

1934-77

REPORT TO THE LEGISLATURE ON AMTRAK
RAIL SERVICE BETWEEN THE TWIN CITIES AND DULUTH

Minnesota Department of
Transportation

January 18, 1977



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January 26, 1978

Senator Roger Moe
Senator Clarence Purfeerst
Representative Fred Norton
Representative Stanley Fudro

In considering continued subsidization of the Amtrak passenger service from the Twin Cities to Duluth during the 1977 Legislative Session, you directed the Minnesota Department of Transportation to prepare a financial report on the Amtrak operation. (Minn. Law 1977, Chapter 454, Section 5, Subd. 2). In the near future, you will receive the data from which the enclosed report was drawn.

The conclusions of the report indicate that the State's costs of the Amtrak service are relatively high in comparison with other modes. Little optimism can be expressed regarding improvement of the situation in the foreseeable future. The operation of the Arrowhead train has required a Minnesota subsidy on the average of \$1,114.76 per day during the first 30-months of operations. That is equivalent to a State subsidy \$7.23 per passenger. The federal Amtrak subsidy is \$5.17, making the total per passenger subsidy \$12.40 on a typical one-way fare of \$10.50.

Based on past experience it is estimated that the State's share of the subsidy cost will rise to \$1,800.00 per day. Since the inception of the Arrowhead train, the Minnesota Department of Transportation has provided subsidies in the amount of \$1,002,177, with Amtrak providing \$716,748, for a total subsidy of \$1,718,925.

The monthly cost of Amtrak train service at the beginning was approximately \$65,000. Recent costs have averaged nearly \$150,000 per month. There is little hope that the Minnesota Department of Transportation will be able to have any effect on the escalating costs.

During its 30-month history, Amtrak ridership has totaled 150,623; 14 percent were pass riders (no fare), and 44 percent rode strictly for novelty. Only 1.3 percent were repeat riders.

While Mn/DOT remains open to the direction of the Legislature, it is our opinion that, based on the data in this report, the continued subsidization of the present Arrowhead service is economically unjustified.

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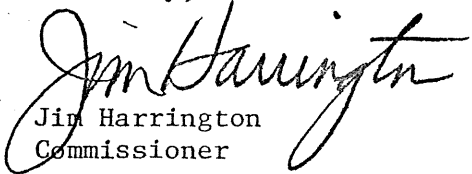
January 26, 1978

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It should be noted that this study does not deal fully with the economic benefits to Duluth, to the Twin Cities, and to tourism which might be realized from the service. Indications are that these areas do benefit to some extent from the Arrowhead train. However, we are pessimistic about such benefits being significant enough to warrant continuing the current extensive subsidies.

If you have any questions or would like a formal presentation of the report to your committee, please call me (296-3000) or Ellen Temple (296-3002).

Sincerely,

A handwritten signature in cursive script that reads "Jim Harrington". The signature is written in dark ink and is positioned above the typed name and title.

Jim Harrington
Commissioner

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PURPOSE

This study is prepared in accordance with Minn. Laws 1977, Chapter 454, Sec. 5, which states:

The Commissioner of Transportation shall report to the legislature by January 1, 1978, on the expenditure of money from the appropriation (of \$650,000), showing the terms of the contract, the number of riders each month during fiscal years 1976, 1977, and the first quarter of fiscal year 1978, the amount of federal subsidy, the amount of state subsidy, and the amount of each subsidy per passenger. In addition, the Commissioner shall include a detailed accounting of expenditures under the contract during fiscal year 1976, 1977, and the first quarter of fiscal year 1978 by line item object of expenditure, such as personnel costs, equipment, maintenance, and overhead.

BACKGROUND

The Rail Passenger Service Act of 1970 authorized the National Railroad Passenger Corporation to manage the basic national rail network and be responsible for the operation of all intercity passenger trains excluding commuter trains under contract with the railroads. Section 403(b) of that act authorized Amtrak to offer service on routes that are not part of Amtrak's basic national system if a state agreed to reimburse Amtrak for a reasonable portion of any losses associated with such service.

In 1971, the Legislature gave the Minnesota Public Service Commission authority to enter into an agreement with Amtrak to provide service between Minneapolis and Superior under (Sec. 403B) of federal legislation. Subsequently \$100,000 was directly appropriated by the Legislature for this purpose in 1973, and \$200,000 was made available by a grant from the Upper Great Lakes Regional Commission. In the February 28, 1975, agreement, this \$300,000 was made available to Amtrak to subsidize two-thirds of the

operating losses for the service provided between the Twin Cities and Superior, Wisconsin.

Under the terms of the agreement, Amtrak was required to operate daily passenger service between the Twin Cities and Superior (Figure 1). Amtrak promised to provide high quality service and to promote or publicize the existence of the service in the appropriate media. In addition, Amtrak promised it would publicly acknowledge that the service was subsidized in part by funds provided by the State and the Upper Great Lakes Regional Commission.

The State and Amtrak also agreed to work together in several other respects, including the possible addition of service or schedule changes, and fare structure changes.

The State was obligated by the agreement to pay on a monthly basis two-thirds of any operating deficit. "Operating deficit" was defined as the "solely related costs" of the service. This included interest, rental, depreciation, and the costs of any significant capital expenditures which had been given prior approval by the State.

On April 15, 1975, the Arrowhead began passenger train service between the Twin Cities and Superior. The first schedule (established by an advisory committee, consisting of members of state and local agencies) was as follows:

Monday-Friday

LV.	7:45 a.m.	Superior	9:55 p.m.	AR.
AR.	10:35 a.m.	Twin Cities	7:05 p.m.	LV.

Saturday, Sunday, Holidays

LV. 9:00 a.m.	Superior	9:55 p.m.	AR.
AR. 11:50 a.m.	Twin Cities	7:05 p.m.	LV.

Since Arrowhead's inception, Amtrak has instituted a number of service improvements:

1. Stops at Cambridge and Sandstone were added on October 26, 1975. These cities had been served by the Burlington Northern operation until service was discontinued on May 1, 1971. At public hearings held by the Public Service Commission in January 1975, representatives from Cambridge and Sandstone expressed a great deal of interest in passenger service. The Cambridge and Sandstone stops have accounted for 6 percent of the ridership on the Arrowhead.
2. A combination lounge-baggage car was added in November 1976 to accommodate skiers and cyclists.
3. The Arrowhead began handling mail on March 1, 1976, to generate additional revenue. This service, however, was dropped in May 1977 because the train schedule changes did not accommodate normal mail service.
4. A new reversed schedule was implemented on February 15, 1977, to take advantage of the greater traffic volume potential that could be generated from the Twin Cities to Duluth. Substantial improvements resulted from the schedule change. The schedule now is as shown below:

Train No. 760

8:05 a.m. LV.
 9:00 a.m. LV.
 9:40 a.m. LV.
 11:05 a.m. LV.
 11:25 a.m. AR.

Twin Cities
 Cambridge
 Sandstone
 Superior
 Duluth

Train No. 761

8:50 p.m. AR.
 7:48 p.m. LV.
 7:00 p.m. LV.
 5:50 p.m. LV.
 5:30 p.m. LV.

5. February 15, 1977, also marked the opening of the new Duluth depot, extending the termination point from Superior to Duluth, and the implementation of the reversed schedule. Ridership significantly increased as a result of these modifications in schedule and route. The average number of passengers per train since this schedule change has increased by 52 percent.
6. From May 15 to October 15, 1977, the Duluth Transit Authority operated a special "Discover Duluth" tour. They coordinated the tour with the arrival and departure of the Amtrak train. This promotion significantly increased train ridership. The tour had approximately 7,500 patrons, of which an estimated 70 percent arrived by Amtrak.
7. On December 23, 1977, a special Friday night "Ski Train" was added to Duluth. People can now leave the Twin Cities on Friday night, spend the weekend in Duluth and return on the regular Sunday night train. The Duluth Transit Authority, underwritten by the Duluth Hotel-Motel Association, has arranged for transportation from the Amtrak depot to the hotels-motels and then to Spirit Mountain.
8. Scheduled to open in March 1978 is a new depot in the Midway area of St. Paul. This depot will replace the outdated Minneapolis depot now in use.

SURFACE TRANSPORTATION ROUTES BETWEEN MINNEAPOLIS - ST. PAUL & DULUTH - SUPERIOR with POPULATION BY COMMUNITY

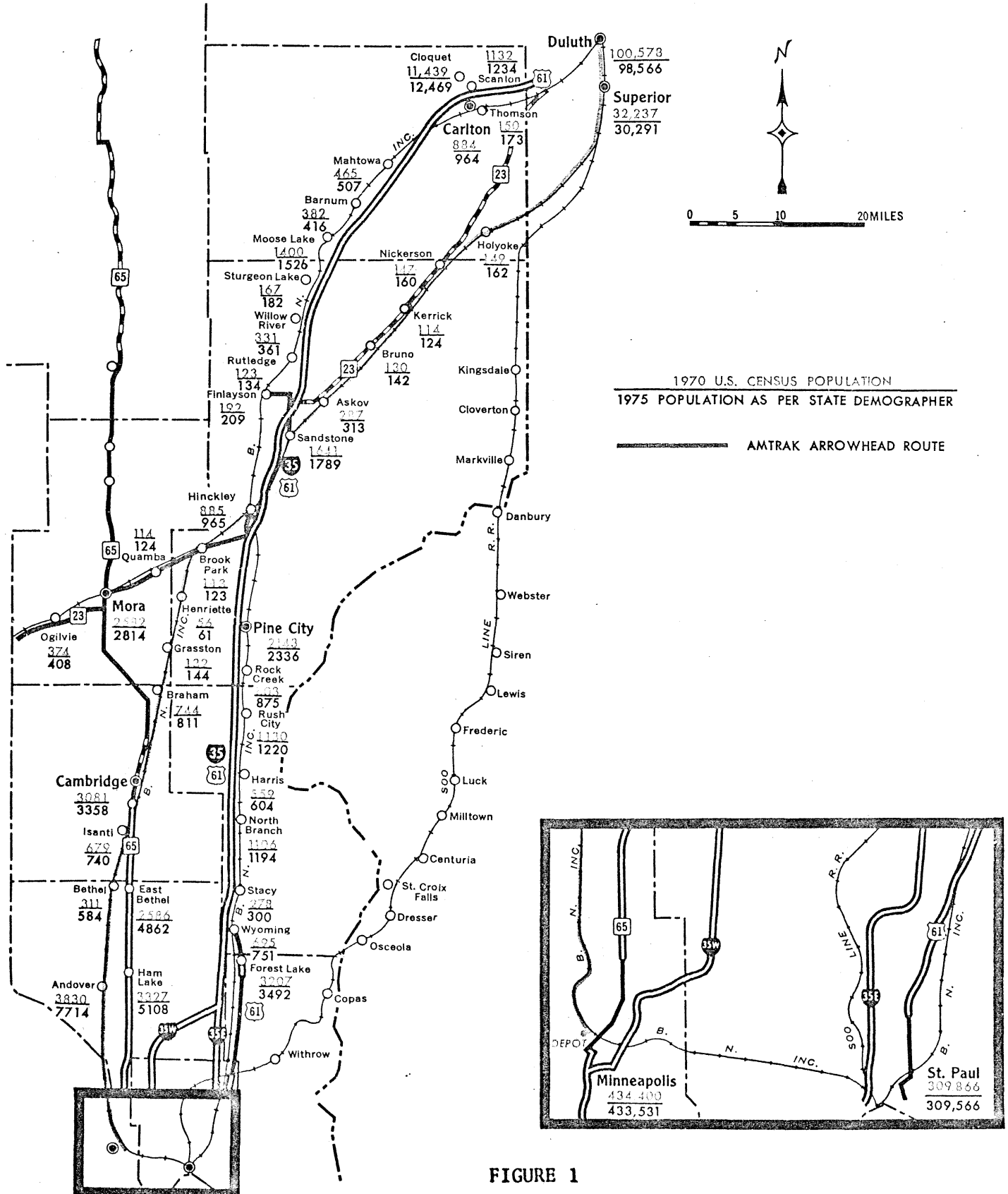


FIGURE 1

BY CALENDAR YEAR AND QUARTER
ARROWHEAD RIDERSHIP

		Number of Ridership	Passenger Per Trip	Revenue Passengers	Pass Riders	% of Rev. Passengers	% Pass Riders
1975	April	1,628		1,390	238	85	15
	May	3,349		2,805	544	84	16
	June	3,949		3,373	576	85	15
		<u>8,936</u>	60			<u>84.78</u>	<u>15.21</u>
	July	3,885		3,358	527	86	14
	August	5,665		4,703	962	83	17
	Sept.	2,974		2,452	522	82	18
		<u>12,524</u>	69			<u>83.94</u>	<u>16.00</u>
	Oct.	2,912		2,329	583	80	20
	Nov.	3,743		3,102	641	83	17
	Dec.	4,176		3,401	775	81	19
		<u>10,831</u>	60			<u>81.54</u>	<u>18.46</u>
1976	Jan.	2,646		2,209	437	83	17
	Feb.	2,537		1,963	574	77	23
	March	3,079		2,271	808	74	26
		<u>8,262</u>	45			<u>77.98</u>	<u>22.00</u>
	April	4,242		3,461	781	82	18
	May	2,914		2,345	569	80	20
	June	2,811		2,278	533	81	19
		<u>9,967</u>	55			<u>81.10</u>	<u>18.89</u>
	July	3,321		2,776	545	84	16
	August	3,971		3,226	745	81	19
	Sept.	2,504		1,954	550	78	22
		<u>9,796</u>	54			<u>81.21</u>	<u>18.78</u>
	Oct.	2,591		1,959	632	76	24
	Nov.	3,257		2,639	618	81	19
	Dec.	4,113		3,338	775	81	19
		<u>9,961</u>	55			<u>79.67</u>	<u>20.33</u>
1977	Jan.	2,392		1,888	505	79	21
	Feb.	4,134		3,407	727	82	18
	March	5,193		4,625	568	89	11
		<u>11,719</u>	64			<u>84.64</u>	<u>15.35</u>
	April	5,990		5,329	661	89	11
	May	10,203		9,566	637	94	6
	June	11,356		10,442	914	92	8
		<u>27,549</u>	151			<u>91.97</u>	<u>8.03</u>
	July	10,522		9,643	879	92	8
	Aug.	10,789		9,914	875	92	8
	Sept.	7,727		7,077	650	92	8
		<u>29,038</u>	160			<u>91.72</u>	<u>8.28</u>
1977	Oct.	4,777		4,262	515	89	10
Cont.	Nov.*	3,773		3,460	310	91.7	8
	Dec.**	3,500		3,000	500	85.7	14
		<u>12,050</u>	66			<u>88.93</u>	<u>11.1</u>
	TOTALS	150,623	75	129,945	20,675	86.27	13.73

* Unofficial Information

** Projection

RIDERSHIP

Initially Arrowhead departed Duluth in the morning and returned in the evening. Ridership was low during the first three months of service, with an average of only 60.84 passengers per trip. During fiscal year 1976, ridership increased to 113.92 and in fiscal year 1978 reached 161.70 passengers per trip. Improvements can be attributed to the new depot facilities at Duluth, reversal of the schedule, the special Discover Duluth tour, and a general increase in the awareness of the service. Figure 2 shows the ridership figures for the 30 months of operation. Ridership can be expected to increase with time although the level of increase in ridership is heavily dependent on the total potential and the amount of promotional efforts made.

The primary origins and destinations are the Twin Cities and Duluth. Forty-six percent of the passengers originate and terminate in Minneapolis. Duluth accounts for 32 percent of the origins and 33 percent of the destinations.

Figure 3 shows a 30-month summary of the origin and destination of all passengers riding the Arrowhead. The primary use of the Arrowhead appears to be transporting people to Duluth and returning them to Minneapolis.

"ARROWHEAD" TRAIN
Origin-Destination
30 Month Summary

		<u>Origin</u>	<u>Destination</u>	
Minneapolis		46%	46%	
Cambridge		4%	4%	
Sandstone		2%	2%	
Superior		16%	15%	
Duluth		<u>32%</u>	<u>33%</u>	
Total	96,000	100%	100%	96,000

FIGURE 3

SEASONALITY OF RIDERSHIP

The monthly pattern for 1976 is haphazard, but the pattern for 1977 shows the "summer month's curve" characteristic of other tourist-travel data for the state. This pattern is characteristic of automobile, airline and expenditure patterns. It appears that during 1977 the Arrowhead train has shown some maturing as a functional alternate mode of travel. The size of the increase and the pattern of usage as shown in Figure 4 would suggest this. The change in schedule and the extension of the line to a Duluth terminal must have been helpful in achieving this.

Arrowhead Ridership
Monthly % of Yearly Total
1977

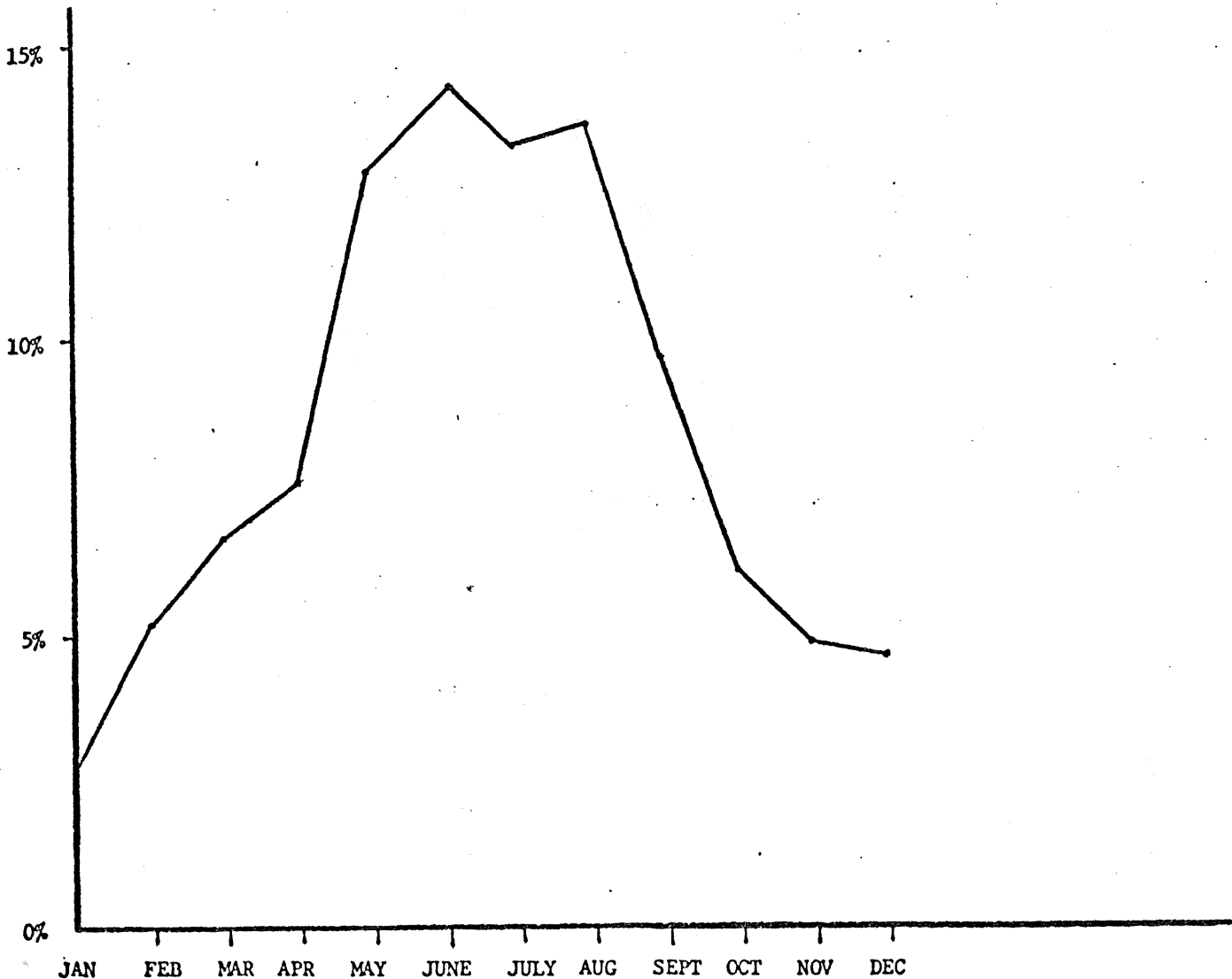


FIGURE 4

DAILY VARIATION IN RIDERSHIP

The ridership levels on the Arrowhead follow a very strong daily pattern, as is illustrated in Figure 5. Ridership peaks on Saturday, with the entire weekend providing the majority of ridership. The low point in the week is Monday. Fifty-three percent of the passengers on the Arrowhead, since the schedule change in February 1977, traveled Friday, Saturday and Sunday.

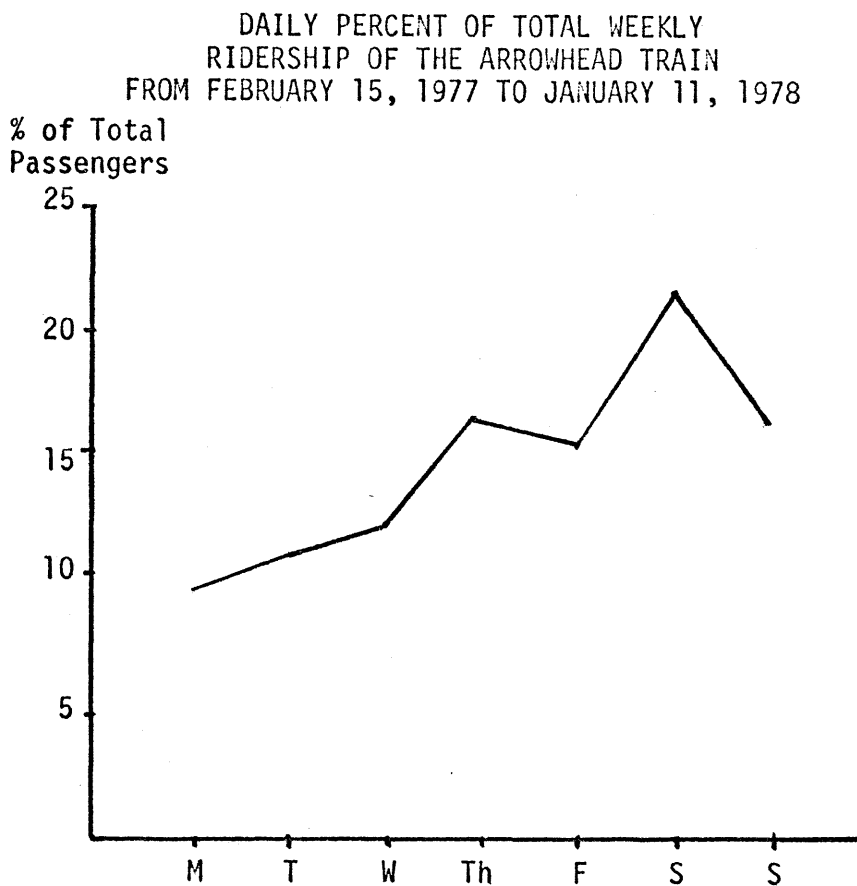


FIGURE 5

PASSENGER RIDERSHIP SURVEY

Passengers on the Amtrak service from the Twin Cities to Duluth were surveyed during a seven-day period in September 1977. There were 1,307 passengers surveyed. These passengers were asked to identify trip origin, destination, purpose of trip, frequency of trip, and traveler characteristics such as age group and income group. Opinions on the Amtrak service were also requested.

A review of the on-board survey indicates that 44 percent of the riders during the interview period were traveling due to curiosity, as shown below:

<u>Reason for Choosing Train</u>	<u>Response</u>	<u>Percent</u>
Novelty	506	44%
More Convenient	169	5%
More Comfortable	141	12%
Less Expensive	29	2%
Other	85	7%
Multiple Responses	<u>220</u>	<u>19%</u>
	1,150* Total	100%

*157 passengers did not respond.

Ninety percent of the survey respondents indicated their round trip purpose was for recreation or vacation. Seventy-five percent indicated that they could have gone by automobile. Of those surveyed, 98.9 percent stated they had not made a trip to Duluth in at least a year.

No particular age or income group was more inclined to use the train than any other. A slight majority of the riders were female (58 percent). These factors indicate the diversity of persons taking the train and the difficulty of increasing ridership by concentrating on a particular market.

The Arrowhead train offers potential transportation for shopping or pleasure trips. The Twin Cities and Duluth-Superior offer a greater diversity of goods, services, recreational and cultural activities. The limited data available, however, indicates that shopping or pleasure trips are generally infrequent. It does not seem probable that the Arrowhead train service area could support these trip levels without additional financial support.

COST REVENUE FIGURES

The cost and revenue summary for the Arrowhead shows that operational costs increased more rapidly than revenue (Figure 6). The net operating deficit and the State's share increased even though ridership increased, except during the first quarter of Fiscal Year 1978.

ARROWHEAD TRAIN 30-Month Summary Cost Revenue Data			
Operating Cost			\$2,693,554
Operating Revenues		(36%)	974,629
Subsidy State	\$1,002,177	(37%)	
Federal	716,748	(27%)	
Total			\$1,718,925
Cost Share Per Passenger			
Revenue	\$7.03		
State Subsidy	\$7.23		
Federal Subsidy	\$5.17		
Total Cost	\$19.43		
Pass Passengers - 19,350			
Value of Passes - \$142,089.07			

Arrowhead

Cost-Revenue Comparison 1975-1977
Projection to 1978

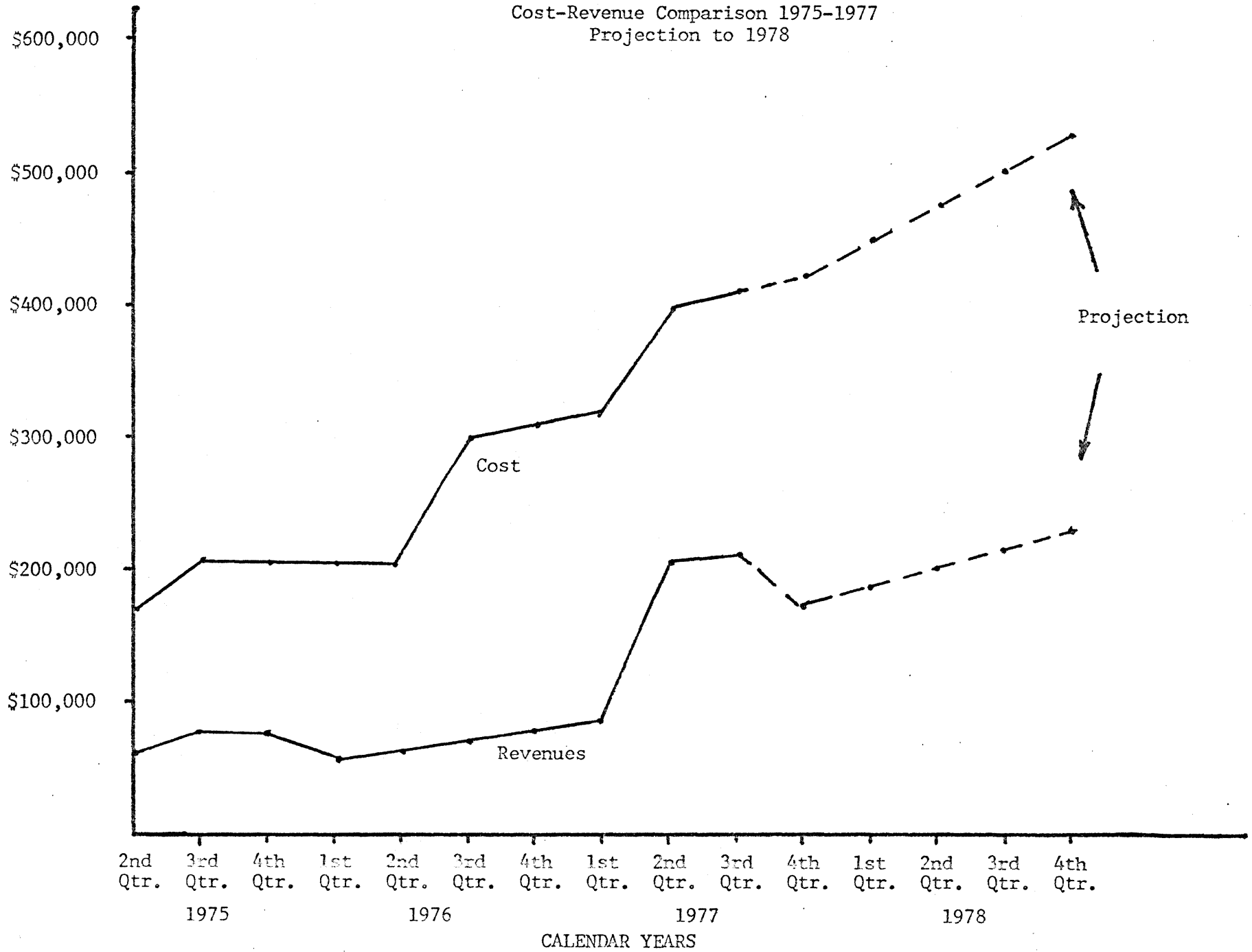


FIGURE 6

REVENUES

Revenues derived from the Arrowhead accounted for 36 percent of the income needed to cover operational costs. Revenues (30 months) were derived mainly from fares (\$876,660). Additional revenue came from dining and buffet (\$78,713), mail (\$13,732) and other sources (\$5,524). Mail service was discontinued because of the change in schedule.

Revenues are dependent on the amount of the fare and the number of revenue-producing riders. Any increase in the fare has a tendency to decrease ridership, limiting the ability to increase revenues through fare increases. Rate reductions for groups or for special promotions tend to increase ridership. This may have some effect on increasing total revenues. On the Arrowhead most changes have been periodic nationwide fare increases, with some limited special rates.

COSTS

First quarter Arrowhead operational costs of \$163,344 more than doubled to \$405,916 in the third quarter of calendar year 1977. Burlington Northern, Inc. operates the train over its tracks and accounts for approximately 80 percent of the total cost. Amtrak incurs the other 20 percent by providing for station facilities and on-board service and by administering the service. Figures 7 through 10 indicate the month-to-month breakdown of costs and revenues.

The cost increase has been alarming. Despite constant requests to Amtrak, the Minnesota Department of Transportation (Mn/DOT) has been unable to receive a satisfactory explanation for those costs. Also, of great concern to Mn/DOT is the total lack of control that can be exerted over those costs. Contracts

for service and billing for payment are made between Burlington Northern and Amtrak. Mn/DOT has no authority or control over those agreements. There is presently an attempt on the part of all states with 403(b) service to negotiate a more satisfactory contract with Amtrak. Such an agreement would improve the reporting requirement, would provide the states with better information, and would improve the allocation of some general costs, but still would not establish any control over the rate of cost increase.

PROJECTIONS

At the present rate of increase in revenues and costs, continued Arrowhead train service during 1978 is expected to require a subsidy of \$1.3 million, of which \$650,000 will be the State's share. Figure 6 shows the rate of increase in revenues and the greater rate of increase in operational costs.

NATIONAL RAILROAD PASSENGER CORPORATION
"ARROWHEAD TRAIN"
PASSENGER SERVICE BETWEEN MPLS. — ST. PAUL AND DULUTH-SUPERIOR

STATEMENT OF OPERATIONS
4th QUARTER FISCAL YEAR 1975

	1975				
	APRIL	MAY	JUNE	TOTAL	%
Operating Revenue					
Passenger	\$ 12,324	21,601	25,492	59,417	96.21
Dining-Buffer	773	53	1,508	2,334	03.78
Mail	—	—	—	—	
Other	3	—	4	7	00.01
TOTAL OPERATING REVENUE	13,100	21,654	27,004	61,758	100.00
Operating Expenses					
Railroad Costs — BN*	26,449	52,898	52,898	132,245	80.96
Dining-Buffer	464	32	905	1,401	09.86
On-Board Service Attendant	1,993	4,119	3,987	10,099	06.18
Facilities	2,356	4,882	4,368	11,606	07.11
Depreciation	1,221	1,992	1,959	5,172	03.17
Administration	300	600	600	1,500	00.92
Interest	—	—	—	—	
Claims Liability	218	310	407	935	00.57
Other	—	386	—	386	00.23
TOTAL OPERATING EXPENSE	33,001	65,219	65,124	163,344	100.00
NET OPERATING (DEFICIT)	(19,901)	(43,565)	(38,120)	(101,586)	
STATE SHARE — 66.67% —	13,268	29,045	25,415	67,728	66.67
FEDERAL SHARE — 33.33% —	6,633	14,520	12,705	33,858	33.33
STATISTICAL DATA:					
PASSENGERS (INCLUDES PASSES)	1,628	3,349	3,949	8,926	
COST PER PASSENGER	\$ 20.27	19.47	16.49	18.30	
Operating Revenue Produced Per Passenger	8.05	6.47	6.84	6.92	
LOSS PER PASSENGER	12.22	13.01	9.65	11.38	
STATE SUBSIDY	8.15	8.67	6.43	7.59	
FEDERAL SUBSIDY	4.07	4.34	3.22	3.79	

* Billed to NRPC By Burlington Northern.
Train service started Apr. 15th.

FIGURE 7

NATIONAL RAILROAD PASSENGER CORPORATION
 "ARROWHEAD TRAIN"
 PASSENGER SERVICE BETWEEN MPLS. — ST. PAUL AND DULUTH-SUPERIOR

STATEMENT OF OPERATIONS
 FISCAL YEAR 1976

	1975						1976						TOTALS	%
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE		
Operating Revenue														
Passenger	\$ 22,133	25,716	19,198	18,372	23,590	26,259	17,437	15,537	17,891	25,187	17,482	17,410	246,212	87.73
Dining-Buffer	3,446	3,915	3,581	1,816	2,000	3,661	1,768	1,900	2,113	1,914	1,859	1,522	29,495	10.51
Mail	—	—	—	—	—	—	—	—	—	2,436	1,298	1,158	4,892	1.74
Other	11	10	15	(7)	—	—	—	19	3	—	6	—	57	.02
TOTAL OPERATING REVENUE	25,590	29,641	22,794	20,181	25,590	29,920	19,205	17,456	20,007	29,537	20,645	20,090	280,656	100.00
Operating Expense														
Railroad Costs BN*	52,898	52,898	52,898	52,898	52,898	52,898	52,898	52,898	52,898	52,898	52,898	52,898	634,776	77.96
Dining-Buffer	2,068	2,349	2,149	1,090	1,200	2,197	1,061	1,140	1,268	1,148	1,115	913	17,698	02.17
On-Board Service Attendant	4,119	4,119	3,987	4,288	4,150	4,268	4,278	4,002	4,278	4,140	4,278	4,140	50,047	06.15
Facilities	5,020	5,142	5,190	6,337	5,675	6,500	6,334	6,346	5,605	5,954	6,012	5,654	69,769	08.57
Depreciation	2,026	2,339	2,026	1,993	2,299	2,453	2,361	2,130	2,140	2,258	2,173	2,188	26,386	03.24
Administrative	600	600	600	600	600	600	600	600	600	600	600	600	7,200	00.88
Interest	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Claims/Liability	341	469	392	280	409	1,061	663	783	884	1,061	771	605	7,719	00.95
Other	—	—	—	165.28	491	—	—	—	—	—	—	—	656	00.08
TOTAL OPERATING EXPENSE	67,072	67,916	67,242	67,651	67,722	69,977	68,195	67,899	67,673	68,059	67,847	66,998	814,251	100.00
NET OPERATING (DEFICIT)	(41,482)	(38,275)	(44,448)	(47,470)	(42,132)	(40,057)	(48,990)	(50,443)	(47,666)	(38,522)	(47,202)	(46,908)	(533,595)	
STATE SHARE — 66.67% —	27,656	25,518	29,634	31,648	28,089	26,706	32,662	33,630	31,779	25,683	31,470	31,274	355,749	66.67
FEDERAL SHARE — 33.33% —	13,826	12,757	14,814	15,822	14,043	13,351	16,328	16,813	15,887	12,839	15,732	15,634	177,846	33.33
STATISTICAL DATA:														
PASSENGERS — (INCLUDES PASSES)	3,885	5,665	2,974	2,912	3,743	4,176	2,646	2,537	3,079	4,242	2,914	2,811	41,584	
COST PER PASSENGER	\$ 17.26	11.99	22.61	23.23	18.09	16.76	25.77	26.76	21.98	16.04	23.28	23.83	19.58	
Operating Revenue Produced per passenger	6.59	5.23	7.66	6.93	6.84	7.16	7.26	6.88	6.50	6.96	7.08	7.15	6.75	
LOSS PER PASSENGER	10.67	6.76	14.95	16.30	11.25	9.60	18.51	19.88	15.48	9.08	16.20	16.68	12.83	
STATE SUBSIDY	7.11	4.51	9.97	10.87	7.50	6.40	12.34	13.25	10.32	6.05	10.80	11.12	8.55	
FEDERAL SUBSIDY	3.56	2.25	4.98	5.43	3.75	3.20	6.17	6.63	5.16	3.03	5.40	5.56	4.28	

*Billed to NRPC By Burlington Northern.

FIGURE 8

NATIONAL RAILROAD PASSENGER CORPORATION
"ARROWHEAD TRAIN"
PASSENGER SERVICE BETWEEN MPLS. — ST. PAUL AND DULUTH-SUPERIOR

STATEMENT OF OPERATIONS
FISCAL YEAR 1977

	1976						1977						TOTALS	%
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE		
Operating Revenue														
Passenger	\$ 20,750	24,902	15,129	14,889	20,615	25,792	15,048	17,742	33,353	38,594	69,473	77,571	373,858	87.66
Dining-Buffer	2,785	1,742	1,690	1,649	2,288	2,586	1,744	3,075	5,490	4,956	5,146	5,156	38,307	08.99
Mail	1,264	1,156	1,112	1,221	1,029	1,358	1,002	606	894	-802	—	—	8,840	02.07
Other	910	3	737	934	917	1,062	719	36	23	33	73	13	5,460	01.28
TOTAL OPERATING REVENUE	25,709	27,803	18,668	18,693	24,849	30,798	18,513	21,459	39,760	42,781	74,692	82,740	426,465	100.00
Operating Expense														
Railroad Costs*	80,732	81,561	86,326	85,681	85,135	83,546	78,542	90,899	86,695	92,902	99,163	105,639	1,056,821	80.67
Dining-Buffer	1,671	1,045	1,014	989	1,373	1,552	1,046	1,845	3,294	2,974	3,088	3,094	22,985	01.75
On Board Service Attendant	4,278	4,278	4,140	4,412	4,270	4,412	4,620	4,173	4,620	4,471	4,620	4,471	52,765	04.03
Facilities	6,090	5,824	5,674	6,013	5,084	4,657	4,370	4,053	5,990	15,703	9,346	8,764	81,568	06.23
Depreciation	2,359	2,437	2,551	11,818**	4,582	4,599	5,053	6,741	6,091	4,635	8,667	4,861	64,394	04.92
Administration	600	600	600	600	600	600	600	600	600	600	600	600	7,200	00.55
Interest	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Claims-Liability	381	472	471	726	863	864	676	958	1,474	1,448	2,698	3,279	14,310	01.09
Other	—	—	—	—	—	—	—	—	—	10,000	—	—	10,000	00.76
TOTAL OPERATING EXPENSE	96,111	96,217	100,776	110,239	101,907	100,230	94,907	109,269	108,764	132,733	128,182	130,708	1,310,043	100.00
NET OPERATING (DEFICIT)	(70,402)	(68,414)	(82,108)	(91,546)	(77,058)	(69,432)	(76,394)	(87,810)	(69,004)	(89,952)	(53,490)	(47,968)	(883,578)	
STATE SHARE	46,937	45,612	54,741	45,773	38,529	34,716	38,197	43,905	34,502	44,976	26,745	23,984	478,617	54.17
FEDERAL SHARE	23,465	22,802	27,367	45,773	38,529	34,716	38,197	43,905	34,502	44,976	26,745	23,984	404,961	45.83
STATISTICAL DATA:														
PASSENGERS — INCLUDES PASSES	3,321	3,971	2,504	2,591	3,257	4,113	2,392	4,134	5,193	5,990	10,203	11,356	59,025	
COST PER PASSENGER	\$ 28.94	24.23	40.24	42.55	31.29	24.37	39.68	26.43	20.94	22.16	12.56	11.51	22.19	
Operating Revenue Produced Per Passenger	7.74	7.00	7.46	7.21	7.63	7.49	7.74	5.19	7.66	7.14	7.32	7.29	7.22	
LOSS PER PASSENGER	21.20	17.23	32.79	35.34	23.66	16.88	31.94	21.24	13.28	15.02	5.24	4.22	14.97	
STATE SUBSIDY	14.13	11.49	21.86	17.67	11.83	8.44	15.97	10.62	6.64	7.51	2.62	2.11	8.11	
FEDERAL SUBSIDY	7.07	5.74	10.93	17.67	11.83	8.44	15.97	10.62	6.64	7.51	2.62	2.11	6.86	

*Billed to NRPC By Burlington Northern

**Depreciation Adjustment

July \$2359
 Aug. 2437
 Sept. 2551 \$7347

State Share of Operating Deficit:
 April, 1975 thru Sept., 1976 66.67%
 Beginning October, 1976 50 %

Time Schedule Flip Flopped
 February 15, 1977

FIGURE 9

NATIONAL RAILROAD PASSENGER CORPORATION
 "ARROWHEAD TRAIN"
 PASSENGER SERVICE BETWEEN MPLS. — ST. PAUL AND DULUTH-SUPERIOR

STATEMENT OF OPERATIONS
 1st QUARTER FISCAL YEAR 1978

	1977			TOTAL	%
	JULY	AUGUST	SEPTEMBER		
Operating Revenue					
Transportation	\$71,341	\$72,249	\$53,583	\$197,173	95.83
Food & Beverage	3,352	3,300	1,925	8,577	04.17
Mail-Express & Other	—	—	—	—	
TOTAL OPERATING REVENUE	74,693	75,549	55,508	205,750	100.00
Operating Expenses					
Direct Expenses:					
Train & Engineer Crews	21,338	21,154	18,208	60,700	14.95
Train Fuel & Power	7,722	7,062	9,568	24,352	06.00
Onboard Service-Labor	2,148	1,982	2,438	6,568	01.62
Onboard Service-Supplies	4,998	5,740	14,765	25,503	06.28
Other-Direct	46	196	26	268	00.07
TOTAL DIRECT EXPENSES	36,252	36,134	45,005	117,391	
Common Expenses:					
Station Services	23,594	26,012	25,938	75,544	18.61
Transportation	4,352	4,824	2,142	11,318	02.79
Locomotive Maintenance	8,762	10,596	13,804	33,162	08.17
Car Maintenance	11,114	12,797	14,357	38,268	09.43
Maintenance of Way	1,104	1,166	1,728	3,998	00.98
Joint Facilities	—	—	—	—	—
Other Common-AMTRAK	7,392	6,076	—	13,468	03.32
Other Common-Railroad	3,758	3,534	—	7,292	01.80
TOTAL COMMON EXPENSES	60,076	65,005	57,969	183,050	
Other Expenses					
Railroad Performance Paymts.	—	—	—	—	
Other Railroad Expenses	278	302	12,988	13,568	03.34
Operating Support	15,017	16,593	19,694	51,304	12.64
Administration	670	670	670	2,010	00.50
Depreciation	5,542	5,618	5,618	16,778	04.13
Interest	4,928	4,905	5,204	15,037	03.70
Taxes & Insurance	2,210	2,184	2,384	6,778	01.67
TOTAL OTHER EXPENSES	28,645	30,272	46,558	105,475	
TOTAL OPERATING EXPENSES	124,973	131,411	149,532	405,916	100.00
NET OPERATING (DEFICIT)	(50,280)	(55,862)	(94,024)	(200,166)	
STATE SHARE — 50%	25,140	27,931	47,012	100,083	50.00
FEDERAL SHARE	26,140	27,931	47,012	100,083	50.00
STATISTICAL DATA:					
PASSENGERS (INCLUDES PASSES)	10,522	10,789	7,727	29,038	
COST PER PASSENGER	\$ 11.88	12.18	19.35	13.98	
Operating Revenue Produced Per Passenger	7.10	7.00	7.18	7.08	
LOSS PER PASSENGER	4.78	5.18	12.17	6.90	
STATE SUBSIDY	2.39	2.59	6.08	3.45	
FEDERAL SUBSIDY	2.39	2.59	6.08	3.45	

FIGURE 10

COMPARISON OF TRANSPORTATION SERVICES
BETWEEN THE TWIN CITIES AND DULUTH

The passenger train, bus, airline and automobile are the most commonly used modes of transportation between the Twin Cities and Duluth.

The least expensive public transportation to Duluth is the bus, followed by Amtrak. Air fare to Duluth costs more than three times as much as by bus or train. Despite this disparity in cost, the airline carried about 12 percent of the commercial passengers between the Twin Cities and Duluth. Sixty-seven percent used the bus and twenty-one percent used Amtrak. Amtrak and the bus take nearly the same travel time and the airplane is about five times faster.

The modes are compared below:

	<u>AMTRAK</u>	<u>BUS</u>	<u>AIR</u>	<u>AUTOMOBILE</u>
Cost				
One-way	\$10.50	\$ 8.05	\$35.79	\$23.84 - 149 mi.@ 0.16/mi.
Round trip	16.00	15.30	70.38	47.68 - 298 mi.@ 0.16/mi.
Travel Time	200 min.	185-280 min.*	35-40 min.	163 minutes at 55 mph
Frequency of Service per Day	1	6	9	Upon demand
Number of Towns Served	5	41	2	Unlimited
Share Ridership between Twin Cities & Duluth	2.8%	8.9%	1.6%	86.7%

*Express and Local Service

During the 30-month period the Arrowhead has operated, the percentage of passengers using the Arrowhead train rose from 14.75 to 35.76 percent although the percentage of passengers using the bus decreased from 73.31 to 53.04 percent. Figure 11 shows a quarterly comparison of rail, bus and air ridership between Duluth and Twin Cities. This redistribution of passengers weakens the profitability of the intercity bus industry without making any substantial inroads into the number of auto trips.

PASSENGER RIDERSHIP BETWEEN TWIN CITIES AND DULUTH
BY AMTRAK, GREYHOUND BUS AND
NORTH CENTRAL AIRLINES
APRIL, 1975 - SEPTEMBER, 1977

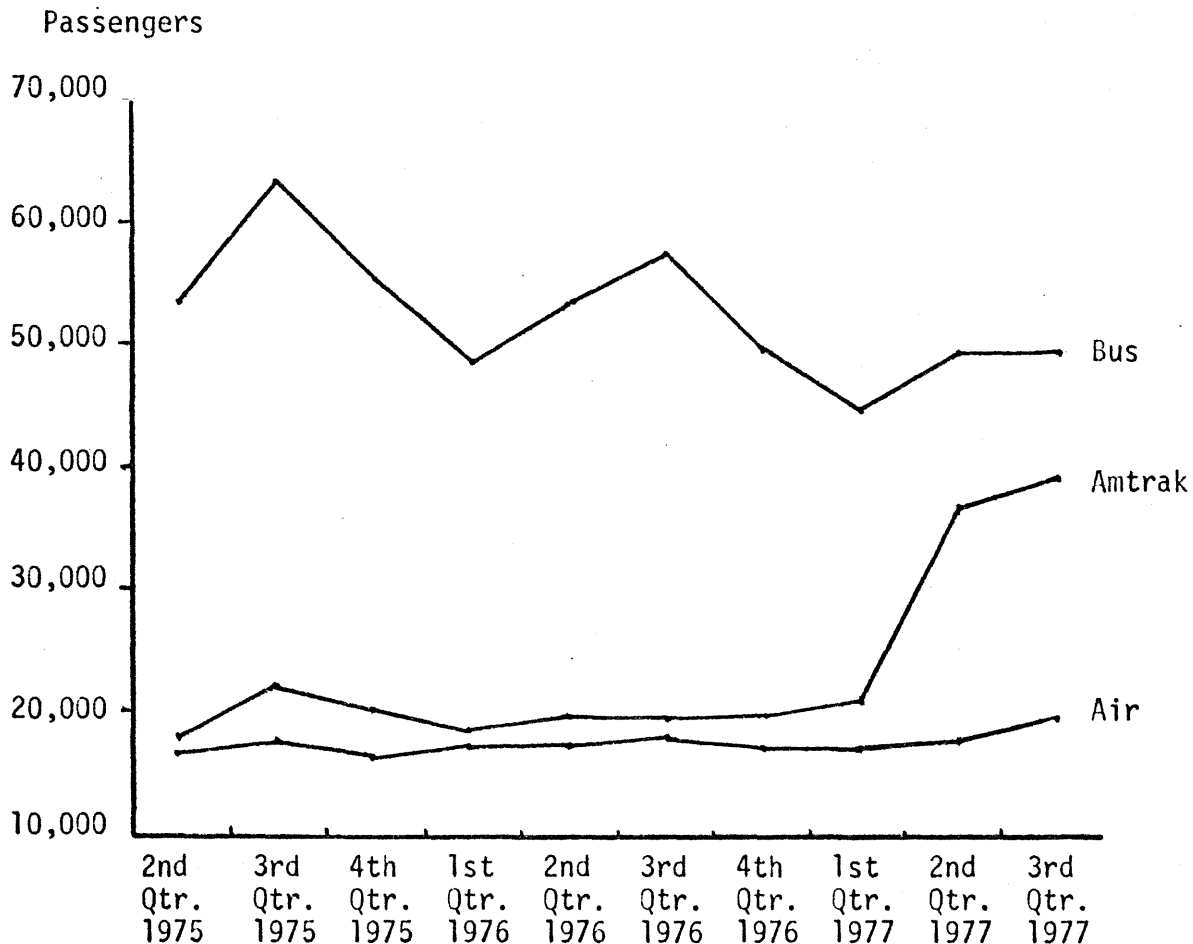


FIGURE 11

Prior to September 1976, bus provided one additional round trip. This was a local service by way of Highway 61 between Twin Cities and Duluth-Superior. The application for the elimination of this bus due to the decline in passenger traffic was made to the Public Service Commission by the Greyhound Bus Lines on August 2, 1976, and became effective on September 8, 1976.

ENERGY COMPARISON BETWEEN MODES

No specific analysis of the Twin Cities to Duluth corridor was done. Ample information, however, exists from studies done on the Amtrak system and on intercity bus transportation. These studies conclude that an intercity bus can be more than two times as efficient as an Amtrak passenger train. The comparative gallons per seat on a run between San Diego and Los Angeles (which is similar in distance traveled by the Arrowhead) was calculated in a recent study¹:

	<u>Gallons/Seat</u>
Air	4.74 - 7.57
Automobile	2.15 - 2.59
Train	0.9 - 1.2
Bus	0.42 - 0.51

Figure 12 shows a comparison of the energy efficiency between all modes at differing passenger capacities² on the San Diego and Los Angeles run. This comparison indicates that the intercity bus is as efficient with a 50 percent load factor, as the Amtrak train is with a 100 percent load factor.

Because the Arrowhead attracts some passengers from the intercity bus, it, therefore, reduces the per passenger efficiency for both the retained bus passengers and those passengers who switch to Amtrak.

¹Michael P. Miller, Boeing Commercial Airplane Company, "Energy Efficiency of Current Intercity Passenger Transportation Mode" as presented in the Third National Conference on Effects of Energy Constraints on Transportation Systems, August 1976.

²Ibid.

Modal Efficiencies Versus Load Factor
Los Angeles-San Diego

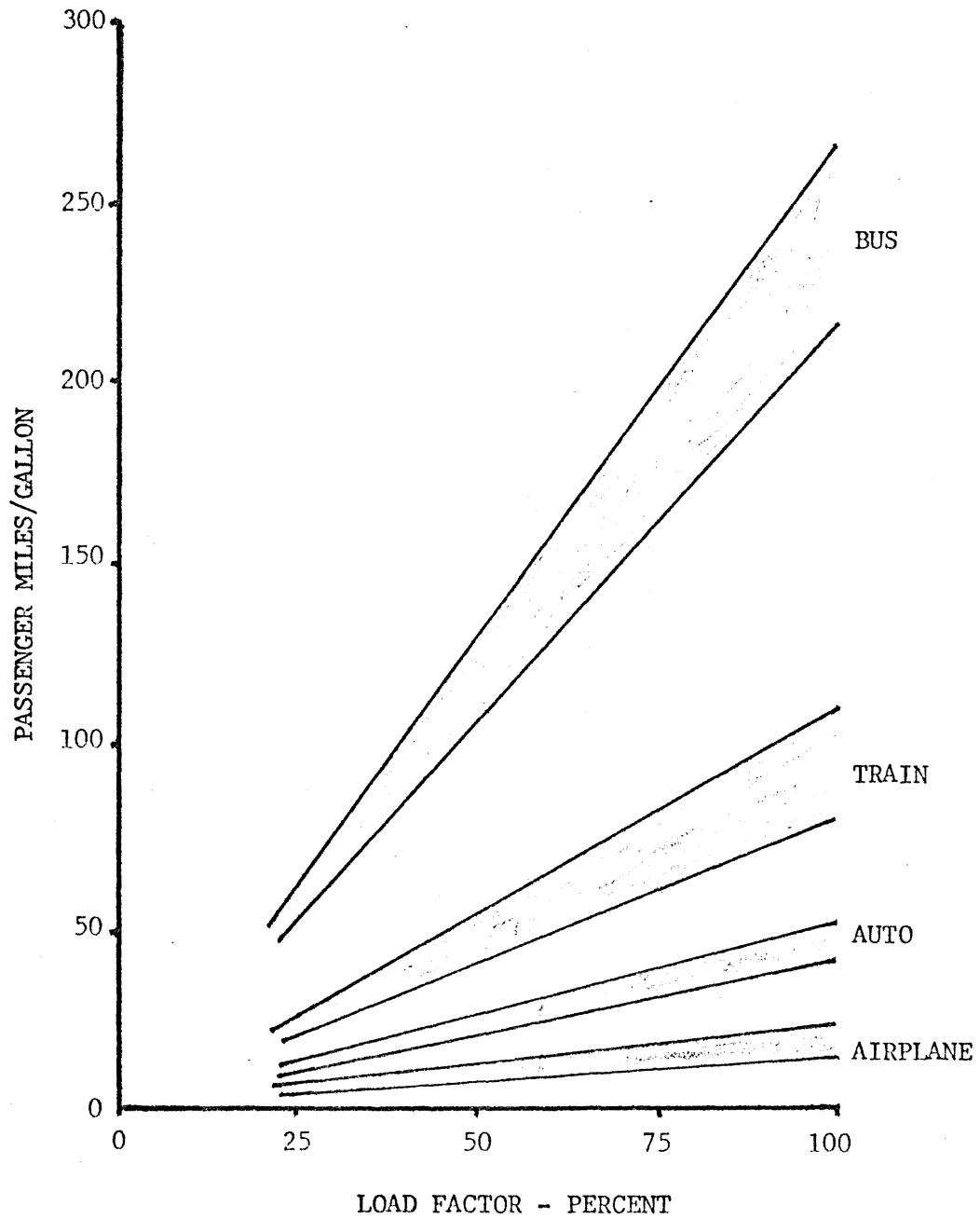


FIGURE 12

ECONOMIC IMPACT OF THE ARROWHEAD

The passenger survey indicates the Arrowhead is primarily used for recreation and vacation. The economy of Duluth benefits for this Arrowhead service.

Duluth's economy is greatly influenced by travelers, as shown by the following hotel receipts:

1976 Duluth Hotel Receipts

<u>Quarter</u>	<u>Dollars</u>
First	\$1,939,000
Second	2,352,000
Third	3,309,000
Fourth	1,983,000
	<hr/>
	\$9,583,000

Source: Minnesota Department of Revenue

A strong third quarter shows the heavy influence of the summer tourist trade. During 1977, after the schedule change, Amtrak ridership showed the same strong third quarter use.

The exact impact that the Arrowhead has on Duluth is unknown. It can be assumed from the survey results that the Arrowhead is bringing passengers to Duluth who would not regularly visit. The Arrowhead also provides a unique experience for the generation of Minnesotans who have been born since the decline of rail passenger service. Many groups of people statewide have taken advantage of the experience offered by the Arrowhead.

The provision of a Friday-night train to Duluth should attract additional skiers to Spirit Mountain Ski Resort, owned and operated by the City of Duluth and financed with federal, state, and local dollars. The impact of this Friday-night service will be evaluated as the information becomes available.

AMTRAK-RELATED EMPLOYMENT

Burlington Northern has two full-time crews assigned to the Arrowhead run. Crews consist of engineer, fireman, conductor and, depending on the load, one or two brakemen. Also on each run, Amtrak employs an attendant.

Three full-time employees run the Duluth and Superior stations. In Sandstone and Cambridge, two part-time caretakers, provided by the cities and funded through the Comprehensive Employment and Training Act (CETA), open the depots when the trains come and close them again. At the Minneapolis depot, present employees share responsibilities with the main-line service from Chicago through to Seattle. Crews of coach cleaners, employed by Burlington Northern, clean the coaches inbetween trips.

If the Arrowhead service were discontinued, the impact would be a reduction in manpower. Burlington Northern employees would be reassigned to other tasks. There would be a corresponding reduction in the amount of work for those lowest on the railroad seniority list. Amtrak station agents would either be released or reassigned to other stations. The attendants would be assigned to other runs. The part-time caretakers at Sandstone and Cambridge probably would be released.

OPTIONS

Although the Minnesota Department of Transportation has administered the contract on the Arrowhead train from the Twin Cities to Duluth and has tried to improve service within the context of 403B Amtrak operations, there are several options which might be considered for adjusting train service to Duluth. These options vary depending on the reason for providing the service.

If the Arrowhead's purpose is to provide transportation, options include:

1. Discontinue Amtrak service between the Twin Cities and Duluth, as there are sufficient alternate transportation services available.
2. Continue the Arrowhead as is because it provides a comfortable, low-consumer-priced transportation service, but at great expense to the State in subsidy costs.
3. Continue to make schedule adjustments to maximize value of the service, although further schedule adjustment possibilities are limited in nature and possible effect.
4. Make rate adjustments to maximize revenues. Increased fares tend to reduce ridership. Reduced fares tend to increase ridership. The net result may not substantially increase revenues.
5. Introduce new equipment, such as the new Amfleet now being introduced on main-line Amtrak runs. This equipment has been promised for the Arrowhead since March of 1977. The most recent date for beginning service is March 1978. The extent to which this new equipment will increase ridership and change costs is not known.

6. Increase frequency of service to encourage dependence of passenger ridership on the Amtrak train, despite the substantial cost increases that would be associated with such service improvements.
7. Introduce use of Budd car, a single car vehicle which could operate over rail. This would require fewer crew members and less operating equipment, and would provide capacity similar to that of an intercity bus. This kind of equipment is not available through Amtrak. Minnesota would most likely have to assure 100 percent of the cost, including the capital cost of equipment. Also, there may be substantial work rule problems or operational problems over the Burlington Northern trackage.
8. Eliminate all on-board service to minimize costs. The on-board service costs \$187,066 and creates \$78,713 in revenues, contributing \$108,353 or 6 percent to the subsidy cost of the train.

If the purpose of Amtrak is to promote tourism, several options become available:

1. Eliminate the weekday runs, but continue to provide a full schedule of service Friday through Sunday. Fifty-three percent of the present passengers travel on the weekend. It would be expected that the total ridership on the weekend would decline if the weekday service were discontinued. The benefit would be the decline in the total subsidy cost.

2. Fund special promotions under any operational schedule that would encourage group ridership and maximize marketing efforts to increase ridership for recreational purposes. Any continued service should include a strong marketing effort, which could pay for itself through reduced subsidy costs.
3. Discontinue Amtrak; secure and periodically run a steam engine between the Twin Cities and Duluth or on some other piece of track purely for tourists. This would be a completely different service oriented strictly to State tourism.
4. Discontinue Amtrak and provide a grant to the City of Duluth for tourism promotions in order to increase travel to Duluth by modes other than rail. This alternative would benefit Duluth most directly.

If it is desired to improve the availability of commercial transportation to Duluth, options include:

1. Discontinue Amtrak and provide special bus service, using special equipment to provide a more comfortable ride. This possibility might include provision for food and beverage sales aboard a bus. Liquor is not allowed on regularly scheduled runs, but could be available on special runs. Special equipment is available, but costly.
2. Provide special bus promotions to encourage tourists to go to Duluth. Greyhound presently promotes tourism to Duluth and this would constitute an increase in that effort.

3. Subsidize a portion of the air fare or bus fare between Duluth and the Twin Cities. This would reduce the cost of the trip for passengers on the other modes.

None of these options are recommended by Mn/DOT, they are only intended to provide other options that may be considered.

CONCLUSIONS

- . The Arrowhead train will always require a subsidy. During the 30 months of operation, the Arrowhead train has required a total State and Amtrak subsidy of \$1,114.76 for each day (round trip) or \$12.40 per passenger trip. At the present rate of increase in cost and in ridership, the subsidy could increase to as much as \$3,600 per day (round trip) by the end of 1978. The State's share of that subsidy would be \$1,800 per day.
- . The Arrowhead train is more of a recreational experience than an essential mode of transportation. Forty-four percent of the respondents to a passenger survey indicated they chose the train because of the novelty. Ninety percent indicated their trip was vacation or recreational in nature. Also, 98.9 percent indicated they were making their first trip to Duluth in at least a year. Bus, air and automobile transportation provides and continues to provide essential transportation services between Duluth and Twin Cities.
- . The Arrowhead train has not significantly affected air and automobile use. Part of the normal bus ridership has transferred to Amtrak, threatening the profitability of the nonsubsidized bus service.
- . The Arrowhead train provides the most benefit to the City of Duluth by enhancing recreational travel. Much of Amtrak's recreational ridership appears to consist of people who would not otherwise have made the trip to Duluth.