, the Financial Plan. Beyond the next ten years the primary capital needs will continue to be vehicle replacements. Expanding the fleet would only be possible if BTS has the financial capacity to increase the current level of service.

8.1 VEHICLE FLEET INVENTORY AND REPLACEMENT

A total of eight fixed route vehicles should be replaced during the next ten years. This includes the six 1988 Gillig Phantoms and the two 1994 Elfs (Economic Low-Floor vehicles). The lifecycle for the 30 passenger Gilligs and the 20-passenger Elfs are ten years. The paratransit vans should be replaced as they reach their useful life after five years of service. The three paratransit Dodge vans will need to be replaced twice during the ten-year timeframe. Figure 8-1 shows the number of vehicles to be replaced each year and lists the recommended vehicle type.

We are recommending that the six Gillig Phantoms be replaced with similar size vehicles rather than smaller vehicles such as 16-20 passenger vehicles. Although the 30-passenger vehicles may not consistently carry full passenger loads, there are compelling reasons for replacing these vehicles with similar size vehicles. Diversifying the fleet can impact maintenance costs and a slightly smaller vehicle is not significantly less costly than a 30 passenger vehicle. The cost differential is about $80,000 and the annualized capital cost is only $8,000 given a ten year life cycle for this size vehicle.

Not all vehicles in the BTS inventory are recommended for replacement. The 1986 Bluebird and the 1980 GMC are not needed to operate current service levels. These vehicles can serve as spares (backup) or can be sold off.

The one remaining vehicle in the capital plan is a trolley coach to be acquired during FY 1995/96. This vehicle is intended to operate as a downtown shuttle offering "historic tours" to tourists and residents alike. This trolley coach will be operated and maintained by BTS, although funds to pay for the service must come from "outside" funding sources. *This service is not included in the core services operated by BTS under the newly implemented service plan.* (Refer to Chapter 9, Section 9.3.2 for additional details).

Vehicle Cost

A 30-passenger Gillig Phantom is estimated to cost $215,000 (1995$). This price assumes a diesel powered vehicle and includes fareboxes, wheelchair lifts and tiedowns according to ADA requirements, and other standard specifications. The 20-passenger Elfs are estimated to cost $120,000 (1995$). A 8-10 passenger paratransit van is estimated at $40,000 (1995$). All vehicle costs are inflated annually at 3.5%.

Figure 8-1
Vehicle Fleet Replacement Schedule

Number and Type of Vehicles To Be Replaced	Replacement Year	Vehicle Type
1 - 1992 Dodge Van	1995/96	8-Passenger Paratransit Van
1 - 1993 Dodge Van	1996/97	8-Passenger Paratransit Van
1 - 1995 Dodge Van	1997/98	8-Passenger Paratransit Van
2 - 1988 Gillig Phantoms	1997/98	3 - 30 Passenger Transit Buses
2 - 1998 Gillig Phantoms	1998/99	3 - 30 Passenger Transit Buses
2- 1998 Gillig Phantoms	1999/00	3 - 30 Passenger Transit Buses
2 - 1994 Elfs	2003/04	2- 20 Passenger Transit Buses
1996 Van*	2001/02	8-Passenger Paratransit Van
1997 Van*	2002/03	8-Passenger Paratransit Van
1998 Van*	2003/04	8-Passenger Paratransit Van

* These paratransit Vans are acquired in 1996, 1997 & 1998 and scheduled for replacement every five years.

8.2 EASTSIDE TRANSIT CENTER

A new transit center site is needed somewhere in the triangle defined by Klamath Mall, Jefferson Square, and Town & Country. Any one of those sites would be acceptable, as would a site in the Fairgrounds area or anywhere else in between. A temporary transit center is already operating at Jefferson Square, but a more permanent facility with appropriate amenities is recommended. The transit center would provide connections between one feeder bus (Routes 4 and 6) and the Mainline buses. Mainline buses would not lay over at the transit center, but would pass through as the Route 4/6 bus waits. In the near term, the facility requires space for three buses to be present at one

time, while it might ultimately handle as many as six in some growth scenarios. The facility requires a safe way for buses to arrive and depart in appropriate directions, a safe, ADA-compliant way for passengers to walk from one bus to another, and a safe place to wait. A restroom for driver use is also needed, although this can frequently be arranged with a nearby business. Other desirable amenities include passenger benches, shelters, telephones and information displays.

It is highly likely that a transit center with simple requirements can be incorporated into a new development with minimal developer costs simply through coordinated planning between BTS, the city or county planning staff, and the private parties involved.

The Downtown Redevelopment Agency may be interested in working with BTS in developing a transit center in the downtown core. The facility would need to provide at least three spaces for buses, a shelter (s) and canopy. The estimated cost for such a shelter would range between $50,000 and $100,000.

8.3 COMPUTERIZED DISPATCH SYSTEM

Basin Transit Service has secured $20,000 in capital funds to acquire an automated dispatch system for its Dial-A-Ride service. Automated demand responsive dispatching systems include scheduling features which assign individuals to demand response vehicle that are operating in shared-ride mode. The scheduling components typically accommodate advanced trip reservations, standing orders, and immediate requests.

Many of the commercially-available routing and scheduling programs developed for the paratransit industry have recently been upgraded to included features that address ADA information needs and requirements. These packages typically include client information modules as well as trip files, scheduling algorithms, reporting routine trips, and other functions designed to offer full support in all aspects of paratransit operations. Some of the common features that have been developed for ADA paratransit operations include:

- ADA Paratransit Eligible Customer Information
- Relationship of Desired Trip to the Fixed Route System
- Visitors Information
- Documenting Compliance

Several software systems allow users to track and analyze capacity constraints and subscription trips. A computer assisted dispatch system would also facilitate the collection and tracking of performance data. Patterns of peak usage by hour, day, week of month and month of year could be easily tracked to assist in the allocation of vehicle service hours. Other reporting tasks would also be made easier. Since there are many different kinds of scheduling and dispatching systems to select, BTS should carefully explore its options before purchasing a software system.

8.4 PASSENGER SHELTERS

Basin Transit Service currently has an active passenger shelter program. In FY 1993/94, all existing passenger shelters were refurbished, two new shelters were installed to replace older shelters, and a new large shelter was installed on campus through a cooperative agreement with the Oregon Institute of Technology. Passenger shelters are recommended at stops with more than ten daily boardings and are considered high volume locations. Based on the survey and ridechecks conducted in October 1994 there are about ten bus stops where daily boardings exceeded ten. These are:

- Reed Transfer Center
- Hospital
- OIT
- Fred Meyer Transfer Center
- Town & Country Transfer Center
- East Main and White
- East Main & Ginos (route 4)
- S. 6th & Groc. Whse (route 4)
- Shasta & Gary
- Nevada & Grocery

Given the inclement weather during winter months, it is important for BTS to maintain a high quality passenger shelter program. Over the next ten years, a total of six shelters are recommended for replacement with two shelters to be installed per year for three of ten years. The estimated cost of a passenger shelter is $5,000. Assuming six shelters would be purchased, the total project is about $36,000.

To augment the shelter program, developers should be asked to fund passenger shelters for any new large scale commercial or residential development which is served by fixed route transit service and which is likely to generate transit demand. Examples of such development include multi-unit housing projects, senior housing, large scale retail outlets, including supermarkets.

8.5 MISCELLANEOUS CAPITAL EXPENSES

In addition to the recommended capital projects, a total of $5,000 per year is expected to be used for miscellaneous office and maintenance capital equipment purchases and replacement. This capital expense is often overlooked in capital plans, but proves to be valuable to address office and maintenance equipment needs.

8.6 CAPITAL PLAN SUMMARY BY YEAR

A summary of the capital needs is outlined in Figure 8-2. It shows vehicle replacement needs by year for fixed route and demand response vehicles. The trolley coach and the computerized dispatch system are programmed in the first year of the plan. The transit center project is programmed at $75,000 in FY 2000/01 and the bus shelter program is scheduled periodically throughout the ten years. The amount of funding needed for each year is shown with a total of $2.5 million over the ten year planning period.

8.7 LONGER-TERM CAPITAL NEEDS

Beyond FY 2004/05, the capital requirements will continue to be dominated by the need to replace vehicles as they reach their useful life. Between FY 2005/06 and FY 2014/15 the eight fixed route vehicles will need to be replaced consistent with a ten year lifecycle. Since paratransit vans should be replaced every five years, they should be replaced twice during this time frame. It is possible that additional operating resources become available which would allow expansion on the mainlines routes. Under this scenario expansion vehicles would be necessary to support increased service levels. It is also conceivable that demand for ADA service will significantly increase and the current paratransit fleet will be unable to accommodate ridership. If this occurs than BTS will need to acquire expansion paratransit vans.

8.8 CAPITAL FUNDING OUTLOOK

The BTS has relied on several funding sources to finance its capital improvements. These funding sources include the Federal Transit Administration (FTA) Section 3 funds, state funding programs such as Special Transportation Funds and other capital grants. The systems' "net working capital" has also been instrumental in financing capital improvement projects.

At the federal level, the Congressional budget proposal recommends a reduction of federal funds for transit operations, although federal funds for capital procurements will likely continue to pay 80% of capital costs. The FTA Section 3 Discretionary Program has provided $275,000 for the trolley bus purchase and the computerized dispatch system. These discretionary funds may be made available to BTS in the future, although commitment of these funds are made on a yearly basis and they may be more difficult to secure in future years. Other federal fund sources potentially available to BTS include funds made available under the Intermodal Surface Transportation Efficiency Act (ISTEA) such as CMAQ and STP funds. State and local funds will be required to provide the 20% local match to federal grants. Given the ongoing need to replace the vehicle fleet, it is essential that BTS continue to maintain a capital reserve fund. Strategies to fund the capital improvement program within the next ten years and beyond, are discussed in Chapter 9, the Financial Plan.

Figure 8-2
Ten-Year Capital Budget

Capital Item	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	Total
Fixed Route Vehicle Repl. (1)			$476,749	$493,435	$510,705				$316,034		$1,796,923
Repl./Expan DAR Vans (2)	$40,000	$41,400	$42,849			$50,891	$52,672	$54,516			$282,328
Trolley Coach	$250,000										$250,000
Transit Center						$75,000					$75,000
Computerized Dispatch System	$20,000										$20,000
Bus Shelters		$10,350 (2 shelters)				$11,877 (2 shelters)				$13,629 (2 shelters)	$35,856 (6 shelters)
Miscellaneous	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$50,000
TOTAL BY YEAR	$315,000	$56,750	$524,598	$498,435	$515,705	$142,768	$57,672	$59,516	$321,034	$18,629	$2,510,107

(1) Vehicle costs are $215,000 for a 30-passenger full size coach, $120,000 for a 20-passenger vehicle

(2) Vehicle costs are $40,000 for a 8-10-passenger van. Two vans are replaced twice during next ten years.

All costs are in 1995 dollars and the inflation rate is assumed at 3.5% per year.

CHAPTER 9. FINANCIAL PLAN

9.1 INTRODUCTION

This chapter presents the ten year operating cost projections (FY 1995/96 to FY 2004/05) for Basin Transit Service and reviews the funding sources for both capital improvements and operating subsidy requirements. Where appropriate, distinctions are made between funding sources for capital procurements and transit operations.

Cost and revenue projections beyond that time frame are difficult to quantify with any degree of accuracy, and therefore quantitative projections are not included in this financial plan. Instead, for the period 2005/06 through 2014/15, order-of-magnitude cost projections are presented and a discussion is included of the potential funding programs which may become available to Basin Transit Service.

Strategies to maximize existing revenue sources are reviewed at the beginning of this chapter and new funding opportunities for BTS to pursue are presented toward the end of the chapter. The objective of this financial plan is to identify the most viable funding sources which will enable BTS to pay for its short and long-term operating and capital needs.

9.2 OPERATING COST PROJECTIONS

The operating cost projections are based on the service plan implemented August 28, 1995. Under this plan, BTS will operate 20,690 annual fixed route service hours. The Dial-A-Ride service is budgeted to operate 6,460 service hours during FY 1995/96.

Figure 9-1 presents the operating program over the next ten years. Operating costs are presented separately for fixed route and dial-a-ride service. Significant assumptions are outlined below.

- Fixed route and dial-a-ride services are projected at $37.26 per hour of operation in FY 1995/96 and are assumed to increase at 3.5% per year.
- Public Information/outreach costs are projected at 2.5% of total program costs in alignment with transit system marketing norms. This factor is added in all years to encourage promotion of the new fixed route structure.
- Annual revenue hours for fixed route service would remain constant at 20,690 throughout the ten-year planning period.
- 6,460 service hours for the dial-a-ride during the first year would drop to 4,428 in subsequent years due to improved scheduling of trips with the aid of an automated dispatch system.

Figure 9-1
Ten-Year Operating Cost Projections and Performance Measures

	FY 1995/96	FY 1996/97	FY1997/98	FY 1998/99	FY 1999/00	FY 2000/01	FY 2001/02	FY 2002/03	FY 2003/04	FY 2004/05
SERVICE HOURS										
Fixed Route Service	20,690	20,690	20,690	20,690	20,690	20,690	20,690	20,690	20,690	20,690
Dial-A-Ride	6,460	4,428	4,428	4,428	4,428	4,428	4,428	4,428	4,428	4,428
Systemwide Hours	27,150	25,118	25,118	25,118	25,118	25,118	25,118	25,118	25,118	25,118
OPERATING COSTS										
Fixed Route Service (1)	$770,909	$797,891	$825,817	$854,721	$884,636	$915,599	$947,644	$980,812	$1,015,140	$1,050,670
Dial-A-Ride (1)	$240,700	$170,762	$176,738	$182,924	$189,327	$195,953	$202,811	$209,910	$217,257	$224,861
Public Information/Outreach (2)	$25,290	$24,216	$25,064	$25,941	$26,849	$27,789	$28,761	$29,768	$30,810	$31,888
BTS Operating Expenses	$1,036,899	$992,869	$1,027,620	$1,063,587	$1,100,812	$1,139,340	$1,179,217	$1,220,490	$1,263,207	$1,307,419
REVENUES										
Fixed Route Passenger Fares	$119,700	$156,631	$161,330	$169,397	$174,479	$179,713	$197,549	$203,475	$209,579	$215,867
DAR Passenger Fares	$10,300	$16,561	$16,867	$17,710	$18,596	$19,526	$24,120	$25,326	$26,592	$27,922
TOTAL FARES	$130,000	$173,192	$178,197	$187,107	$193,075	$199,239	$221,669	$228,801	$236,172	$243,789
OPERATING STATISTICS										
Fixed Route Service										
Fixed Route Passengers (3)	*307,120*	*313,262*	*322,660*	*338,793*	*348,957*	*359,426*	*346,576*	*356,974*	*367,683*	*378,713*
Cost/Passenger	*$2.59*	*$2.62*	*$2.64*	*$2.60*	*$2.61*	*$2.62*	*$2.82*	*$2.83*	*$2.84*	*$2.86*
Cost/Service Hour (4)	*$38.48*	*$39.73*	*$41.13*	*$42.56*	*$44.05*	*$45.60*	*$47.19*	*$48.84*	*$50.55*	*$52.32*
Farebox Recovery	*15.0%*	*19.1%*	*19.0%*	*19.2%*	*19.1%*	*19.0%*	*20.2%*	*20.1%*	*20.0%*	*19.9%*
Passengers/Hour	14.8	15.1	15.6	16.4	16.9	17.4	16.8	17.3	17.8	18.3
Dial-A-Ride Service										
DAR Passengers	*10,341*	*9,742*	*9,922*	*10,418*	*10,939*	*11,486*	*12,060*	*12,663*	*13,296*	*13,961*
Cost/Passenger	*$23.28*	*$17.53*	*$17.81*	*$17.56*	*$17.31*	*$17.06*	*$16.82*	*$16.58*	*$16.34*	*$16.11*
Cost/Service Hour	*$37.26*	*$38.56*	*$39.91*	*$41.31*	*$42.76*	*$44.25*	*$45.80*	*$47.41*	*$49.06*	*$50.78*
Farebox Recovery	*4.3%*	*9.7%*	*9.5%*	*9.7%*	*9.8%*	*10.0%*	*11.9%*	*12.1%*	*12.2%*	*12.4%*
Passengers/Hour	1.6	2.2	2.2	2.4	2.5	2.6	2.7	2.9	3.0	3.2
Systemwide Farebox Ratio	*12.5%*	*17.4%*	*17.3%*	*17.6%*	*17.5%*	*17.5%*	*18.8%*	*18.7%*	*18.7%*	*18.6%*

(1) Operating cost for fixed route service is estimated at $38.48 including outreach expenses, and DAR hourly costs are $37.26. Costs are assumed to increase at 3.5% per year.

(2) Marketing Expense represents 2.5% of operating budget and is added to fixed route services only.

(3) Passenger Boardings

(4) Includes fixed route costs plus public information/outreach expenses.

Based on these assumptions, the operating costs were projected through FY 2004/05 and are shown in Figure 9-1. The FY 1995/96 operating cost estimates are $1.03 million for fixed route and dial-a-ride services. Cost projections for fixed route service gradually increases each year and costs for dial-a-ride service drops in the second year of the plan because of the decline in service hours. Over the ten year timeframe, systemwide costs are expected to gradually increase beginning in FY 1997/98 to about $1.3 million by the year 2005.

Figure 9-1 also projects passenger fare revenues over the ten year time frame separately for fixed route and dial-a-ride service. The assumptions used in projecting ridership and passenger fare revenues are explained in Section 9.3.1 below. Key performance measures for each service component are presented in the bottom portion of the figure. It shows major cost effectiveness and productivity measures including hourly cost, the number of passengers carried per hour, and the projected farebox recovery ratio.

9.3 EXISTING REVENUE SOURCES

Transit funding is generally derived from three primary sources: the Federal Government, the State of Oregon and local sources. Some are designated for specific uses such as operating funds or capital costs while others are intended for transportation services for elderly and disabled persons. Figure 9-2, on page 9-4 presents the combined operating and capital costs and identifies the funding sources to cover systemwide expenses over the next ten years. Below is an outline of the currently available funding sources for Basin Transit Service and the projections for each fund source over the next ten years.

9.3.1 System Generated Revenues

Farebox Revenues

Farebox revenue projections include passenger fares collected from the farebox plus revenue collected for pre-paid passes, tickets and tokens. Farebox revenue projections were based on the average fare per passenger separately for fixed route and dial-a-ride service. Currently $.43 is collected for each fixed route passenger and $1.00 is collected per passenger on dial-a-ride.

A fare increase is recommended for fixed route and dial-a-ride service in FY 1996/97. The last fare increase was in 1986, nearly ten years ago. It is preferable to periodically increase fares to keep pace with inflation rather than maintaining a constant fare structure for several years followed by substantial increases. Smaller fare increases tend to be better received by the transit riding public than large scale increases. For this reason, a second fare increase is recommended during the ten year time fare.

Figure 9-2
Combined Operating and Capital Budget

	FY1995/96	FY1996/97	FY1997/98	FY1998/99	FY1999/00	FY2000/01	FY2001/02	FY2002/03	FY2003/04	FY2004/05
EXPENSES										
Operating Expenses	$1,036,899	$992,869	$1,027,620	$1,063,587	$1,100,812	$1,139,340	$1,179,217	$1,220,490	$1,263,207	$1,307,419
Capital Expense	$315,000	$56,750	$524,598	$498,435	$515,705	$142,768	$57,672	$59,516	$321,034	$18,629
Capital Reserve Set-Aside (1)	$70,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
TOTAL SYSTEM COSTS	$1,421,899	$1,099,619	$1,602,218	$1,612,021	$1,666,517	$1,332,108	$1,286,890	$1,330,006	$1,634,241	$1,376,048
REVENUES										
Passenger Fares	$130,000	$173,192	$178,197	$187,107	$193,075	$199,239	$221,669	$228,801	$236,172	$243,789
FTA Section 18 (Operating)	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850
FTA Section 3 (2)	$216,800		$381,399	$394,748	$408,564				$252,827	
Other Federal Funds (3)	$32,000	$33,120	$34,279	$0	$0	$100,713	$42,138	$43,613	$0	$0
Special Transportation Funds (4)	$51,000	$51,000	$43,350	$32,513	$28,178	$23,843	$17,340	$13,005	$8,670	$0
Property Tax (5)	$600,149	$636,158	$674,327	$714,787	$757,674	$803,135	$851,323	$902,402	$956,546	$1,013,939
Public Transit Assist.(Payroll Tax)	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000
Interest Income	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bus Advertising	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Downtown Merchants Assoc. (6)		$10,350				$11,877				$13,629
Previous Levied Taxes	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000
Miscellaneous (7)	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Public/Private Contributions (8)	$54,200									
Subtotal Revenues	$1,383,999	$1,203,670	$1,611,403	$1,629,005	$1,687,340	$1,438,656	$1,432,319	$1,487,671	$1,754,065	$1,571,207
Net Working Capital Carryover (9)	$37,900									
TOTAL REVENUES	$1,421,899	$1,203,670	$1,611,403	$1,629,005	$1,687,340	$1,438,656	$1,432,319	$1,487,671	$1,754,065	$1,571,207
Annual Surplus/(Deficit)	$0	$104,050	$9,185	$16,983	$20,823	$106,547	$145,430	$157,665	$119,824	$195,158

(1) $70,000 has been set-aside as a capital reserve for FYs 94/95 & 95/96. If federal funds pay 80% of vehicle costs, a $50,000 annual capital reserve is recommended.

(2) BTS will be receivng a FTA Section 3 Discretionary Grant in the amount of $275,000. Assumes Section 3 funds will pay 80% to replace six Gilligs in FYs 98, 99 & 00.

(3) FTA Section 16 or CMAQ funds could potentially pay for 80% of paratransit vehicle replacements and proposed transit center.

(4) Special Transportation Funds gradually decrease with no funds available by the tenth year.

(5) Assumes the maximum 6% increase is allocated to BTS each year.

(6) Assumes the Downtown Merchants Association pays for passenger shelters. No other funding contributions are assumed by the Merchants Association.

(7) Represents revenues from surplus sales, insurance reimbursement, and other miscellaneous income. FY 1995/96 amount is average of previous three years.

(8) City, County and Business Contributions to pay the required 20% local match for the trolley bus purchase.

(9) In FY 1995/96 net working capital totals $437,339. These funds are used to help cover capital expeneses.

The first increase is recommended in FY 1996/97, and a second fare increase is recommended five years later, in FY 2001/02. Fare increases are intended to both keep pace with inflation and to achieve a 20% farebox recovery ratio for fixed route service and a 10% recovery ratio for dial-a-ride service.

ADA regulations allow for paratransit fares to be up to twice the fare for comparable fixed route service. As a result, demand responsive service could charge up to $1.40 for a one-way trip based on the current adult fare of $.70. As fixed route fares are increased, it is appropriate to increase paratransit fares consistent with ADA regulation. Setting the paratransit fare at twice the fixed route fare is justifiable given the higher cost of a paratransit trip. The recommended fare increases for each service are listed below.

Fixed Route Fares	1995/1996 (Current)	FY 1996/97	FY 01/02
Adult	$0.70	$0.85	$1.00
Discount	$0.35	$0.45	$0.50
Dial-A-Ride Fares			
All passengers	$1.00	$1.70	$2.00

Figure 9-3 shows ten-year ridership projections and passenger fare revenues for fixed route and dial-a-ride services. Fixed route ridership growth is based on service enhancements implemented in August 1995 and population growth as well as the impact due to fare increases. Ridership increases on Dial-A-Ride are also due to population growth, however ridership on the ADA service is less impacted by fare increases than fixed route service because dial-a-ride passengers tend to be more dependent on transit service than fixed route riders. During the ten-year period, systemwide ridership is expected to increase about 25% and passenger fares are projected to increase from about $130,000 per year to $244,000, an 80% increase in systemwide fare revenues.

9.3.2 Federal Funds

Federal Transit Administration (FTA) Section 18

Section 18 is a federally sponsored program for small urban and rural areas to support both capital and operating needs. These funds are dispersed through ODOT and distributed on a population basis formula. The FY 1995/96 Section 18 allocation is estimated at $85,850. This financial plan conservatively projects these funds to remain flat for the next ten years.

Figure 9-3
Ridership and Fare Projections

PROJECTIONS	1993/94 Actual	1994/95 Est	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
Klamath Falls Urban Growth Boundary (1)	37,596	38,212	39,583	40,177	40,779	41,391	42,012	42,642	43,282	43,931	44,590	45,259
Fxd Rte Ridership (2)	285,600	287,028	307,120	313,262	322,660	338,793	348,957	359,426	346,576	356,974	367,683	378,713
DAR Ridership (3)	6,767	6,801	10,341	9,742	9,922	10,418	10,939	11,486	12,060	12,663	13,296	13,961
Total Ridership	292,367	293,829	317,461	323,004	332,582	349,211	359,896	370,912	358,636	369,637	380,979	392,674
REVENUES												
Fxd Rte Passenger Fares (4)	$114,240	$117,681	$119,700	$156,631	$161,330	$169,397	$174,479	$179,713	$197,549	$203,475	$209,579	$215,867
DAR Fares (5)	$6,767	$6,801	$10,300	$16,561	$16,867	$17,710	$18,596	$19,526	$24,120	$25,326	$26,592	$27,922
TOTAL FARES	$121,007	$124,482	$130,000	$173,192	$178,197	$187,107	$193,075	$199,239	$221,669	$228,801	$236,172	$243,789

1) Klamath County Population projections contained in Klamath county Land Use Plan, Septemer 14, 1994

(2) Ridership is expected to achieve full potential after three years following implementation of service improvements. Ridership growth is also based on population growth rate and proposed fare increases.

(3) In FY 1996/97 DAR hours will drop about 45%, from 6,460 to 4,428 annual service hours.

(4) Assumes fare increase in 1996/97 ($.85 and $.45) and in FY 01/02 ($1.00 and $.50)

(5) Assumes fare increase in FY 1996/97 to $1.70 and in FY 01/02 to $2.00.

Federal Transit Administration (FTA) Section 3

FTA Section 3 funds are limited to capital purchases and fall into three categories: 1) bus/bus facilities, 2) new rail starts and 3) rail modernization. BTS is eligible for Section 3 funds in the bus/bus facilities category. Section 3 Bus Discretionary funds are usually earmarked and appropriated by Congress.

BTS has recently received approval from the FTA for a Section 3 Discretionary Grant in the amount of $220,000. The funds are earmarked for the following capital projects:

- $250,000 to purchase a trolley bus
- $ 20,000 for a computerized dispatch system

As with most federal grants, the Section 3 Discretionary funds provide 80% funding with a 20% required local match. The new trolley bus is to be used for a shuttle service to provide historic tours in the downtown area. Since this type of service is not part of the core mission of BTS and is not included in the operating budget, "outside funds" will have to be secured to support this shuttle service. One viable option is to secure private funds from either a downtown merchants association or a private developer who is interested in supporting a shuttle service linking retail and business activities in the downtown area. If outside funds are not secured, BTS could use this vehicle as an additional spare (backup vehicle). BTS would operate and maintain this vehicle as long as non BTS funds were available to pay for ongoing operations.

The FY 1995/96 Section 3 funds allocated to BTS will also pay for a computerized dispatch system needed to improve the dispatch and scheduling functions of the ADA paratransit service (Refer to Section 8.3 for more details).

Receiving FTA Section 3 grant monies during FY 1995/96 does not preclude BTS from receiving future dollars from this discretionary fund source, however it may require future "earmarking". For this financial plan, it was assumed that FTA Section 3 dollars would be secured for major bus purchases in FYs 1997/98, 1998/99, and 1999/00 when the six Gillig buses need replacement.

Although Congress is currently considering a reduction in federal operating assistance in the FTA Section 9 program (for urbanized areas), it is likely that federal funds for capital projects will not be cut and will maintain the 80% federal share with 20% local match. If, however, the federal share is reduced from 80% to 50% or if federal funds are not forthcoming to assist in vehicle purchases, it would require that Basin Transit Service draw down on its capital reserves at a much more rapid pace than currently envisioned. To understand the potential impact on Basin Transit Service, a "worst case scenario" was considered and is shown in Appendix C of this report. It shows that federal funds for capital investments would be reduced from the current 80/20 split to 50/50 split and requires additional drawn down from capital reserve funds.

9.3.3 State Funds

Oregon Public Transit Assistance (In-Lieu Payroll Tax)

This fund source is a local payroll tax disbursed by the state to support transit services. To be eligible for these funds, a transit district must be formed and it must be generating local revenues (i.e. the property tax). The amount is determined based on the number of State and Federal employees within the Transit District and is the reimbursement of payroll tax collected from those employees. All state agencies located within the BTS service area collect a 6% payroll tax. Currently $130,000 is collected and this source is expected to be remain flat over the next ten years because no new State or Federal employees are projected for the BTS service area. There is a cap on the funds specifying that the amount of money received can not exceed the amount of funding generated locally through the property tax. These funds can be used to support operations or as local match for federal capital grants.

Special Transportation Funds (STF)

STF is generated through a 2¢ per packag tax on cigarette sales. These funds are available to public and social service nonprofit transit providers. These funds are to be used to support elderly and disabled transit operations (no other purpose is allowable). These funds are collected and allocated directly to counties or transit districts based on population. All of the STF is allocated to Basin Transit, who splits distribution of the funds between the transit district and other elderly and disabled transportation providers in the County.

In FY 1995/96, a total of $51,000 is programmed in the BTS budget out of a total pot of $100,000 in STF funds. This funding source is expected to remain flat for the next two-three years and then decline each year until the tenth year when this fund source is expected to phase out. Since STF funds are generated by a tax on cigarette sales, the eventual elimination of this fund source is desirable from a public health perspective. According to ODOT representatives, there may be some new "replacement revenue" to backfill the loss of this revenue source (See page 9-20 for details).

9.3.4 Local Funds and Special Taxes

Basin Transit District Property Tax

Under Oregon State Statues (ORS 265.530) a property tax can be levied to support transit services after a transit district has been approved by the voters. BTS first levied a dedicated property tax in 1986. (This same legislation provides the authorization for the payroll tax). The property tax represents about 40% of BTS' revenues and is one of the few revenue sources expected to increase during the next ten years.

In 1995, the dedicated levy rate for BTS is $.51 per $1,000 of assessed value. This means for a property valued at $100,000 the annual levy would be $51. In FY 1995/96 BTS is expected to collect $600,149 in property taxes. Under State law, BTS is allowed to take a maximum 6% annual increase and this financial plan assumes that BTS will annually collect the maximum dollar amount. The property tax collection is projected to increase 6% each year so that by FY 2004/05 this revenue source would yield about $1 million. These funds can be used for either ongoing transit operations or for capital procurements.

In addition to "property tax" shown as a revenue source in Figure 9-2, "previous levied taxes" is also listed at $57,000 per year. This amount represents delinquent taxes collected and carried forward from prior years. This amount has remained relatively constant for the past several years and is expected to continue at this level for the next ten years.

Advertising Revenues

System advertising on benches and buses is not generally a large revenue generator for small to mid size systems. Advertising for BTS has generated $6,000. This level of advertising revenues is expected to remain constant.

9.3.5 Net Working Capital

Basin Transit Service has accumulated $437,339 in capital reserves from local and state revenues. These are carryover funds from prior year allocations and can be used in future years for capital purchases. While these funds are not dedicated for a particular project, they are typically used to provide the 20% match for federal grants. In FY 1995/96 nearly $38,000 will be needed to cover capital expenses. No additional drawdown will be needed in this plan unless FTA Section 3 funds are not forthcoming for bus replacements in FYs 97/98 through 99/00. To continue with this prudent practice to set-aside funds for future capital needs, a capital reserve fund has been formally established in 1993. This details of this fund are discussed in the following section.

9.3.6 Capital Reserve Fund

In 1993, $72,500 was set-aside to establish a capital reserve fund. An additional $70,000 was set-aside this fiscal year bringing the total reserve fund to $142,500. It is common practice for transit properties to maintain a reserve fund for unforeseen circumstances and emergency situations. Reserves are typically set-aside to cover both operating and capital budgets. It is prudent for Basin Transit Service to maintain a contingency or reserve fund given the ongoing required capital investments over the next several years.

If BTS is successful in securing federal funds to pay for 80% of its bus replacement needs it still has to provide the 20% local match. Over the next ten years, about $2.5 million is needed for capital improvement projects. Assuming that 80% of these costs are covered by federal funds, BTS has an obligation to fund the 20% local match or about $500,000

over a ten year period. Annualized, BTS would be required to contribute $50,000 in local funds. BTS is encouraged to maintain an ongoing reserve fund in the amount of $50,000.

The financial plan shown in Figure 9-2 demonstrates the need to draw upon the capital reserve fund in three of the ten years of the plan when major bus buys occur and the net working capital has been depleted. By setting aside $50,000 per year, the reserves will accumulate before the next major bus purchases in approximately ten years.

9.4 POTENTIAL REVENUE SOURCES

9.4.1 Federal Funds

Federal Transit Administration (FTA) Section 9 Funds

Basin Transit Service is currently a federal fund recipient. It has received FTA Section 18 capital funds for several years and recently received FTA Section 3 Discretionary funds for capital purposes. The Section 18 program makes funds available to transit operators in non-urbanized areas (areas with populations below 50,000).

The most recent population projections for the Klamath Falls Urban Growth Boundary estimates the population at 47,700 by the year 2015. Although this falls slightly short of the 50,000 threshold for becoming an urbanized area according to the definition of the Federal Government, it still is valuable to outline the financial implications for Klamath Falls should the population exceed the current projections.

If Klamath Falls Urban Area reaches a population of 50,000, it would no longer be eligible for Section 18 funds except in the area(s) still served by BTS outside the urbanized area. Section 18 funding under this scenario would be at a reduced level. BTS would, however, be eligible for FTA Section 9 funds which are available to transit operators in urban areas (populations greater than 50,000) for both capital and operating purposes. Operating assistance is available up to a predetermined regional cap based on the size and productivity of the operation. Capital assistance is available with a limit of 80% of a capital project. FTA funds are allocated to transit agencies based on a complex formula which includes population, population density, and the number of revenue service hours operated within a year.

To become a FTA Section 9 recipient, the population must be based on the Federal Census or an area can elect to conduct its own census at its own expense. Given the population projections for the Klamath Falls Urban Area, it is not likely that the population could reach the 50,000 threshold until the Federal Census in year 2010.

All FTA Section 9 recipients, must take the following steps:

1. Comply with FTA Section 15 reporting requirements - To obtain federal funds, the transit operator must provide operating statistics in a format approved by the federal government. To properly complete this information a certified and audited sampling plan is required. Approval of a sampling method can take up to two years.

2. Participate in Metropolitan Planning Organization Activities - A newly created MPO would be established in the Klamath Falls Urban Area to oversee all modes of regional transportation planning including transit. Basin Transit Service would be required to establish an ongoing working relationship with this new agency and comply with any planning requirements such as routine reporting and periodic transit planning efforts.

3. Meet all federal contracting requirements - This could increase the complexity of all purchases of goods and services, including vendor selection for Basin Transit Service.

4. Meet Federal Labor Act 13(c) Provisions - This provision is currently in effect at BTS, although not relevant because service is operated by BTS employees and there is no contract operator.

BTS recently received grant approval for Section 3 Discretionary funds for capital purposes and is currently complying with items 3 and 4 above. If BTS became eligible for Section 9 funds and decides to pursue them, it has the option of applying for these funds for capital projects only or for capital and operating purposes. This is an important distinction because if one dollar of operating funds were used by BTS then all the above requirements would apply. If however only Section 9 capital funds were pursued, then no additional requirements (beyond BTS' current obligations) would apply.

According to an official at the FTA Region 10 office, it is likely that Basin Transit Service could potentially receive between $275,000 and $300,000 in Section 9 funds when Klamath Falls becomes an urbanized area. Given the additional reporting requirements and the possibility that the current Congress may phase out federal operating assistance in large urban areas, it may be prudent for Basin Transit Service to pursue Section 9 funds for capital purposes only. This strategy is followed by other mid sized transit operations who have local and state resources for ongoing operations, but need federal dollars when replacing vehicles or pursuing other major capital investments. Under this strategy, BTS could apply for Section 9 capital dollars on a periodic basis when capital funds are required for major bus buys.

Clearly BTS has several years before such an important financial decision needs to be

made. In addition to closely monitoring actions at the Congressional level, BTS should also consult with other Oregon properties that receive Section 9 funds such as the transit agencies in Eugene, Salem and especially Medford which is currently transitioning from a Section 18 to a Section 9 recipient.

ISTEA Funds

The Federal "Intermodal Surface Transportation Efficiency Act" of 1991 renewed the federal funding programs for highways and transit. This legislation combined funding programs for transit and highway improvements into a single overall program, and allows local jurisdictions increasing flexibility in determining transportation solutions to local congestion problems.

Two parts of the ISTEA legislation allow flexible funding of either transit or roadway projects with the same funds. These are the Surface Transportation Program (STP) and the Congestion Management/Air Quality Program (CMAQ). CMAQ funds are apportioned to non-attainment areas as defined in the Federal Clean Air Act. Klamath County was considered a non-attainment area in 1991 when ISTEA became law. Now the County has been reclassified as it has come into compliance, however an area needs to be in compliance with federal clean air standards for five years before it is officially taken off the noncompliance list. This means that Klamath Falls may be eligible for CMAQ funds with the next authorization scheduled for 1997.

ISTEA funds are administered by the ODOT and are generally focused on air quality improvements. Although BTS has not received any CMAQ funds to date, it may be possible to receive such funds in future years. BTS is encouraged to pursue CMAQ funds for vehicle replacements and the transit center project scheduled for FY 2000/01.

Surface Transportation Program Funds (STP) are the result of the ISTEA legislation passed in 1991. These are also considered "flexible" funds" in that they may be used for either streets/roads or transit projects. Like CMAQ funds, STP funds are administered through ODOT, and to date, have not been used to fund transit projects in the county. These funds are potentially available to BTS to help finance major bus purchases, although BTS has a much better chance of securing CMAQ funds and should not aggressively pursue STP funds.

FTA Section 16

These funds are distributed through ODOT to support the capital needs of non-profit social service transportation providers. Funding of paratransit vehicles for public agencies is done through FTA Section 16. BTS may be eligible for these funds if it continues to cooperatively work with local social service agencies such as the Senior Center, Klamath Tribe and REACH, Inc. These funds are also highly competitive and difficult to secure given the preference for non-profit social service providers. BTS should explore the

potential for Section 16 funds. These funds pay 80% of capital costs and require a 20% local match.

9.4.2 State Funds

Oregon Institute of Technology (OIT)

OIT's enrollment for the Fall 1995 term is 1,950 full time students. A majority of the students live in Klamath Falls. A survey completed in 1994 by an OIT student for a study of implementing a student transit pass program, indicates that 8.8% of the student body currently rides the bus. 41.6% of the respondents said that they "would ride the bus more often if it were free." Despite the efforts of the university in the last three years to improve and expand its parking facilities, parking can be a problem on the OIT campus. By encouraging transit use, OIT may be able to increase enrollment without further increasing parking requirements and, in addition, help the Klamath Falls region comply with air quality standards.

To encourage college students, faculty and staff to use the transit system, BTS and OIT should pursue an agreement whereby a valid University ID would be accepted by BTS as a monthly pass, in lieu of fare payment. The loss of fare revenue would need to be compensated for by OIT. Generally, the amount of the contribution is determined using enrollment figures, ridership projections and a revenue neutral funding requirement by the transit agency. Revenue for university contributions for transit services can generally be raised by using combinations of the following sources:

1. Student Activity Fees - A small assessment added on to the fees normally charged to each student per term can be collected and dedicated to transit service. By charging this fee to all students, free fares can be given to those students who elect to use the transit system. A fee to all students would be appropriate, since all would benefit from the reduction of parking and traffic impacts due to high transit use. The fees currently assessed to students attending other Oregon universities and colleges with such "free ride" programs range between $0.75 and $6.59 per student per term. These fees generally have to be approved by a vote of the student body each year. In the OIT survey, half of the students who do **not** currently ride the bus, indicated they would be willing to pay some additional fees to support a student transit pass program. The results show that 32% were willing to pay from $.01 to $2.00, 5% would pay $3.00, 12.6% would pay $5.00 and 50.5% would not be willing to increase fees.

2. Parking Fines - Universities typically police parking infractions on their own campuses. The fines charged for parking violations can generally be set by the university. A portion of the fines collected may be used for transit service.

3. Parking Charges - Sufficiently high charges for daytime, long-term parking (that is, parking for students, faculty and staff, but not visitors) can also provide a revenue source for transit subsidies, as well as contribute to the attractiveness of transit as an economical alternative to driving. It is suggested that if this revenue source is to be used to fund only the university employee portion of a free ride program (student contribution being raised through another revenue mechanism), that separate parking fee structures be set up for faculty and staff permits so that students are not paying twice for a single benefit. Parking permits are currently required for all lots at OIT. Permits cost $40 per year.

4. General Fund - Some universities consider "free" transit service an integral part of the benefits package to their employees and support this portion of the program from the general operating fund. This amount is often at least partially offset by a reduction in expenditures for parking and street improvements on campus.

Peer Review

In other parts of the state, there are examples of universities providing direct operating assistance to local transit agencies in return for "free" rides for their students, faculty and staff. The following is a summary of five Oregon institutions of higher learning which currently have such agreements. A summary of the transit service characteristics and the funding arrangements for all five institutions is presented in Figure 9-4.

Oregon State University (OSU): OSU has two separate contracts with Corvalis Transit (CT) to provide "free" use of the transit system for its faculty, staff and students. One contract is for student service and the second is for the faculty and staff program. Full time students can participate and support their contract with a student fee of $1.50 per term for a total of $60,000 for the 1995-1996 school year. The contribution for the faculty staff program over the same time period is $20,000 and is paid from the University's general fund. The program has been in existence for 4 years (excluding one year when it was suspended.) and during this time ridership has increased each year. The Oregon State University ID Card must be shown to the driver in order for the bearer to ride CT's basic system free of charge. The contract is renewed yearly.

Rogue Community College (RCC): RCC contracts with Rogue Transportation Services, a private company, to provide transit services to its faculty, staff and students. Rogue operates one loop route in the community of Grant's Pass, that stops at the community college every hour. The school pays for the service out of its general fund. Currently, the cost to the college is $20,000 per year.

Southern Oregon State College (SOSC): Rogue Valley Transit District (RVTD) contracts with the Associated Students of Southern Oregon State College (ASSOSC) to provide its students and alumni association members with free access to the entire RVTD system. The current fee per full time student is $0.75 per term and is paid as part of the regular

student fee structure. The ASSOSC will pay RVTD $8,325 for the 1995-1996 contract year based upon student enrollment estimates for the current school year made during the spring 1995 term. The increasing popularity of the student transit pass program has necessitated increased service on one route. As a result of this service improvement and the expense of providing disabled students with complimentary paratransit service, the student fee is expected to increase in the future.

University of Oregon (U of O): Lane Transit District (LTD) contracts with the U of O to allow students, faculty and staff to ride the LTD system free of charge. The program is in response to the lack of parking on the campus. LTD has separate contracts; one is with the Associated Student Body Association for student service and the second contract is with the U of O Public Safety Office for the faculty and staff program. The students support their contract from a student fee of $6.42 per term. The total annual contribution to LTD for the student program is currently $324,000. The University considers the faculty and staff contract to be part of their employee benefits package and funds it with parking fee revenues. The faculty and staff program fee totals between $80,000 and $100,000 per year. This fee structure was designed to be revenue neutral for LTD. Both contracts are renewed yearly and the students must vote their approval of the fee amount each year. The U of O identification card is used as a transit pass. The transit agency requires that a sticker be placed on the front of the U of O ID card to indicate payment of fees each term. The sticker also allows free use of LTD shuttle service at special campus events.

Northwest Christian College (NCC): LTD also has a contract with NCC to provide its faculty, staff and students with "free" transit service. NCC's contract is partially funded through a student body fee of $6.59 per quarter per participant. Only full time students can participate. The second portion of the program is considered to be a full time faculty and staff benefit and is funded through the school's operating budget also at $6.59 per eligible employee participant. Like U of O, a sticker indicating payment of the appropriate fees is needed on the front of the NCC identification card and must be shown to the driver when boarding the bus. For the 1995-1996 school year, NCC expects to have 300 participants in the program. This figure is a projection of ridership from the previous school year. NCC contribution to LTD for the 1995-1996 school year is $7,900. The fee structure was designed to be revenue neutral for LTD.

Summary / Recommendations

BTS has recently had discussions with Marla Edge, director of the OIT Student Activities Office and the Student Body President about starting a student transit pass program at the university. It is recommended that further discussions should be pursued.

Figure 9-4
Oregon Institutions with Student Pass Programs

Institution & Location	Transit System	Eligible to Ride Free	System Wide Use	Contribution to Transit System ($/year)	Number of Enrolled Students or Participants[3]	Revenue Generated per student[4] or participant[3] ($/year)	Source of Contributions	
							Student Generated Fees	Institution Generated Fees
Oregon State University - Corvalis	Corvalis Transit	Students	Yes	$60,000	15,000	$4.50	Yes $1.50/term/ FT student	NA
		Faculty & Staff	Yes	$20,000	NA	NA	NA	Yes General Fund
Rogue Community College - Grant's Pass	Rogue Transportation Services[1]	Students, Faculty & Staff	Yes	$20,000	NA	NA	No	Yes General Fund
Southern Oregon State College - Ashland	Rogue Valley Transit District	Students (also alumni)	Yes	$8,325	3,700	$2.25	Yes $0.75/term/ FT student[2]	No
University of Oregon - Eugene	Lane Transit District	Students	Yes	$324,000	16,670	$20.00	Yes $6.42/term/ student	NA
		Faculty & Staff	Yes	$80,000 - $100,000	NA	NA	NA	Yes Parking Fees
Northwest Christian College - Eugene	Lane Transit District	Students, Faculty & Staff	Yes	$7,900	300	$26.33	Yes $6.59/quarter/ participant[3]	Yes $6.59/quarter/ participant[3] Operating Expense

[1] Private transportation company. Will also be providing service between Klamath Falls and Medford in coordination with BTS starting in 1996.
[2] Expected to increase because of the necessity to add service due to increased student ridership and use of free paratransit service for disabled students.
[3] Current participant total of 300 is projected for each contract year based upon previous year's ridership.
[4] Derived from Fall 1995 enrollment figures and assumed stable enrollment for all terms.

BTS should consider making a proposal directly to the OIT student body, perhaps suggesting a one year trial student transit pass program. A marketing campaign may be necessary to educate and enthuse the students about the benefits a free ride program has to offer them personally, as well as, the campus and community at-large. An example of a marketing program implemented by Rogue Valley Transportation District was a one year demonstration student transit pass program at Southern Oregon State College (SOSC) under the theme "your Student ID takes you places...." The SOSC trial program was funded through a grant from the Oregon Department of Transportation with matching funds from the City of Ashland and the Associated Students of SOSC. The program was well received and SOSC now has a permanent student transit pass program and student ridership has nearly doubled in three years.

BTS should aim for a revenue neutral rate structure for these agreements. That is, the funds collected from the college should offset the loss of fare revenue and cover other associated costs. The experiences of other Oregon transit agencies with student transit pass agreements, indicate that student ridership will increase and the possible need for service improvements must be built into the initial fee structure. For these reasons, agreements must be re-negotiated annually. For the institutions that have structured payment of the student portion of their program through the assessment of a student fee, the revenue generated annually per student currently varies from a low of $2.25 to a high of $26.33. A correlation between the size of the student body and the annual revenue generated per student is not indicated by the sample. The cost to BTS of providing complimentary paratransit service to disabled students must also be considered.

Future State Transportation Funding Program

According to ODOT officials there is a strong likelihood that during the next legislative session the state will undertake a comprehensive study on transportation funding. This concept was first discussed during the 1995 legislative session in context of how the state could support transportation services. While there has been no identified program thus far, an agreement was reached with the Transportation Commission to conduct a study on how transportation is currently funded, including the types and level of funds needed for all transportation modes with emphasis on highways and transit. This statewide study should be getting underway later this year and it is very valuable for transit properties to monitor the status of this study and to provide input regarding specific funding needs (such as operating support, capital funds, etc). At the completion of the study the state intends to present a proposal to the Transportation Commission on how transportation is financed throughout the state with specific recommendations on how to fund the transportation system in the future.

9.4.3 Local Funds

Developer Impact Fees

There are currently no developer impact fees in Klamath Falls. A development impact fee can generate significant revenues for transit (and other transportation projects) and is currently being contemplated as part of the Transportation Systems Plan. An impact fee is a charge imposed on new development to compensate for their impacts on the local transportation infrastructure. A fee is typically assessed on square footage of planned development. Impact fees can be implemented by local ordinance with specific criteria for establishing an impact fee. Impact fees can be imposed in downtown urban areas or in outlying growth areas.

An impact fee is a controversial measure, especially during recessionary times. It would require several years (4-6 years) of "lead time" before a fee could be included in a local ordinance including collection and disbursement of an impact fee. Developer fees should be considered a logical source for future funding. Developer fees for transit can be used in two ways:

1. As a one-time fee to offset the capital costs of service extensions, including bus shelters and capital facilities. Since capital improvements can generally be made at a lower cost when done at the time of initial development, this is the simplest and most cost effective way of gaining transit capital improvements in newly developed areas. One-time fees are also appropriate to offset the incremental costs of fleet expansion needed to serve new areas.

2. As an ongoing fee, collected in the form of an annual assessment to offset operating costs. This is used much more rarely, but is a tremendous benefit to the transit operator. This will be increasingly important if the goal of the transit operation is to reduce single occupant automobile travel and to meet air quality objectives. To provide a high enough level of service to make an impact in these areas, operating costs will almost certainly increase. Operating cost offsets are critical to insuring that a high enough level of service is provided to a new development to affect mode choice.

Like other developer fees, transportation fees must show a nexus between the development and service provided. However, fees can be collected and held for a reasonable period of time until densities reach a level that can be better served by transit. The same is true for other developer concessions, such as the installation of transit shelters. While passenger amenities are important in areas with transit service, developers should not be encouraged to actually build shelters in areas without service, and the operator should not be compelled to serve every shelter a

developer is willing to build. Funding for a shelter can be collected and held for up to five years waiting for appropriate densities to develop.

Merchants/Business Associations

Local merchants and business associations are often interested in advertising on bus stop benches and shelters in the community were they do business. Generally, in these programs the transit operator does not have to pay anything for the benches and the contractor maintains them as well. This type program has been successful in other jurisdictions and should be explored by BTS, particularly during times of scarce resources. Downtown Merchants have, from time to time, committed funds to transportation projects. The financial plan assumes a small amount of funds would be contributed by merchants associations for purchase of passenger shelters and benches.

Parking Taxes and Fees

A parking tax or fee could be levied by the City of Klamath and all or a portion of it dedicated to transit uses. Many downtown areas levy parking fees and as the city grows, it can also be used as a strategy to encourage transit use for trips to the downtown area. Typically parking taxes levied in downtown areas have two impacts on a transit system; they increase transit usage as the costs of driving increases; second they generate needed revenue for a transit system.

9.5 LONG-TERM OPERATING AND CAPITAL COSTS

The emphasis of this financial plan has been on the first ten years, from FY 1995/96 through FY 2004/05. Beyond the ten year time frame, it is difficult to project costs with any degree of accuracy and therefore quantitative projections are not included in the financial plan.

Figure 9-1 projects operating costs for fixed route and dial-a-ride services. In the first year of the plan costs are estimated at nearly $1.2 million and this amount gradually increases to $1.4 million by FY 2004/05. These costs are based on constant service levels for fixed route service and a reduction in dial-a-ride services from 8,000 to 5,000 hours beginning in FY 1996/97. Assuming service levels remain constant, operating costs would be expected to increase over the next ten years at a similar rate as had occurred during the first ten years. The operating costs would rise to about $2.0 million by FY 2014/15. As the population of Klamath Falls grows and demand for transit services increases within the Basin Transit Service area, it may create a need for additional fixed route service. Service levels could potentially increase if there were new funding sources available to support increased service levels.

The capital needs covering the ten-year period are outlined in Figure 8-1. Beyond this time frame there will be a need to continue replacing the fleet as buses reach their useful lifecycle. Replacing existing vehicles and acquiring new expansion vehicles (to support enhanced service levels) would represent the major capital expenses beyond FY 2004/05.

CHAPTER 10. SERVICE POLICY, EVALUATION AND PLANNING

10.1 INTRODUCTION

Basin Transit, as a public transit agency, has a responsibility to provide transit service that meets the diverse and changing needs of the community in an efficient, cost effective way. To assist Basin Transit Management, the Basin Transit Board of Directors and the Community in ensuring that this goal is met it is important to understand the components that go into maintaining and increasing the effectiveness of transit service:

- **Population Concentrations** Service effectiveness is strongly impacted by density and intensity of development in a community. Transit can meet more of the transportation needs in a community where the density, intensity and clustering of the development works to concentrate people and preferred travel destinations in a more concise area.

- **Tailor the Type of Service to Meet the Specific Need** Related to the concentrated populations served, fixed route service meets the needs of higher numbers of people at significantly lower cost per passenger. For Basin Transit dial-a-ride service is approximately five times more costly than fixed route service on a per passenger basis. Service type should be tailored to the service population. Fixed route services are most efficient and effective in areas where the intensity and density of development provides a high ridership population interested in travelling within those more densely developed areas. Dial-a-ride meets the needs of less densely developed areas where trip origins and destinations are more dispersed in both location and preferred travel times. Dial-a-ride can also better meet the travel needs of some people with disabilities.

- **Increase Fixed Route Service Frequency Before Service Area Coverage** Increasing frequencies on fixed route services in densely developed areas will generally result in higher numbers of riders than expansions of routes into new areas. This is because the riders have more flexibility in the timing of their trips. Increased frequencies on fixed route service allows transit to be more competitive with the automobile by accommodating the trip as quickly, or almost as quickly, as someone could drive themselves. As a result, it is often better to focus expanded resources (i.e.: busses and operations funding) on increasing frequencies on current fixed routes than on adding new routes.

- **Limited Financial Resources** The financial resources of the district are not adequate to meet every transit request in the community. As a result, services need to be focused to meet the greatest community needs. In addition, short term or one time revenues should be used for one time and capital equipment expenses. Revenues intended to be used to support service operations should be demonstrated to be sustainable on a long term basis (five year minimum).

Standards to measure the quality of current service, criteria to evaluate requests for future service alterations and expansions, and guidelines to encourage development that is supportive of transit evolve from these basic premise at three levels.

Inherent in these standards, criteria and guidelines are the Goals the Basin Transit Board developed in August of 1994:

Short Range

1. Develop a policy to assess BTS services including new requests, expansion, and performance standards for existing service.
2. Determine our "fit" with other public agencies.
3. Show the community that BTS is really necessary and improve the public view of BTS through community education.
4. Coordinate BTS with other transportation modes.
5. Determine minimum yearly capital needs.

Long Range

1. Determine transportation needs for growth areas.
2. Develop BTS as a regional transportation provider and/or coordinator and through expansion of elderly/disabled service to outlying communities.
3. Acquire the property needed for future expansion.
4. Develop a five year plan to reduce the dependency on the tax base.
5. Build a "team spirit" within BTS.

These specific, action-oriented intentions have been incorporated into a broader set of goals which speak to the ongoing operations.

10.2 GOALS, OBJECTIVES, MEASURES AND STANDARDS

Goals and objectives are important tools in building consensus around planning decisions, while measurable standards are important as a means of guaranteeing that public agencies are getting a good return on their investment.

This chapter presents proposed public transportation goals, objectives and standards for both demand responsive and fixed route service based on current operating conditions in Klamath Falls. These goals, objectives, and standards are based primarily on the standards of other similar systems, modified to reflect existing practices and policies in Klamath Falls.

10.2.1 Definitions

A complete set of goals and objectives contains the following elements:

- Goals

- Objectives
- Measures
- Standards

The relationship between these elements is hierarchical.

Goals set the tone by establishing the overall policy direction and organizational philosophy.

Objectives relate to each goal. They are specific, attainable, and program oriented.

Performance measures provide the mechanism for measuring the achievement of objectives. Measures can be both passive and active. Passive measures are used to measure achievement of service design and are often qualitative. Active measures are used to measure service performance and are usually quantitative. Measures involve monitoring, data collection, analysis, and evaluation.

Standards set the level of attainment desired for each performance measure. Standards are usually quantitative but may be qualitative (e.g., a yes/no assessment as to whether an objective has been achieved). Standards should be agreed-upon targets for the transit system to achieve and may be recalibrated annually or more frequently to reflect changing circumstances such as market changes, funding changes, and operational changes.

10.2.2 Basin Transit Goals, Objectives, Measures and Standards

The proposed goals, objectives, measures, and standards are shown in tabular form in **Figure 10-1**. The table is arranged with the goals-objectives-measures-standards hierarchy proceeding from left to right. The recommended goals are stated in the far left column. To the right of each goal are listed the objectives that support it. To the right of the objectives are listed the performance measures to be used in measuring achievement of each objective. To the right of the performance measures are the standards--that is, the level that should be achieved in each performance measure. Current performance is shown in the fifth column so that the proposed standards can be compared against actual performance.

Four basic goals are presented. For each goal, several objectives and measures are included. The performance monitoring system is intended to provide an accurate assessment of system performance without overburdening the system, or requiring more information than is already being collected by BTS.

1. **Provide safe, reliable, high quality, and economical public transportation.** This goal deals with short-term activities including planning, marketing and service delivery.

2. **Coordinate transit system development with community planning and development efforts, land use policy, and other transportation services.** This goal deals with the important long-term activities to protect and enhance the vitality of transit.

3. **Demonstrate the importance of BTS to the vitality of the community.** This goal deals with public-out reach and community education.

4. **Develop a planning process that will outline minimum yearly capital needs, and help minimize the dependency on the local tax base.** This goal outlines the planning process and other steps needed to help the system grow and prosper.

From these goals follow objectives, performance measures and performance standards as shown in **Figure 10-1**. Current performance, where noted, is based on information collected for the 1994/1995 fiscal year.

Figure 10-1
Goals, Objectives, Performance Measures, and Standards

GOAL	OBJECTIVE	PERFORMANCE MEASURE	STANDARD
1. Provide safe, reliable, high quality, and economical public transportation.	a. Provide safe transit	Miles between preventable accidents	> 60,000
		Passenger injuries per 100,000 miles	< 2
	b. Provide reliable transit	Demand Responsive: Maximum wait time	<30 minutes
		Percent pickups within 0-10 minutes of scheduled time	95%
		Fixed Route: Percent scheduled departures on time (between 1 minute early and 5 minutes late)	95%
	c. Operate transit efficiently and economically	Passengers per revenue vehicle hour	Paratransit/DAR > 2.0 Urban Local FR > 15.0 Rural/Intercity FR > 3.5
		Farebox recovery ratio	Paratransit/DAR > 5% Urban Local FR > 15% Rural/Intercity FR > 10%
			Paratransit/DAR < $5.50 Subsidy per passenger Urban Local FR < $3.50 Rural/Intercity FR < $6.50
		Periodic review of fares to maintain recovery ratios and grow fares with inflation	Annual fare Review

Figure 10-1
Goals, Objectives, Performance Measures, and Standards

GOAL	OBJECTIVE	PERFORMANCE MEASURE	STANDARD
	d. Provide up-to-date management information	Monthly management information	Total passengers Revenue passengers Passenger revenue Operating cost Revenue vehicle hours Revenue vehicle miles Preventable accidents Passenger injuries Passenger complaints
		Semi-annual management information	Response times (DR) Pick up time deviation (DR) Schedule adherence (FR)
	e. Minimize overhead costs	No duplication of effort between agencies	
	f. Ensure flexibility for Demand-Responsive and paratransit patrons.	Number of service refusals on Demand-Response	< 1/day
		Percentage of capacity in any hour used by subscription trips.	< 50%
2. Coordinate transit system development with community planning, development efforts, land use policy, and other transportation services.	a. Encourage new facilities which may have public transit impacts to locate in current service areas, with pedestrian access from current stops.	Staff review of development proposals in light of BTS standards and guidelines.	Yes
	b. Encourage any new large developments to provide streets for through-operation of transit, and amenities (signs and shelters) for transit users.	Staff work with local government to implement development guidelines standards and incentives to encourage transit oriented development.	Yes
		Staff review for signs and shelters in new developments	Yes
	c. Charge new facilities outside service areas, which require service incremental cost of new service.	No increase in total operating subsidy due to service to new development.	Yes
	d. Coordinate with private transportation services.	Offer service with direct connections to Greyhound, Red Ball, and Western Transportation Lines.	Yes

Figure 10-1
Goals, Objectives, Performance Measures, and Standards

GOAL	OBJECTIVE	PERFORMANCE MEASURE	STANDARD
3. Demonstrate the importance of BTS to the vitality of the community.	a. Increase the level of public information about transit service.	Availability of maps and schedules Work to promote/publicize service to target markets. Have BTS staff available for presentations to schools, businesses, and social service agencies	 Develop and establish a dedicated marketing budget
4. Develop a planning process that will outline minimum yearly capital needs and help minimize the dependency on the local tax base.	a. Prepare a comprehensive development plan that addresses short term goals, future growth, operating efficiencies, and capital needs.	Complete the on-going Transit Development Plan Coordinate TDP with other regional plans	Revise every 5 years Review and update bi-annually

10.3 SERVICE MODIFICATION AND EXPANSION EVALUATION

As the Klamath Falls Community grows, both within and outside of the existing Basin Transit District boundary, the District staff and Board will be faced with requests to adjust existing service to meet the needs of that development, to expand fixed route service into areas currently served by dial-a-ride, or to expand service beyond the current district boundaries. Careful evaluation of these requests should be conducted to ensure the on-going efficiency and effectiveness of the service within the financial capacity of the district.

Three levels of criteria for evaluating requests are outlined below. Request categories include:

- Modification of existing routes
- Expansion of new service within the district
- Expansion of new service to areas outside of the district

These criteria are not intended to function as hardline rules, but as a framework to evaluate requests. Generally speaking requests that can comply with all of these criteria will likely benefit Basin Transit's productivity, effectiveness and efficiency. Those that comply with several, but not all of the criteria, should be cautiously considered and those that do not comply with any criteria are likely damaging to the overall transit system. Factors that can not be specifically outlined as criteria, but that may also effect the decision making process by mitigating some or all of the impacts of a request, include:

- Changes that add little or no additional management burden should be credited with at least a portion of the administrative cost burden included in overall operating cost calculations.
- Changes that result in greater fleet use or other capital equipment use efficiencies or result in the provision of additional capital resources to the district.
- Changes that serve a specific location, resulting in strong support to an important community objective that may not be specifically transit related.
- Changes that serve a specific population group valued in the community.
- Interim changes that lead to long term improvements to the overall transit system effectiveness and financial health.
- Changes that will bring new revenues into the district in excess of their cost burden.

The only hardline rule that the district must follow in providing service is that it must do it within the limits of its current and reasonably anticipated future financial capacity.

10.3.1 Route Modification Requests

Modifications to the existing routes may be requested to meet the needs of currently anticipated or underway developments near existing routes such as the Sykes Technical

Support Facility near OIT and the Crystal Terrace Retirement Housing Project near the Medical Center as well as individual citizen requests to route the bus past their favorite market or activity center. While individual requests may seem minor it will be important to understand their overall impact on the transit system prior to implementing them.

Appropriate criteria for evaluating "minor" route modification requests should include:

- Scheduled frequencies shall not be decreased (e.g.: less frequent service) and additional equipment shall not be required to maintain current frequencies.
- If route sections are to be eliminated new routings shall be reasonably demonstrated to result in higher overall route specific productivity in terms of riders per revenue service hour.
- Driver break periods shall not be reduced below 4 minutes for any individual break and 30 minutes aggregate per full 8 hour shift (not including the meal break).
- For the Mainline Route 1 the percentage of the route operated on designated collector and arterial streets shall not be reduced below the current route percentage of the route operated on arterial and collector streets.
- Route specific fare box recovery as a percentage of route operating costs shall not be decreased below current levels.

10.3.2 Requests for Expanded Services within the District Boundary

Expansion requests within the Basin Transit District will most likely be for provision of fixed route services where only dial-a-ride services are now available. Requests for expansion of new fixed route services within the Basin Transit District boundary should be considered if they can adhere to the following criteria:

- The combination of projected fare collection (including private subsidy) on the route and property tax receipts to the district from lands within 3/4 mile of the new route shall equal or exceed 50% of the direct costs of the operation of the new route. [Note: 50% is the approximate percentage of current operations compensated through fares and property tax collections. This percentage should be adjusted as the overall agency financial picture changes overtime.]
- New routes shall reasonably demonstrate the ability to equal or exceed the following base (current) system operating statistics after 24 months of service:
    - rider productivity per revenue service hour
    - operating cost per rider
    - fare box recovery ratio

Services not meeting these standards 24 months after implementation shall be redesigned or eliminated.

- Even if the above three criteria can be met, no service expansion will be considered if the district can not demonstrate the ability to financially support the expansion for a minimum of five years with readily guaranteed revenues.

10.3.3 Requests for Expansion of Service Outside of the District Boundary

Basin Transit may be requested to provide services to various locations in the region that are outside of the current transit district boundary potentially including the Running "Y" Ranch Resort, Pelican Bluffs Ski Resort, the Chiliquin Casino and other new developments. Depending on the type of service and the amount of private revenue resource that can be levied to support these services it may be appropriate for Basin Transit to serve these needs without annexation of these development's to the district. In fact, prior to any expansion of the district boundaries through annexation a thorough analysis of the future costs of service to the area compared with the revenue benefits of annexation should be conducted.

If revenues from the annexed properties to the district can not substantially cover the cost of service operation, as well as the capital costs then annexation may not be wise. However, in alignment with Basin Transit's Goal to become the regional transit coordinator, Basin should be open minded to the management, operation and contracting of services meeting the needs of the region if the financial stability of the district is maintained or improved.

The basic minimum criteria outlined below should be used to evaluate requests for service outside the existing Transit District boundary:

- The combination of projected fare collection, private subsidy and non-property based tax revenues to the District shall equal approximately 100% of the direct costs of the operation of the new route. If it can be reasonably demonstrated that more than 50% of the trips on the new service will be taken by residents of the District, that these new services will not result in significant additional administrative burden to the district, or that these services will substantially benefit the Core Klamath Falls business area; the direct cost compensation percentage may be reduced. If the service area has been annexed to the district, credit should also be given for property taxes received by the district for the new area.

- Capital assets (i.e.: vehicles, parts, maintenance space) required for the operation of current in-district services shall not be taken for use on out-of-district services. Excess capital assets may be used for out-of-district services.

- Even if the above criteria can be met, no service expansion will be considered if the district can not demonstrate the ability to financially support the expansion for a minimum of five years with readily guaranteed revenues and no service reduction within the district.

10.3.4 Regional Transit Service Coordination

Klamath Falls, Klamath County and Basin Transit are in a unique position to be able to implement a truly coordinated transportation system in the region. The designation of the transit district in 1981 was an innovative and far sighted effort on the part of the community and laid a strong foundation for continuing the development of coordinated transit services to meet its current and future needs.

Basin Transit has excellent experience managing and operating transit and should become the coordinator for transit services in the region. This coordination role may include expansion of Basin Transit services as funding allows, the management and operation of fully self-supporting services, the management of contracted services for private entities, and the management of public or quasi-public services funded through non-Basin Transit resources.

Such services may include:

- Fixed route and special services transportation between Klamath Falls and other cities and points of interest in the region.
- Social service transportation programs meeting the needs of seniors, people with disabilities and other special needs clients.
- Jitney or van transportation between the Klamath Falls Airport and Klamath Falls and other points of interest in the region including, but not limited to, the Running Y Ranch, the Chiliquin Casino, Pelican Butte Ski Area and Crater Lake.
- Employer transportation services linking employment sites to Klamath Falls and Basin Transit Services.
- Future passenger rail services.

In an effort to encourage the coordination of regional transit services with Basin Transit and in order to maximize the entire community investment in transit, the district should develop an incentive program to encourage coordination through Basin Transit. Concepts may include:

- Basin Transit offering to manage the provision of self-supporting services, at no additional cost, within its existing administrative framework.

- Basin Transit providing the management of contracted services, both within and outside of the current district boundaries, for a management fee of no more than

10 percent (or other appropriate percentage) over and above the base operating costs of the contracted services.

Basin Transit should be given the opportunity to coordinate and/or provide potentially self-supporting transit services such as airport jitney service, casino and resort transportation services, employer transportation programs in order to maximize the use of the transit infrastructure.

10.4 TRANSIT SUPPORTIVE LAND-USE GUIDELINES

The link between land development and the ability to provide effective and efficient transit services cannot be ignored. Because busses appear to be very flexible in their ability to maneuver and access a wide variety of locations in a community it has often been interpreted that "if you build it they [the busses] will come." However, in a time of tight financial resources, the option to run busses all over town is no longer realistic. In order to maximize the transit investment the community (not to mention the other infrastructure improvements, including streets, sewer, water, electric, gas and geothermal) must focus its development in the form of increased densities and use intensities within areas with infrastructure already in place. For that reason, Basin Transit should encourage the City and County to replace or reinforce current development requirements to result in more dense and intense transit oriented development.

There are several key land-use concepts that Basin Transit can promote to support its goal of effectively and efficiently serving the transit needs of the residents of the District.

10.4.1 Land Use Policies

General Policies

If Basin Transit is to continue to improve its ability to meet the transit needs of the community, a base policy of land-use intensification, rather than sprawl, must be implemented. Two alternative policies that support intensification to assist transit include, the creation of a mainline transit overlay zone policy or a arterial and collector street development policy. These would be framed as follows:

- **Mainline Transit Overlay Zone**

  Basin Transit supports the designation of a Mainline Transit Core Overlay Zone within one-half mile of Mainline Route 1, particularly where Mainline Route 1 and 2 co-exist, including in the vicinity of OIT, Downtown, and the South 6th Street Corridor to Highway 39 . Development, redevelopment and increasing the intensity of use, particularly in second and third floor spaces in existing structures, should be strongly supported for developments within one-half mile of these areas. Basin

Transit supports the creation of land use development incentives in this Mainline Transit Core that would provide for all or some of the following:

- The elimination of, or substantive reductions in, the building permit and other development fees charged to projects within the Mainline Transit Core Overlay Zone;

  and/or

- Developments within the Mainline Transit Core Overlay District shall be permitted to maintain pre-development property tax valuations relative to the Basin Transit District assessment for ten years after completion of construction;

  or

- Development occurring outside of the Mainline Transit Core Overlay District will be charged an additional impact fee intended to address demand for future service expansion. A tiered approach could be established providing a lower level of penalty for developments outside of the Mainline Transit Core Overlay District, but within one-half mile of one of the other transit routes.

- **Development Adjacent to Arterial or Collector Streets**

  Basin Transit encourages new Multi-family, Commercial and Industrial development to locate along streets designated as arterials and collectors in the Transportation System Plan. Incentives to support this policy could include:

  - The elimination of, or substantive reductions in, the building permit and other development fees charged to projects with property boundaries on arterial and collector streets;

    and/or

  - Developments with boundaries on arterial and collector streets shall be permitted to maintain pre-development property tax valuations relative to the Basin Transit District assessment for ten years after completion of construction;

    or

- Developments, other than single or two family residential, that do not have boundary on an arterial or collector street will be charged an additional impact fee intended to address demand for future service expansion.

[Note: Since the TSP Street designations have not been released the effectiveness of this proposed policy may require additional evaluation once the designations are finalized to fully evaluate its potential.]

Site/Project Specific Incentives:

Specific tools that can be useful in encouraging land use intensification as opposed to sprawl development can be included in zoning and development ordinances. The key component in an incentive program is that *the incentive must result in real benefit to the project developer. Benefit is generally interpreted as direct or indirect long or short term financial savings.* In addition, the result of the incentive must not lessen the potential for the project to be successful in the community. For example: allowing reductions of required parking in exchange for locating along a transit corridor can only be successful if the project developer is confident that the overall financial success of the project will not be impacted by the decreased parking. Some incentives that may work in the Klamath Falls area, either singly or in combination, include:

- Developments within the Mainline Transit Overlay District shall be permitted, if not encouraged, to substantially reduce front setback and open space requirements of those required in the applicable zoning district in exchange for the placement of structures adjacent to the right-of-way. *The objective of this incentive is to encourage the placement of buildings closer to the street, and therefore the transit route. It also potentially encourages the placement of parking to the side and rear of the development improving the perceived pedestrian accessibility of the development.*

- Developments within the Mainline Transit Overlay District shall be permitted to reduce required parking by up to 25%. *This incentive may or may not be successful in Klamath Falls, depending on the specific use and other development policies in the community.*

Incentives like those outlined above have the residual effect of allowing the developer to achieve more structural floor area for product delivery, resulting in a long term financial benefit that functions as a trade off for risking a non-standard development pattern.

Note: Should the implementation of a Mainline Transit Overlay District prove infeasible these guidelines could be applied to developments along arterial and collector streets or in specific zoning districts.

Site/Project Specific Requirements:

Specific development requirements that support transit should be included in the zoning and land development codes:

- Developments adjacent to designated arterial and/or collector streets shall provide a clearly defined pedestrian pathway between the primary entrance to each structure within the development and the street right-of-way.

- New developments or property improvements in Multi-family, Commercial and Industrially zoned areas valued at 25% or more of the value of existing development shall be required to improve designated bus stop areas adjacent their developments with benches, transit shelters, lighting, information kiosks, telephones, waste receptacles and landscaping. The value of the required improvements shall not exceed 5% of the value of base improvement project.

10.4.2 Capital Infrastructure Investment

A Transit system is dependent on the quality of the street infrastructure on which it operates.

- Basin Transit requests that the City and the County include Basin Transit in their solicitation of projects for consideration for inclusion in short and long term Capital Improvement Programs. Two projects of particular concern to Basin Transit are the signalization of the intersection of Avalon and Shasta, and the signalization of the intersection of LaVerne and Washburn to provide safer turning movements for busses.

- On Arterial Streets bus pullouts shall be provided at designated bus stop locations where BTS deems them necessary for safe operation. Potential bus stop locations on new or redeveloping arterials shall be coordinated with Basin Transit.

- Public sidewalk and lighting improvements shall be required on both sides of all Arterial, Collector and Local streets in the community except that local streets in single and two family residentially zoned areas shall be permitted to provide sidewalk on only one side of the public street.

Figure 10-2
Recommended Minimum Sidewalk Widths

Street Class./Zoning	Residential	Commercial	Light Industrial	Industrial
Local	5'	6'	6'	5'
Collector	6'	6'	6'	6'
Arterial	6'	8'	8'	6'

- Automobile access (Driveway cuts) to arterials and collectors shall be minimized through the requirement to develop joint access cuts or the consolidation of multiple cuts. Driveway shall be placed and driveway widths minimized so as to provide adequate bus stop areas.

- Bus shelters shall be included at all stops where consistent boardings in excess of 10 people per day are occurring. In addition, shelters should be included where weather conditions (i.e.: wind, snow, rain) make waiting particularly uncomfortable.

In order for the bus shelter to be an asset to the transit system and the surrounding businesses, it needs to not only be attractive and functional, but easy to maintain. Elements that contribute to ease of maintenance include:

- anodized aluminum framing
- break resistant glass side panels
- flip-up metal or heavy duty plastic seating mounted on the shelter side panels
- ground surface connections adequate to secure the shelter, but no obstruct sweeping or hosing operations
- vandal resistant in-ground (sidewalk) lighting or pole mount street lighting

Shelter and stop locations must also comply with the requirements of the Americans with Disabilities Act (ADA). Primary requirements include:

- Where new bus stop pads are constructed at bus stops, bays or other areas where a lift or ramp is to be deployed, they shall have a firm, stable surface; a minimum clear length of 96 inches (measured from the curb or vehicle roadway edge) and a minimum clear width of 60 inches (measured parallel to the vehicle roadway) to the maximum extent allowed by legal or site constraints; and shall be connected to streets, sidewalks or pedestrian paths by an accessible route. The slope of the pad parallel to the roadway shall, to the extent practicable, be the same as the roadway. For water drainage, a maximum slope of 1:50 (2%) perpendicular to the roadway is allowed.

- Where provided, new or replaced bus shelters shall be installed or positioned so as to permit a wheelchair or mobility aid user to enter from the public way and to reach a location, having a minimum clear floor area of 30 inches by 48 inches, entirely within the perimeter of the shelter. Such shelters shall be connected by an accessible route to the boarding area.

APPENDIX A

Ridecheck Summaries

RIDECHECK - ROUTE 1 - :00 HOURS

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Reed TC	69	
MAIN &		
Texaco	2	3
Baldwin	1	
CALIF. &		
Freeway		
Roosevelt		
3rd	1	2
Doty		
Upham	1	
UPHAM &		
Lakeview	1	5
Oregon	2	5
OREGON &		
Fulton	7	2
Addison	6	5
Bigfoot's	7	2
BIEHN &		
Lytton		2
Hawthorne	1	1
OSP		1
SHALLOCK &		
1st Int. Bank	3	
DAGGETT &		
Clairmont	1	
Mt. View	1	3
Cancer Ctr.		
HOSPITAL &		
Parking Lot	3	3
Main Entrance	8	6

RIDECHECK - ROUTE 1 - 00: HOURS
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
OIT	16	34
Industrial Park (OC)		
CAMPUS &		
Daggett		
ALMOND &		
Dr. Benson's		
DAHLIA &		
McDonald's	1	2
1st Federal Bank		
ELDORADO &		
Sakura (apts.)	3	
Peach		1
Birch	1	
Van Ness		
Del Moro		
Lawrence		
Freemont		1
Portland		
Earle	1	1
ESPLANADE &		
Spring	2	3
MAIN &		
11th	1	3
9th		5
Reed TC		36
TOTAL	**139**	**126**

RIDECHECK - ROUTE 1 - :30 HOURS

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Reed TC	35	
MAIN &		
Texaco	5	6
Baldwin		1
CALIF. &		
Freeway		
Roosevelt		
3rd	1	2
Doty	1	
Upham	3	
UPHAM &		
Lakeview	3	2
Oregon	1	4
OREGON &		
Fulton	1	1
Addison	1	1
Bigfoot's	1	1
BIEHN &		
Lytton		1
Hawthorne		1
OSP		
SHALLOCK &		
1st Int. Bank	1	4
DAGGETT &		
Clairmont		2
Mt. View		
Cancer Ctr.		1
HOSPITAL &		
Parking Lot	3	4
Main Entrance	4	4

RIDECHECK - ROUTE 1 - 30: HOURS
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
OIT	30	12
Industrial Park (OC)		1
CAMPUS &		
Daggett		1
ALMOND &		
Dr. Benson's		
DAHLIA &		
McDonald's	4	5
BIEHN &		
Lakeport		
Iowa	1	
Lytton	1	
OREGON &		
Francis		4
Fulton	1	5
9th &		
Lincoln		3
Sacred Heart		4
High Street		2
Reed TC		38
TOTAL	**97**	**110**

RIDECHECK - ROUTE 2

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Reed TC	87	
KLAMATH &		
8th	1	
9th	1	
12th	1	
Broad	1	
EAST MAIN &		
So. Eldorado	2	8
Overhead Door		
Collier's		1
Stukel	1	3
Orchard		1
Darrow	3	2
Wantland		3
EBERLEIN &		
Martin		
Division		9
Fred Meyer TC	24	34
SHASTA &		
K-MART		
AVALON &		
K-MART		6
McDonald's	3	1
Emporium	7	5
S. 6TH &		
Cimm. Motel	2	1
Swan Lake Lumber		
Klamath Kleaners		
Town & Country	6	31
Summers		

RIDECHECK - ROUTE 2
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Jimmy D's	1	6
Hope	3	1
Kane		
Homedale		
Groc. Whse.		6
Madison		
PATTERSON &		
Simmers	4	
S. 6TH &		
Madison	3	
Homedale	1	
Wiard		1
Gettle		
Gary	1	
Alameda Bypass	2	1
Derby Street		
Town & Country TC	8	4
Fairgrounds	9	1
Senior Ctr.	2	
S. 6TH &		
Avalon	4	
Pizza Factory	4	2
Fred Meyer TC	46	11
WASHBURN &		
Taco Bell		
Pershing		1
S. 6TH &		
Shasta		5
Martin	2	2

RIDECHECK - ROUTE 2
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
E. MAIN &		
White	18	11
Reclamation		1
Darrow		
Garden	4	5
Stukel		6
Richmond	3	1
So. Eldorado	3	2
MAIN &		
Spring		8
11th	5	3
9th		
Reed TC		79
TOTAL	**262**	**262**

RIDECHECK - ROUTE 3 - EVEN HOURS

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Reed TC	29	
MAIN &		
Texaco		
Baldwin		
RIVERSIDE. &		
Main	1	4
Green Springs		1
Lindley	2	1
Abilene	1	
GREEN SPRINGS &		
VIlla West		4
Braecrest Mtl.	1	
BALSAM &		
Fire Station		3
Emerald		
4700 Block		
Orindale	3	
ORINDALE &		
Sunnyside		2
Green Springs		4
WEYCO &		
Fairhaven School	1	
Peggy Avenue	4	1
MATHER'S &		
Mahan		1
MAHAN &		
Weyco	4	
HWY 66 &		
Flint	1	
Ray's Market	3	2

RIDECHECK - ROUTE 3 - EVEN HOURS
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
GREEN SPRINGS &		
Kellogg		
Villa West		
Klamath View Park	1	1
Eddie's Place		
RIVERSIDE &		
AmGas	1	1
Gas Co. Office		
Veteran's Park		
KLAMATH &		
3rd	1	2
Reed TC		23
TOTAL	**53**	**50**

RIDECHECK - ROUTE 3 - ODD HOURS

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Reed TC	23	
MAIN &		
Texaco		
Baldwin		
RIVERSIDE. &		
Main		
Green Springs		1
Lindley		
Abilene		1
GREEN SPRINGS &		
VIlla West		
Braecrest Mtl.		1
BALSAM &		
Fire Station	1	2
Emerald	1	
4700 Block	1	
Orindale		
ORINDALE &		
Primrose		
Debbie		
VALLEY VIEW &		
Rosewood		
Briarwood		
BRIARWOOD &		
Mason	1	
MASON &		
Rosewood		
Orindale		

RIDECHECK - ROUTE 3 - ODD HOURS
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
ORINDALE &		
Primrose		
Balsam		
Sunnyside		
Green Springs		3
HWY 66 &		
Flint		
Ray's Market	5	
GREEN SPRINGS &		
Kellogg	2	1
Villa West	1	
Klamath View Park	2	2
Eddie's Place		
RIVERSIDE &		
AmGas		
Gas Co. Office		
Veteran's Park	1	
KLAMATH &		
3rd		
Reed TC		17
TOTAL	**38**	**28**

RIDECHECK - ROUTE 4

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Fred Meyer TC	51	
EBERLEIN &		
Division	3	3
East Main	1	1
EAST MAIN &		
Reclamation	2	
Darrow	1	4
Garden	3	1
Stukel	5	3
Richmond	1	3
Gino's	10	2
MAIN &		
Spring	1	1
11th		7
9th		7
REED TC	95	70
Main &		
Texaco		
KLAMATH &		
3rd	5	1
5th		
8th	5	
9th	7	
12th	2	2
Broad	2	
MAIN &		
Martin	3	5
1900 Main	2	1
Bike Path	2	3
WASHBURN &		

RIDECHECK - ROUTE 4
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Garden	1	4
Darrow	3	4
Reclamation	1	3
Fred Meyer TC	21	61
SHASTA &		
K-Mart	2	2
AVALON &		
K-Mart	2	7
McDonald's	1	4
S. 6TH &		
Emporium	3	8
Cimm. Motel		3
Altamont		
Town & Country	6	16
Jimmy D's	2	5
Hope Street		
Kane		
Lutheran Square	1	
Groc. Whse	10	4
Madison	1	4
PATTERSON &		
Simmers		3
Climax	1	2
Alva		
ALVA &		
Chinchilla	2	4
McCLELLAN &		
Shasta	2	
Moyina		

RIDECHECK - ROUTE 4
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Eberlein		1
EBERLEIN &		
Carlson	2	2
PATTERSON &		
Sage		
Shasta		
SHASTA &		
Madison	1	
Ogden	3	5
Homedale	1	1
Kane		
Wiard		2
Gettle		
Gary	11	4
Summers	1	1
Dayton	2	3
Vandeburg (OC)	3	2
EBERLEIN &		
YMCA		3
Mrs. K's		3
Applewood		
Fred Meyer TC		9
TOTAL	**284**	**284**

RIDECHECK - ROUTE 5 - EVEN HOURS

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Reed TC	11	
PINE &		
8th		
11TH &		
High		
Washington	2	
Grant	2	
UPHAM &		
Sargent		
OREGON &		
Fulton	1	2
Addison		
Biehn	1	1
Siskiyou		
MONTELIUS &		
Iowa		
Gage		
Lakeport		
LAKEPORT &		
Quarry		1
Hanks		
HARVARD &		
Pelican School	1	1
TORREY &		
Corvallis		
NOSLER &		
California	1	1
WOCUS &		
Corner	1	
Link		

RIDECHECK - ROUTE 5 - EVEN HOURS
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
W. OREGON &		
Yonna		1
California		2
CALIFORNIA &		
Front	1	
Nevada		
MOORE PARK	1	
Nevada &		
Grocery		3
On Ramp 97s		
Siskiyou		
SISKIYOU &		
Conger School	1	2
CALIFORNIA &		
Fulton		
Upham		4
UPHAM &		
Lakeview	1	2
Oregon		
9TH &		
Lincoln		
Sacred Heart		
High Street		
Reed TC		12
TOTAL	**24**	**32**

RIDECHECK - ROUTE 5 - ODD HOURS

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Reed TC	12	
PINE &		
8th		
11TH &		
High		
Washington		
Grant		
UPHAM &		
Sargent		
OREGON &		
Fulton		
Addison		1
Biehn	2	1
BIEHN &		
Lytton	1	
Hawthorne		
OSP		
HWY 97 &		
Trailer Park		
Mollies		
WOCUS ROAD &		
Trailer Park	2	2
HWY 97 &		
Exxon		
Sunset Beach		
LAKEPORT &		
Thomas Lumber		
Pastega Market	1	
Jeid-Wen		
Hanks		

RIDECHECK - ROUTE 5 - ODD HOURS
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
HARVARD &		
Pelican School		2
TORREY &		
Corvallis		
NOSLER &		
California		2
WOCUS &		
Corner		
Link		
W. OREGON &		
Yonna		
California		
CALIFORNIA &		
Front		
Nevada		
NEVADA &		
Grocery	6	6
On Ramp 97s	7	
Siskiyou	1	
SISKIYOU &		
Conger School		1
CALIFORNIA &		
Fulton		
Upham		
UPHAM &		
Lakeview		
Oregon		2
9TH &		
Lincoln		

RIDECHECK - ROUTE 5 - ODD HOURS
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Sacred Heart		
High Street		2
Reed TC		20
TOTAL	**32**	**39**

RIDECHECK - ROUTE 6

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Town & Country TC	19	
S 6TH &		
Fairgrounds		2
Austin	1	
Denny's		2
WASHBURN &		
Bi-Mart		
Bike Path	5	4
Crosby	2	
Cascade Honda	1	7
WalMart	5	5
ANDERSON &		
So. Town Center		
Avalon		
Altamont		
ALTAMONT &		
Anderson		3
Barry		
Bristol		2
La Verne	4	2
Onyx		
Hilyard		
Boardman	3	3
Crosby		
S. 6TH &		
Klamath Kleaners		
Town & Country TC	14	7
Summers	1	
SUMMERS &		
Altamont School		

RIDECHECK - ROUTE 6
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Delaware		
Hilyard		1
Denver		2
Clinton	1	
Bristol	3	
Barry	2	5
Bartlett	2	2
Anderson		1
Stepping Stones	1	
Little League		
Airport (OC)		
GLENWOOD &		
Ankeny		
Laurelwood		1
LAURELWOOD &		
Gatewood	2	2
GATEWOOD &		
Wicket		
Golden		
BARTLETT &		
Homedale		5
HOMEDALE &		
Brixner	1	
Sturdivant		
Sylvia	1	
Canal		
Harlan		3
Walton	1	2
Independence		1

RIDECHECK - ROUTE 6
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Delaware		
Lutheran Square		
S. 6TH &		
Groc. Whse	2	10
Madison	2	1
McMahans	1	
Davenports		
Unity		
Hilyard		3
Parket's Gun		1
HWY 39 &		
Booth Road		1
Hagar		
Henley Sch (OC)	4	2
Hwy 39/Short (OC)		
KELLER &		
Sunset Trailer Park	2	
El Cerrito		
Saylor		
Monrovia		
Rio Vista	1	1
Grenada		
Southgate		
MADISON &		
Estate		
Denver		
Marius	2	1
Independence		
Mack		

RIDECHECK - ROUTE 6
(continued)

LOCATION	BOARDINGS	
STOP	TOTAL ON	TOTAL OFF
Belaire		
S. 6th		
S. 6TH &		
Hillview Motel		
Homedale	1	
Wiard		
Gettle	1	1
Gary		
Alamdea Bypass	1	
Inge's Cheese House		
Town & Country TC	4	7
TOTAL	**90**	**90**

APPENDIX B

Survey Instruments

#3473D2/sec

KLAMATH COUNTY BASIN TRANSIT SERVICE
NELSON/NYGAARD

Hello. This is ---- calling for the Basin Transit Service District. We are doing a survey about some transportation issues in Klamath County. The survey will only take about five minutes, and everything you say will be confidential.

S1 First, is this household in or within five miles of . . .?
1 Merrill
2 Malin
3 Keno
4 Chiloquin
(IF NO, TERMINATE)

S2 I would like to interview the youngest male aged 16 or older who lives at this residence and who is at home now? (Would that be you?)
(IF NO MALE ADULT OR ADULT MALE NOT AVAILABLE, SAY:)
Then I would like to interview the youngest female aged 16 or older who lives at this residence and who is at home now? (Would that be you?)
(IF NO ELIGIBLE ADULT, THANK AND TERMINATE)

Q1 Would you or someone in your home use public transit service if it met your needs?
1 Yes (ASK Q2A)
2 No (GO TO Q5)

Q2A If public transit service was available in (TOWN IN S1), would you use it for some or all trips?
1 Yes (ASK Q3 SERIES
2 Maybe/ it depends (ASK Q3 SERIES)
3 No (DO NOT ASK Q3 SERIES)

Q2B If public transit service was available from (TOWN IN S1) to Klamath Falls, would you use it?
1 Yes (ASK Q4 SERIES)
2 Maybe/ it depends (ASK Q4 SERIES)
3 No (DO NOT ASK Q4 SERIES)

Q3A If public transit service was available in your community, how often would you use transit for trips?
1 5 or more times per week
2 1-4 times per week
3 Less than once a week

Q3B What time of day would you most likely leave your home?
11 Midnite-12:59 AM
12 1:00-1:59 AM
13 2:00-2:59 AM
14 3:00-3:59 AM
14 4:00-4:59 AM
15 5:00-5:59 AM
16 6:00-6:59 AM
17 7:00-7:59 AM
18 8:00-8:59 AM
19 9:00-9:59 AM
20 10:00-10:59 AM
21 11:00-11:59 AM
22 Noon-12:59 PM

Q3B response codes continued

23 1:00-1:59 PM
24 2:00-2:59 PM
25 3:00-3:59 PM
26 4:00-4:59 PM
27 5:00-5:59 PM
28 6:00-6:59 PM
29 7:00-7:59 PM
30 8:00-8:59 PM
31 9:00-9:59 PM
32 10:00-10:59 PM
33 11:00-11:59 PM
97 DK

Q3C What time of day would you most likely want to return home?
11 Midnite-12:59 AM
12 1:00-1:59 AM
13 2:00-2:59 AM
14 3:00-3:59 AM
14 4:00-4:59 AM
15 5:00-5:59 AM
16 6:00-6:59 AM
17 7:00-7:59 AM
18 8:00-8:59 AM
19 9:00-9:59 AM
20 10:00-10:59 AM
21 11:00-11:59 AM
22 Noon -12:59 PM
23 1:00-1:59 PM
24 2:00-2:59 PM
25 3:00-3:59 PM
26 4:00-4:59 PM
27 5:00-5:59 PM
28 6:00-6:59 PM
29 7:00-7:59 PM
30 8:00-8:59 PM
31 9:00-9:59 PM
32 10:00-10:59 PM
33 11:00-11:59 PM
97 DK

Q3D What one way fare would you be willing to pay for in-town service? (SPECIFY EXACT AMOUNT)

Q4A If public transit service was available to Klamath Falls how often would you use transit for trips?
1 5 or more times per week
2 1-4 times per week
3 Less than once a week

Q4B What time of day would you most likely leave your home?

11	Midnite-12:59 AM
12	1:00-1:59 AM
13	2:00-2:59 AM
14	3:00-3:59 AM
14	4:00-4:59 AM
15	5:00-5:59 AM
16	6:00-6:59 AM
17	7:00-7:59 AM
18	8:00-8:59 AM
19	9:00-9:59 AM
20	10:00-10:59 AM
21	11:00-11:59 AM
22	Noon-12:59 PM
23	1:00-1:59 PM
24	2:00-2:59 PM
25	3:00-3:59 PM
26	4:00-4:59 PM
27	5:00-5:59 PM
28	6:00-6:59 PM
29	7:00-7:59 PM
30	8:00-8:59 PM
31	9:00-9:59 PM
32	10:00-10:59 PM
33	11:00-11:59 PM
97	DK

Q4C What time of day would you most likely want to return home?

11	Midnite-12:59 AM
12	1:00-1:59 AM
13	2:00-2:59 AM
14	3:00-3:59 AM
14	4:00-4:59 AM
15	5:00-5:59 AM
16	6:00-6:59 AM
17	7:00-7:59 AM
18	8:00-8:59 AM
19	9:00-9:59 AM
20	10:00-10:59 AM
21	11:00-11:59 AM
22	Noon -12:59 PM
23	1:00-1:59 PM
24	2:00-2:59 PM
25	3:00-3:59 PM
26	4:00-4:59 PM
27	5:00-5:59 PM
28	6:00-6:59 PM
29	7:00-7:59 PM
30	8:00-8:59 PM
31	9:00-9:59 PM
32	10:00-10:59 PM
33	11:00-11:59 PM
97	DK

Q4D What one way fare would you be willing to pay service to Klamath Falls? (SPECIFY EXACT AMOUNT)

Q5 (ASK ALL) Regardless of whether you or your family would use it, should public transit service in your area be publicly funded?
1 Yes (ASK Q6)
2 No (GO TO Q7)

Q6 Which of the following would you favor or oppose as a funding source to support transportation projects in Klamath County?
1=favor 2=oppose 3=would depend on projects (VOL) 7=DK
a. Increase in vehicle registration fees
b. Payroll tax increase
c. Property tax increase
d. Tax on motel and hotel rooms
e. Local gas tax
f. Developer fees (IF OTHER SUGGESTIONS MADE, RECORD IN Q6A)

Q6A Other suggestions? (PROBE AND CLARIFY)

Q7 What other comments would you like to make about transportation issues in Klamath County? (RECORD VERBATIM)

Q8 Now, in order to classify your responses with others, I need to ask a few questions about you. First, how many cars, trucks or vans do the people living in your household have immediate access to?
( ) RECORD NUMBER (1-96)
97 DK
98 None

Q9 What is your age, please?
( ) RECORD NUMBER (1-96)
98 Refused

Q10 FIRST NAME ONLY

Q11 VERIFY PHONE NUMBER

Q12 RECORD GENDER
1 Male
2 Female

j. lower fares
k. more bus shelters
l. a tax incentive to use transit
m. earlier morning service
n. later evening service
o. Sunday service

Q14 What is the maximum one-way fare you would be willing to pay to take public transportation within the Klamath Falls area? (From somewhere in the area to some other location in the area) (SPECIFY EXACT AMOUNT)

Q15 Which of the following would you favor or oppose as a funding source to support transportation projects in Klamath County?
1=favor 2=oppose 3=would depend on projects (VOL) 7=DK
a. Increase in vehicle registration fees
b. Payroll tax increase
c. Property tax increase
d. Tax on motel and hotel rooms
e. Local gas tax
f. Developer fees (IF OTHER SUGGESTIONS MADE, RECORD IN Q15z)

Q15z Other suggestions? (PROBE AND CLARIFY)

Q16 What other comments would you like to make about transportation issues in Klamath County? (RECORD VERBATIM)

Q17 Now, in order to classify your responses with others, I need to ask a few questions about you. First, how many cars, trucks or vans do the people living in your household have immediate access to?
( ) RECORD NUMBER (1-96)
97 DK
98 None

Q18 What is your age, please?
( ) RECORD NUMBER (16-96)
98 Refused

Q19 FIRST NAME ONLY
Q20 VERIFY PHONE NUMBER
Q22 RECORD GENDER
1 Male
2 Female

#3473D1/sec KLAMATH COUNTY BASIN TRANSIT SERVICE (REVISED)
NELSON/NYGAARD

Hello. This is --- calling for the Basin Transit Service District. We are doing a survey about some transportation issues in Klamath County. The survey will only take about five minutes, and everything you say will be confidential.

S1 Can you tell me whether you live inside or outside the Klamath Basin Transit service district? (Is there a Basin Transit bus route that goes anyplace near your home?)
1 Live inside (GO TO S6)
2 Live outside (TERMINATE)
7 DK (GO TO S2)

S2 Do you live inside the city limits of Klamath Falls?
1 Yes (GO TO S6)
2 No/DK (GO TO S3)

S3 What is your zipcode?
1 97603 (GO TO S4)
2 97601 (GO TO S5)
3 Other (TERMINATE)

S4 Do you live in what is commonly called the "south suburban area" -- which lies north and east of the airport?
1 Yes (GO TO S6)
2 No/DK (TERMINATE)

S5 Do you live in the area south of Upper Klamath Lake and north of the Klamath River?
1 Yes (GO TO S6)
2 No/DK (TERMINATE)

S6 I would like to interview the youngest male aged 16 or older who lives at this residence and who is at home now? (Would that be you?)
(IF NO MALE ADULT OR ADULT MALE NOT AVAILABLE, SAY:)
Then I would like to interview the youngest female aged 16 or older who lives at this residence and who is at home now? (Would that be you?)
(IF NO ELIGIBLE ADULT, THANK AND TERMINATE)

Q1 Are you . . . (READ LIST)
NOTE -- (IF BOTH STUDENT AND EMPLOYED, ASK WHICH OCCUPIES MORE OF RESPONDENT'S TIME AND USE THAT CODE ONLY)
11 A student at OIT? (ASK Q2, THEN SKIP TO Q6)
12 A student at some other school
13 Employed in the Klamath Falls area
14 Employed somewhere else1
15 Not employed (ASK Q2, THEN SKIP TO Q12)
16 Retired (ASK Q2, THEN SKIP TO Q12)
OR
99 Something else (SPECIFY)

Q2 What is the Zipcode where you live?

Q2A (IF Q2=97601, ASK) Is that near Upper Klamath Lake or West of Lake Ewauna?
1 Near Upper Klamath Lake (in town)
2 West of Lake Ewauna

OR

Q2B (IF Q2=97603, ASK) Is that north or south of 6th Street? (also known as Hwy 39)
1 North of 6th Street
2 South of 6th Street

Q3 What is the Zipcode where you work/go to school?
(WHEN Q3 NOT KNOWN, IF Q1=12 (student), ASK Q4; IF Q1=13, 14 or 99 (employed), ASK Q5)

Q3A (IF Q3=97601, ASK) Is that near Upper Klamath Lake or West of Lake Ewauna?
1 Near Upper Klamath Lake (in town)
2 West of Lake Ewauna

OR

Q3B (IF Q3=97603, ASK) Is that north or south of 6th Street? (also known as Hwy 39)
1 North of 6th Street
2 South of 6th Street

Q4 (IF Q3 DK)Then could you just tell me the name of the school you attend?

Q5 (IF Q3 DK)Then could you just tell me the nearest cross streets or give me the name of a nearby landmark?

Q6 How do you usually commute to (work/school)?
11 Drive alone
12 Dropped off (not carpool/ vanpool)
13 Carpool (less than 6 passengers)
14 Vanpool (6 or more passengers)
15 Walk
16 Bicycle
17 Motorcycle/motorbike
18 Schoolbus
19 Basin Transit Service (public transit) (ASK Q6A)
20 No typical mode
99 Other (SPECIFY)

Q6A What route or routes do you take? (RECORD NO MORE THAN TWO)
1 Route 1
2 Route 2
3 Route 3
4 Route 4
5 Route 5
6 Route 6
7 Dial a ride
8 DK
9 Other (SPECIFY)

Q7 Does this change in bad weather? (Do you use some other method?)
1 Yes (ASK Q8)
2 No (GO TO Q9)

Q8 How do you usually commute to (work/school) in bad weather?
11 Drive alone
12 Dropped off (not carpool/ vanpool)
13 Carpool (less than 6 passengers)
14 Vanpool (6 or more passengers)
15 Walk
16 Bicycle
17 Motorcycle/motorbike
18 Schoolbus
19 Basin Transit Service (public transit) (ASK Q8A)
20 No typical mode
99 Other (SPECIFY)

Q8A What route or routes do you take? (RECORD NO MORE THAN TWO)
1 Route 1
2 Route 2
3 Route 3
4 Route 4
5 Route 5
6 Route 6
7 Dial a ride
8 DK
9 Other (SPECIFY)

Q9 When you (commute to work/ go to school), do you do so at approximately the same time every day?
1 Yes
2 No (GO TO Q12)

Q10 About what time do you leave home for (work/school)? (NEAREST HOUR -- SPECIFY AM OR PM)
11 Midnite-12:59 AM
12 1:00-1:59 AM
13 2:00-2:59 AM
14 3:00-3:59 AM
15 4:00-4:59 AM
16 5:00-5:59 AM
17 6:00-6:59 AM
18 7:00-7:59 AM
19 8:00-8:59 AM
20 9:00-9:59 AM
21 10:00-10:59 AM
22 11:00-11:59 AM
23 Noon-12:59 PM
24 1:00-1:59 PM
25 2:00-2:59 PM
26 3:00-3:59 PM
27 4:00-4:59 PM
28 5:00-5:59 PM
29 6:00-6:59 PM
30 7:00-7:59 PM

continued

31 8:00-8:59 PM
32 9:00-9:59 PM
33 10:00-10:59 PM
34 11:00-11:59 PM
97 DK

Q11 And about what time do you leave (work/school) for home? (NEAREST HOUR -- SPECIFY AM OR PM)
11 Midnite-12:59 AM
12 1:00-1:59 AM
13 2:00-2:59 AM
14 3:00-3:59 AM
15 4:00-4:59 AM
16 5:00-5:59 AM
17 6:00-6:59 AM
18 7:00-7:59 AM
19 8:00-8:59 AM
20 9:00-9:59 AM
21 10:00-10:59 AM
22 11:00-11:59 AM
23 Noon-12:59 PM
24 1:00-1:59 PM
25 2:00-2:59 PM
26 3:00-3:59 PM
27 4:00-4:59 PM
28 5:00-5:59 PM
29 6:00-6:59 PM
30 7:00-7:59 PM
31 8:00-8:59 PM
32 9:00-9:59 PM
33 10:00-10:59 PM
34 11:00-11:59 PM
97 DK

Q12 About how many times have you ridden Basin Transit Service in the past year?

_____ TIMES
000 Never
997 DK

Q13 Now, I am going to read a list of things that encourage some people to use public transportation. As I read each one, please tell me whether it would encourage you to take public transportation more often. (ROTATE)
1=yes 2=no 7=DK (8=nothing would make me ride -- SKIP TO Q15)
a. bus stops closer to where you live or where you are going
b. better accessibility for people with disabilities
c. shorter travel time
d. more frequent service
e. bicycle storage at stops
f. bicycle racks on vehicles
g. guaranteed ride home in emergencies
h. better route and schedule information
I. more comfortable buses
continued

APPENDIX C

Alternative Financial Plan

BASIN TRANSIT SERVICE
TEN-YEAR CAPITAL PLAN

Capital Item	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	Total
Fixed Route Vehicle Repl. (1)			$238,374	$246,717	$255,353	$264,290	$273,540	$283,114	$316,034		$1,877,422
Repl./Expan DAR Vans (2)	$40,000	$41,400	$42,849			$50,891	$52,672	$54,516			$282,328
Trolley Coach	$250,000										$250,000
Transit Center						$75,000					$75,000
Computerized Dispatch System	$20,000										$20,000
Bus Shelters		$10,350 (2 shelters)				$11,877 (2 shelters)				$13,629 (2 shelters)	$35,856 (6 shelters)
Miscellaneous	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$50,000
TOTAL BY YEAR	$315,000	$56,750	$286,223	$251,717	$260,353	$407,058	$331,212	$342,630	$321,034	$18,629	$2,590,606

(1) Vehicle costs are $215,000 for a 30-passenger full size coach, $120,000 for a 20-passenger vehicle

(2) Vehicle costs are $40,000 for a 8-10-passenger van. Two vans are replaced twice during next ten years.

All costs are in 1995 dollars and the inflation rate is assumed at 3.5% per year.

APPENDIX C

10-Jan-96 **Basin Transit Service**

50/50 fed $ 2 Fare Increases **COMBINED CAPITAL & OPERATING BUDGET**

	FY1995/96	FY1996/97	FY1997/98	FY1998/99	FY1999/00	FY2000/01	FY2001/02	FY2002/03	FY2003/04	FY2004/05
EXPENSES										
Operating Expenses	$1,036,899	$992,869	$1,027,620	$1,063,587	$1,100,812	$1,139,340	$1,179,217	$1,220,490	$1,263,207	$1,307,419
Capital Expense	$315,000	$56,750	$524,598	$498,435	$515,705	$142,768	$57,672	$59,516	$321,034	$18,629
Capital Reserve Set-Aside (1)	$70,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
TOTAL SYSTEM COSTS	$1,421,899	$1,099,619	$1,602,218	$1,612,021	$1,666,517	$1,332,108	$1,286,890	$1,330,006	$1,634,241	$1,376,048
REVENUES										
Passenger Fares	$130,000	$173,192	$178,197	$187,107	$193,075	$199,239	$221,669	$228,801	$236,172	$243,789
FTA Section 18 (Operating)	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850	$85,850
FTA Section 3 (2)	$216,800		$238,374	$246,717	$255,353				$158,017	
Other Federal Funds (3)	$32,000	$33,120	$34,279	$0	$0	$100,713	$42,138	$43,613	$0	$0
Special Transportation Funds (4)	$51,000	$51,000	$43,350	$32,513	$28,178	$23,843	$17,340	$13,005	$8,670	$0
Property Tax (5)	$600,149	$636,158	$674,327	$714,787	$757,674	$803,135	$851,323	$902,402	$956,546	$1,013,939
Public Transit Assist.(Payroll Tax)	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000
Interest Income	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000	$15,000
Bus Advertising	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Downtown Merchants Assoc. (6)		$10,350				$11,877				$13,629
Previous Levied Taxes	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000	$57,000
Miscellaneous (7)	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000	$6,000
Public/Private Contributions (8)	$54,200									
Subtotal Revenues	$1,383,999	$1,203,670	$1,468,378	$1,480,974	$1,534,129	$1,438,656	$1,432,319	$1,487,671	$1,659,255	$1,571,207
Net Working Capital Carryover (9)	$37,900		$133,839	$131,047	$132,388					
TOTAL REVENUES	$1,421,899	$1,203,670	$1,602,217	$1,612,021	$1,666,517	$1,438,656	$1,432,319	$1,487,671	$1,659,255	$1,571,207
Annual Surplus/(Deficit)	$0	$104,050	($0)	($0)	($0)	$106,547	$145,430	$157,665	$25,014	$195,158

(1) $70,000 has been set-aside as a capital reserve for FYs 94/95 & 95/96. If federal funds pay 80% of vehicle costs, a $50,000 annual capital reserve is recommended.

(2) BTS will be receivng a FTA Section 3 Discretionary Grant in the amount of $275,000. Assumes Section 3 funds will pay 80% to replace six Gilligs in FYs 98, 99 & 00.

(3) FTA Section 16 or CMAQ funds could potentially pay for 80% of paratransit vehicle replacements and proposed transit center.

(4) Special Transportation Funds gradually decrease with no funds available by the tenth year.

(5) Assumes the maximum 6% increase is allocated to BTS each year.

(6) Assumes the Downtown Merchants Association pays for passenger shelters. No other funding contributions are assumed by the Merchants Association.

(7) Represents revenues from surplus sales, insurance reimbursement, and other miscellaneous income. FY 1995/96 amount is average of previous three years.

(8) City, County and Business Contributions to pay the required 20% local match for the trolley bus purchase.

(9) In FY 1995/96 net working capital totals $437,339. These funds are used to help cover capital expeneses.