

# University of Minnesota

express bus ridership report  
winter 1972

# **University of Minnesota express bus ridership report**

Minnesota. University.

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Winter '92

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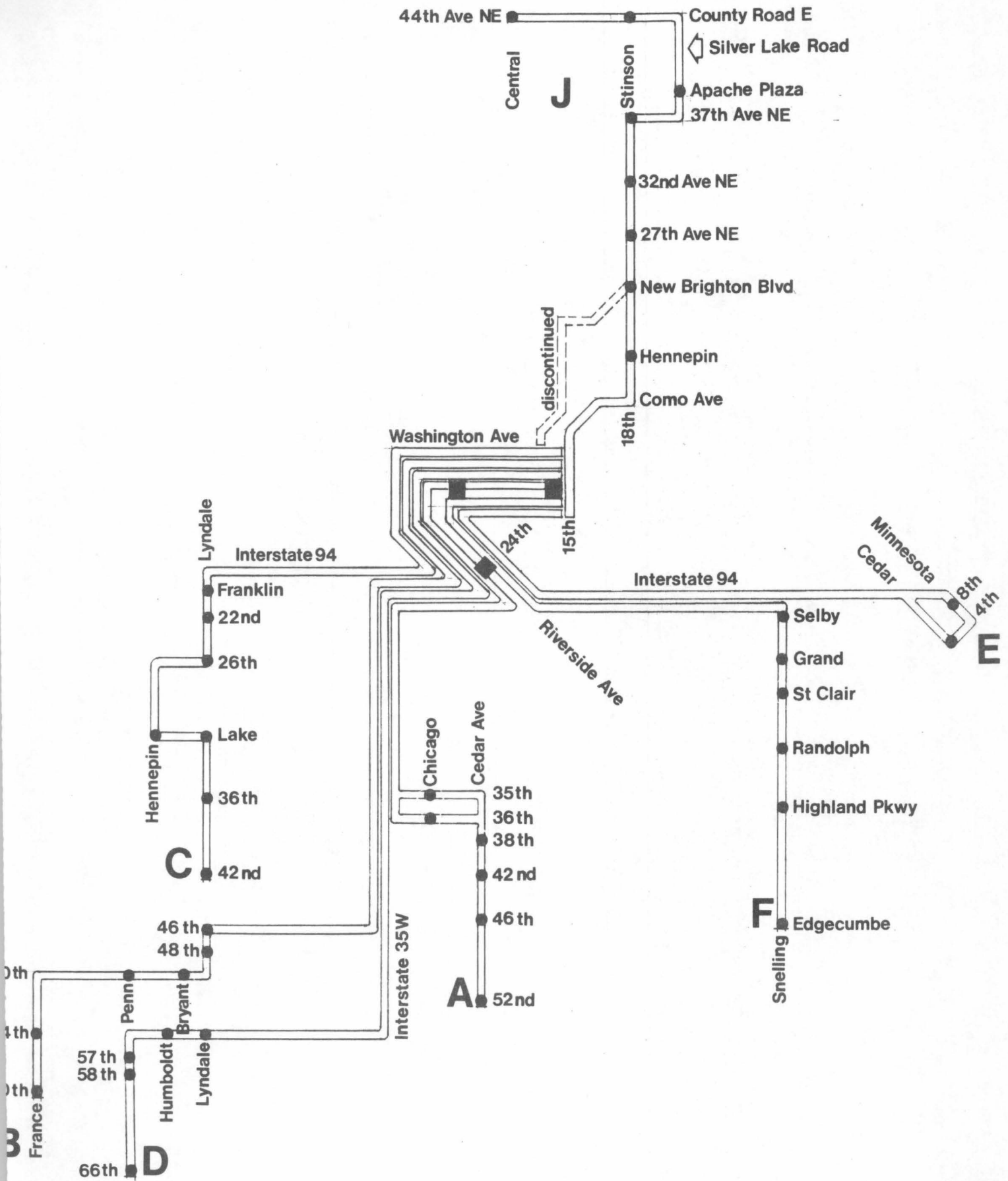
# **Introduction**

The primary task of this report is to further illustrate the viability of an Express Bus System to the University: Demonstrating to the Metropolitan Transit Commission that there is a present and growing market for the service.

The following report is a summary and analysis of Express Bus ridership for Winter Quarter, 1972, which covered the period from 3 January 1972 to 18 March 1972. The routes covered here include only those routes operated by the Metropolitan Transit Commission, although there are two additional express routes serving the University - the Dickenson Lines Brooklyn Park Express and Route G, operated by the Bloomington Bus Company.

Since all routes are basically unchanged from Fall Quarter, 1971, comparisons between Fall and Winter Quarter comprise the greater part of the analysis. In order to facilitate comparison, figures for Thanksgiving Week, Fall Quarter will not be included. In addition to the fact that these figures are atypical, their elimination equalizes the number of weeks in the two quarters.

Existing and potential transit market data, used throughout this report, are based on Bather, Ringrose and Wolsfeld's origin-destination survey done in February, 1971, in conjunction with the Long Range Development Planning process at the St. Paul Campus.



# Express Bus Route Map

- Campus Stop
- Collector Stop

EXPRESS BUS SCHEDULE\*

		STOPS		
		Coffman Union	West Bank	24th and Riverside
<hr/>				
ROUTE A				
a.m.	trip 1	7:35	7:36	7:41
	trip 2	8:05	8:06	8:11
	trip 3	9:05	9:06	9:11
p.m.	trip 1	3:09	3:08	3:03
	trip 2	4:39	4:38	4:33
<hr/>				
ROUTE B				
a.m.	trip 1	7:35	7:36	7:41
	trip 2	8:05	8:06	8:11
p.m.	trip 1	3:11	3:10	3:05
	trip 2	4:41	4:40	4:35
<hr/>				
ROUTE C				
a.m.	trip 1	7:35	7:36	7:41
	trip 2	8:05	8:06	8:11
	trip 3	9:06	9:07	9:12
p.m.	trip 1	3:12	3:11	3:06
	trip 2	4:12	4:11	4:06
	trip 3	4:37	4:36	4:31
<hr/>				
ROUTE D				
a.m.	trip 1	8:05	8:06	8:11
p.m.	trip 1	3:13	3:12	3:07
<hr/>				
ROUTE E				
a.m.	trip 1	7:38	7:40	7:45
	trip 2	8:05	8:06	8:11
	trip 3	8:58	9:00	9:05
p.m.	trip 1	3:17	3:15	3:11
	trip 2	4:38	4:37	4:32

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ROUTE F				
a.m.	trip 1	7:38	7:40	7:45
	trip 2	8:05	8:06	8:11
	trip 3	8:58	9:00	9:05
p.m.	trip 1	3:17	3:16	3:11
	trip 2	4:38	4:37	4:32

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ROUTE J				
a.m.	trip 1	7:35	7:36	7:41
	trip 2	8:05	8:06	8:11
p.m.	trip 1	3:11	3:10	3:05
	trip 2	4:41	4:40	4:35

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\* AM schedule indicates arrival time on campus. AM time on ridership graphs indicates time of trip origin.



## **Winter Quarter Data**

## **Route A**

RIDERSHIP ON ROUTE A INCREASED NEARLY 24% OVER FALL QUARTER. CIVIL SERVICE PATRONS ON ROUTE A SEEMED MORE LIKELY THAN STUDENTS TO MAKE A ROUND TRIP ON THE EXPRESS BUS.

Route A serves an area of Minneapolis almost directly south of the University. Included in this area is a part of the Minneapolis Model City, which has one of the lowest ratios of car ownership to population in the Metropolitan area.<sup>1</sup> That a relatively higher number of transit trips originate from this area, as compared to most of the other route areas reinforces this fact. However, the transit market is far from saturated in that the origin-destination survey showed a substantial number of auto person trip origins from the area as well.

Route A makes three morning and two afternoon trips. The first trip in the morning, aimed largely at Civil Service staff, was the most popular throughout the quarter and exhibited the steadiest growth pattern with the exception of patronage during finals week. During finals week patronage on this trip dropped off just as sharply as it did on the student-oriented trips. This would indicate that even though the early trip arrives on campus almost 45 minutes before first hour classes, it is serving largely a student audience.

The two afternoon trips averaged fewer riders per week than any of the morning trips, illustrating that a certain number of riders do not use the Express Bus on a round trip basis. A comparison of morning and afternoon averages by trip time, indicates that Civil Service staff are more likely to make the round trip. This is revealed in the finals week averages for the Civil Service-oriented trips in that these two figures are virtually the same.

Total ridership for Winter Quarter increased nearly 24% over Fall Quarter. The growth pattern was somewhat erratic, exhibiting the steadiest increases in the middle of the quarter. Morning and afternoon trips posted a similar increase in ridership.

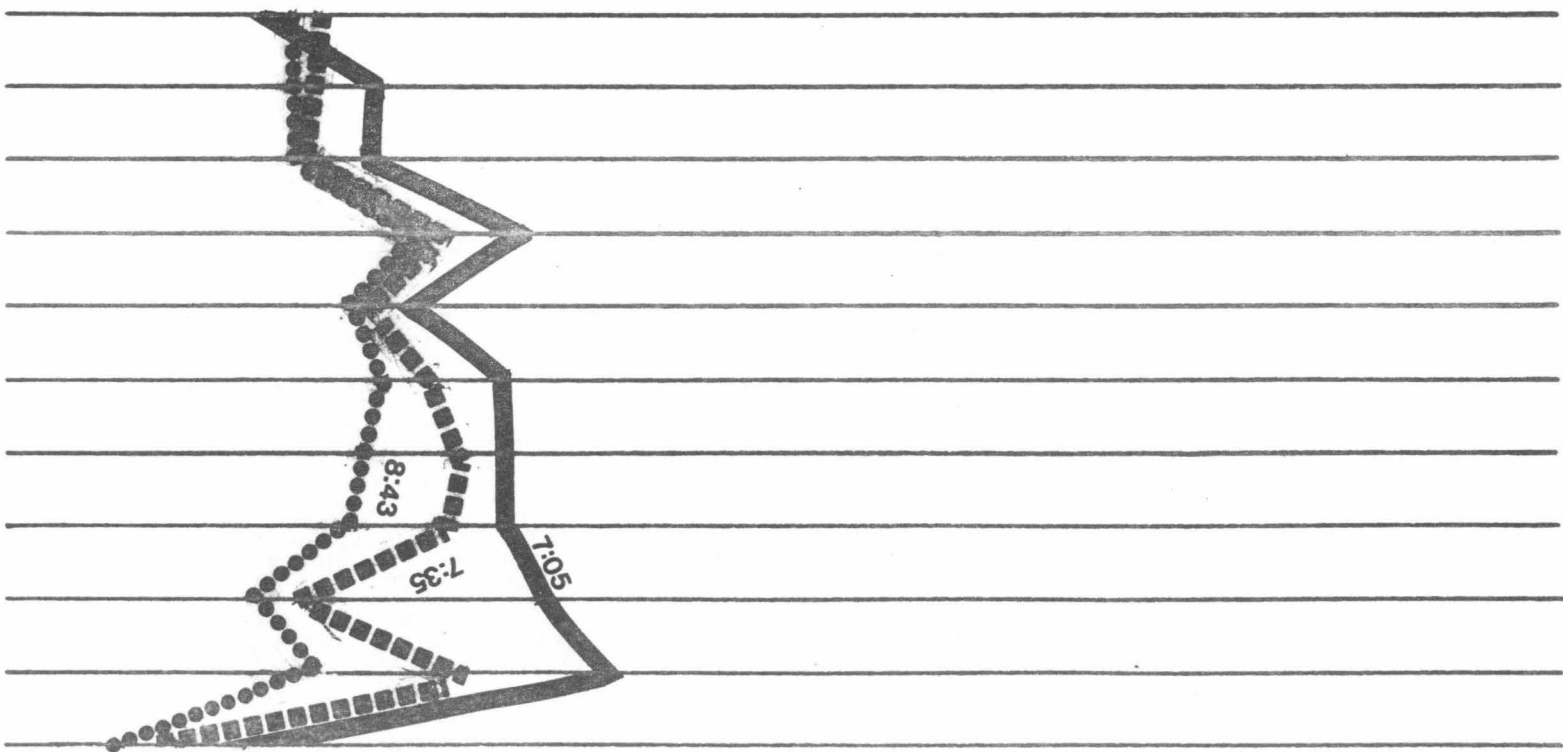
1. Metropolitan Council, Travel Behavior Inventory, 1971.

# Route A

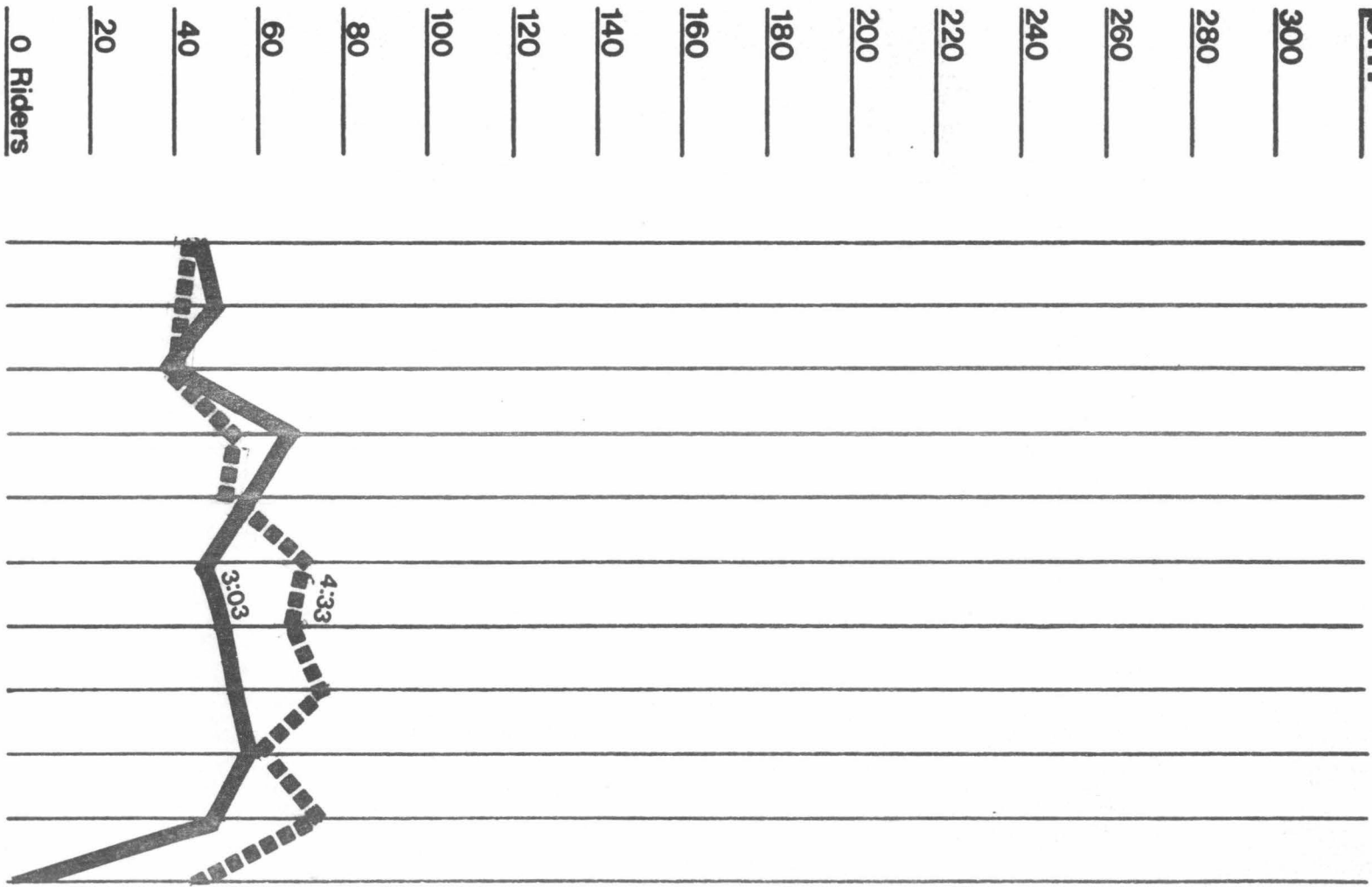
am



- 3 January
- 10 January
- 17 January
- 24 January
- 31 January
- 7 February
- 14 February
- 21 February
- 28 February
- 6 March
- Finals



# Route A pm



3 January  
 10 January  
 17 January  
 24 January  
 31 January  
 7 February  
 14 February  
 21 February  
 28 February  
 6 March  
 Finals

300  
 280  
 260  
 240  
 220  
 200  
 180  
 160  
 140  
 120  
 100  
 80  
 60  
 40  
 20  
 0 Riders

## **Route B**

ROUTE B, AS A NEWER ROUTE, INCREASED 22% IN RIDERSHIP FROM FALL QUARTER. ALTHOUGH THE MORNING TRIPS REMAINED MORE POPULAR, AFTERNOON PATRONAGE INCREASED AT A HIGHER RATE, INDICATING MORE ROUND TRIP PATRONAGE.

Route B serves the northeast quadrant of Edina and the southwestern edge of Minneapolis. When the origin-destination survey was done, the area was not served by an Express Bus. At that time, local transit to the University had very low patronage, although a potential market was discernable from auto person trip origins. The "new" Route B with the present alignment began operation Fall, 1971.

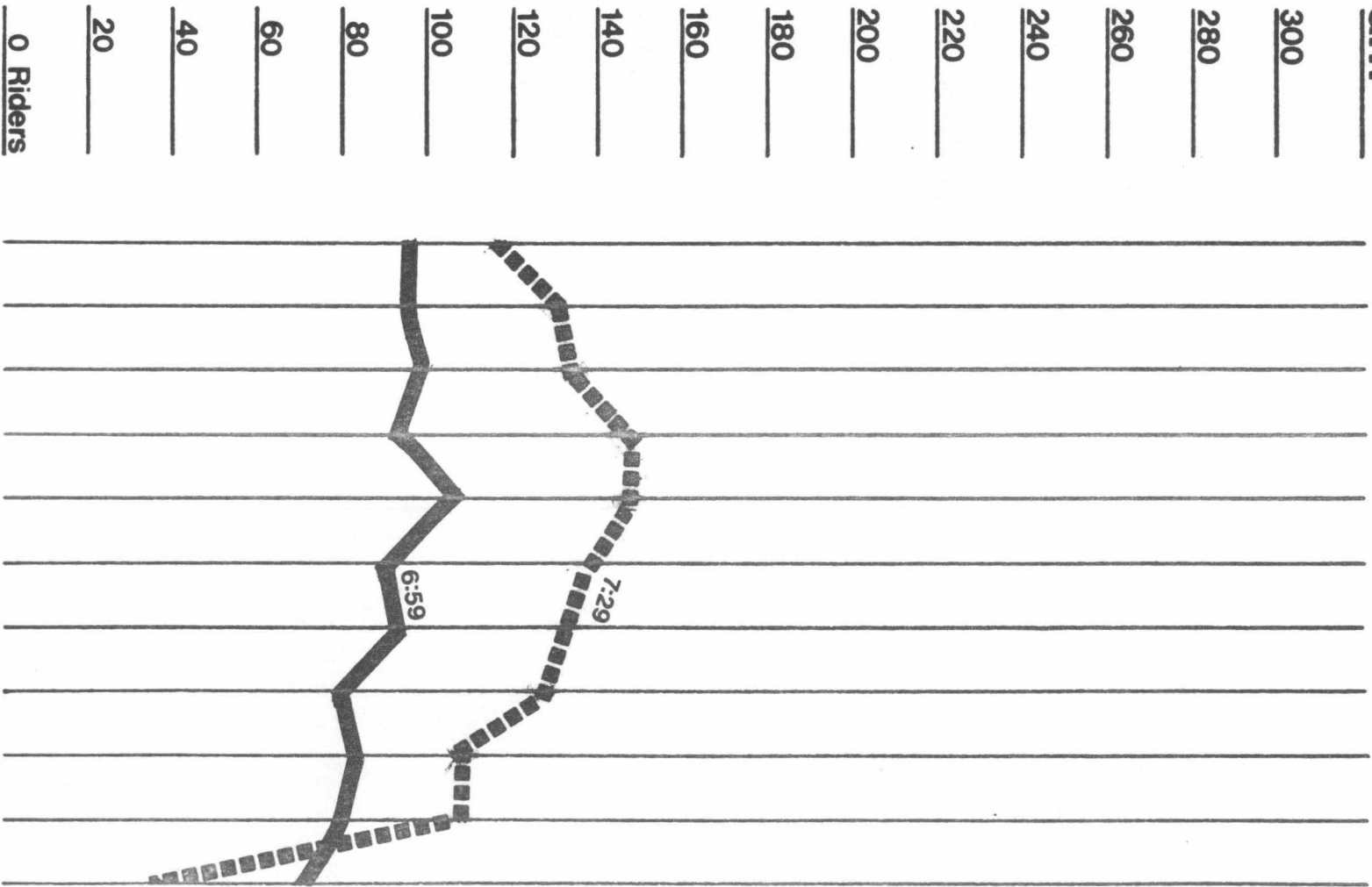
Route B makes two morning and two afternoon trips. Average ridership on the first morning trip peaked during the fifth week then declined slightly. Ridership did not decrease appreciably during finals week, indicating strong Civil Service patronage. The second trip had higher average ridership, which likewise peaked during the fifth week. The sharp drop in ridership finals week suggests that this trip is patronized largely by students, as intended by the trip time (7:29 AM).

Unlike the morning trips, ridership on the early afternoon trip peaked during the fourth week then slowly declined. Ridership dropped off almost entirely during finals week. The later trip had somewhat greater patronage, which increased fairly steadily throughout the greater part of the quarter. Each trip seems to be serving the group it is designed for, as indicated by the smaller percentage decrease in ridership on the late afternoon, Civil Service-oriented trip.

Both morning and afternoon trips increased in ridership from Fall Quarter, albeit at a less than steady rate. However, the afternoon trips posted the most significant increases. Over the quarter, there was a 44.6% increase shown. This compares with only a 9% increase in morning ridership. Although total afternoon ridership is still lower, the gap between morning and afternoon ridership is narrowing, the implication being that more people are making a round trip on the Express Bus.

Although Route B has fewer total patrons than most of the other routes, it is a relatively new route. On the other hand, it has already demonstrated the capability of drawing new ridership, both among Civil Service staff and students.

# Route B am

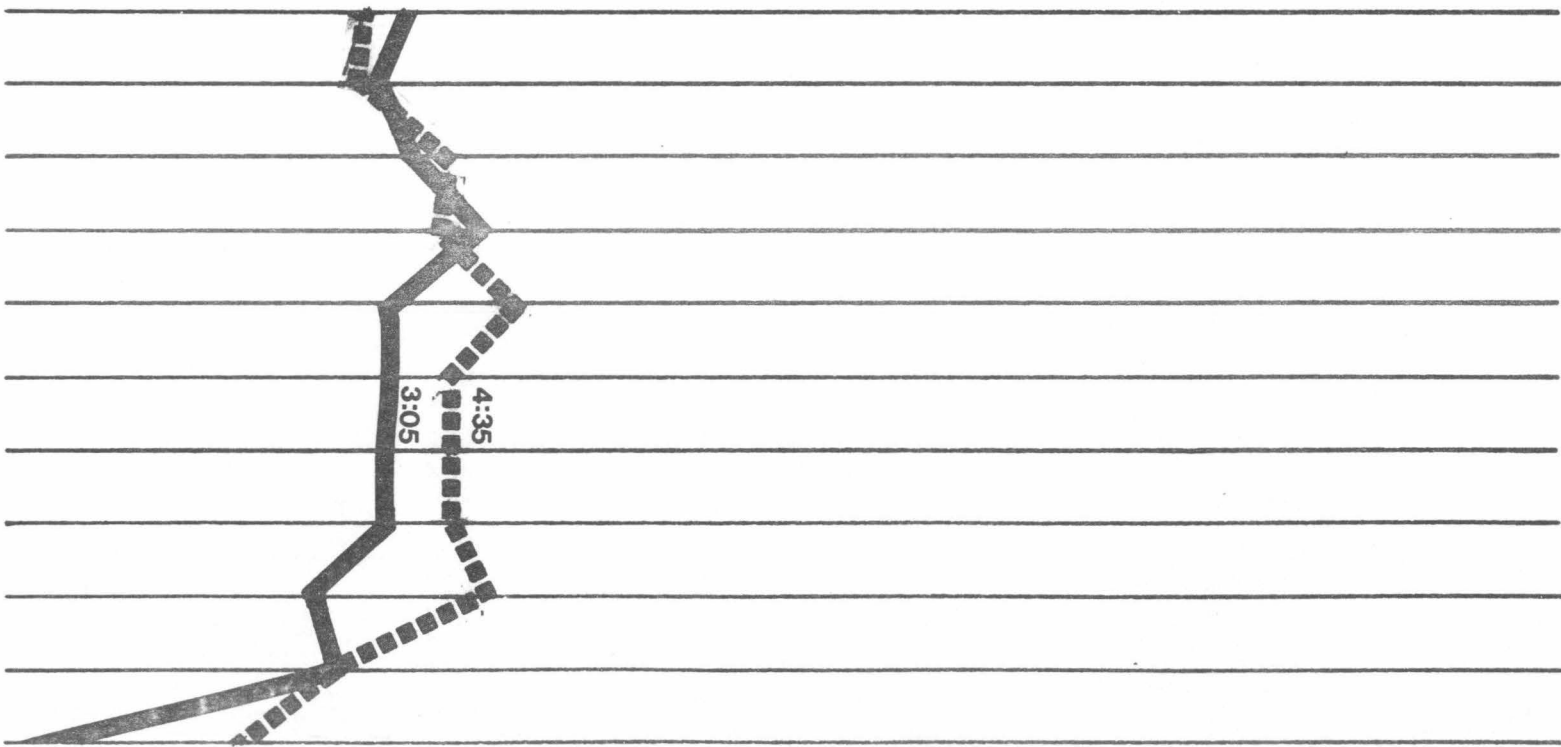




# Route B pm

300  
280  
260  
240  
220  
200  
180  
160  
140  
120  
100  
80  
60  
40  
20  
0 Riders

3 January  
10 January  
17 January  
24 January  
31 January  
7 February  
14 February  
21 February  
28 February  
6 March  
Finals



## **Route C**

ROUTE C WAS AGAIN THE BEST PATRONIZED ROUTE IN THE EXPRESS BUS SYSTEM. CIVIL SERVICE PATRONAGE ACCOUNTED FOR A GREAT PART OF THE ROUTE'S POPULARITY.

Route C serves South Minneapolis. The potential transit market both in terms of individuals already riding the bus and auto person trip origins from the area, is the largest in the Express Bus System. Likewise, patronage on Route C is the highest in the system. It should be noted that part of this popularity may be due to the fact that the fare on Route C is the same as on a regular MTC bus.

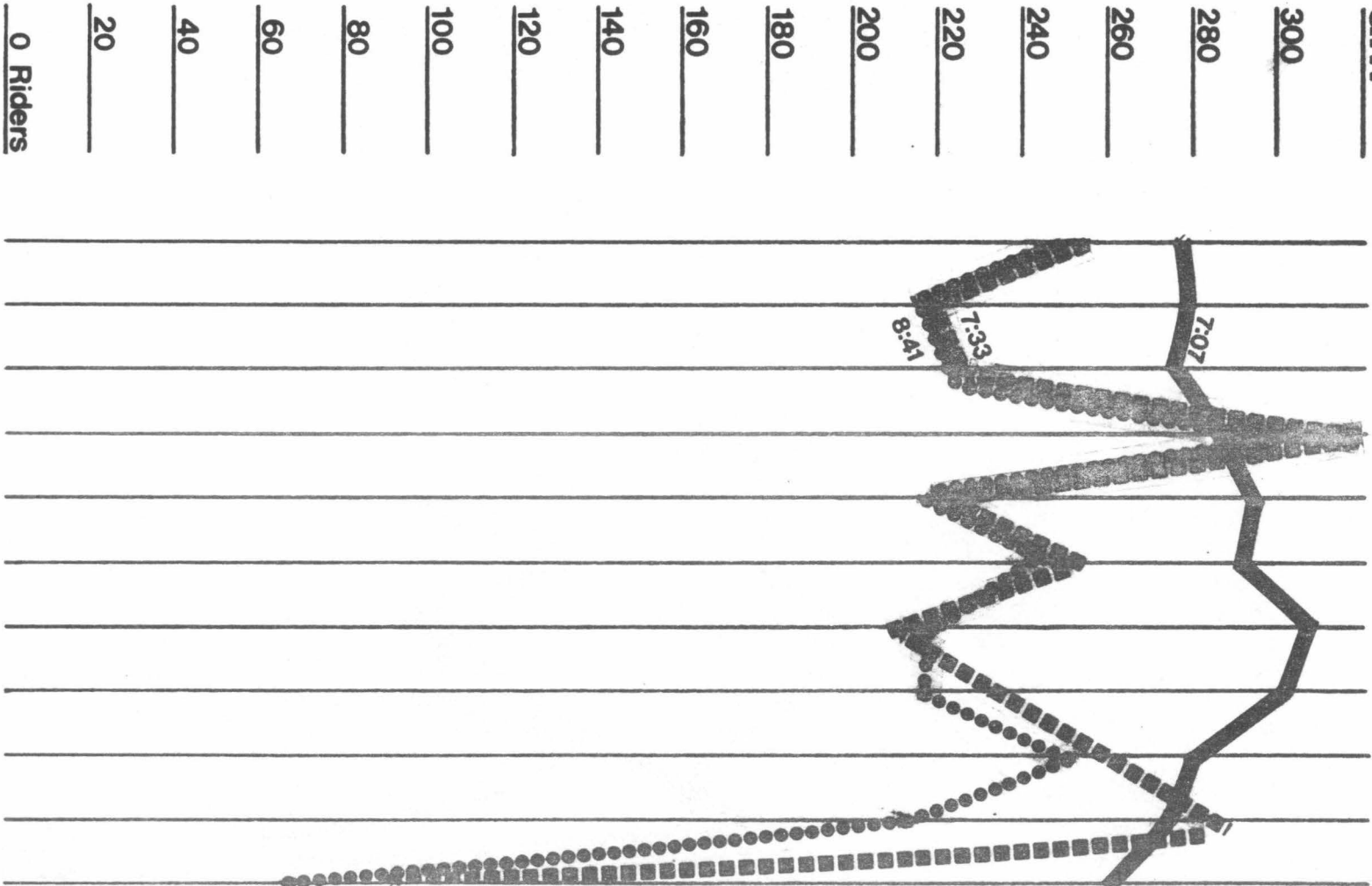
Route C makes three morning and three afternoon trips. The early morning trip had the highest average ridership and remained fairly stable throughout the entire quarter. Ridership declined only slightly during finals week, indicating strong Civil Service patronage. The two later trips exhibited a more erratic pattern. Both peaked in ridership during the fourth week and both experienced sharp declines during finals week, indicative of student patronage.

The late afternoon trip posted more than twice the average daily ridership than the two earlier trips. Ridership did not change appreciably during finals week. The two student-oriented trips experienced fairly stable ridership, which again dropped off significantly during finals week.

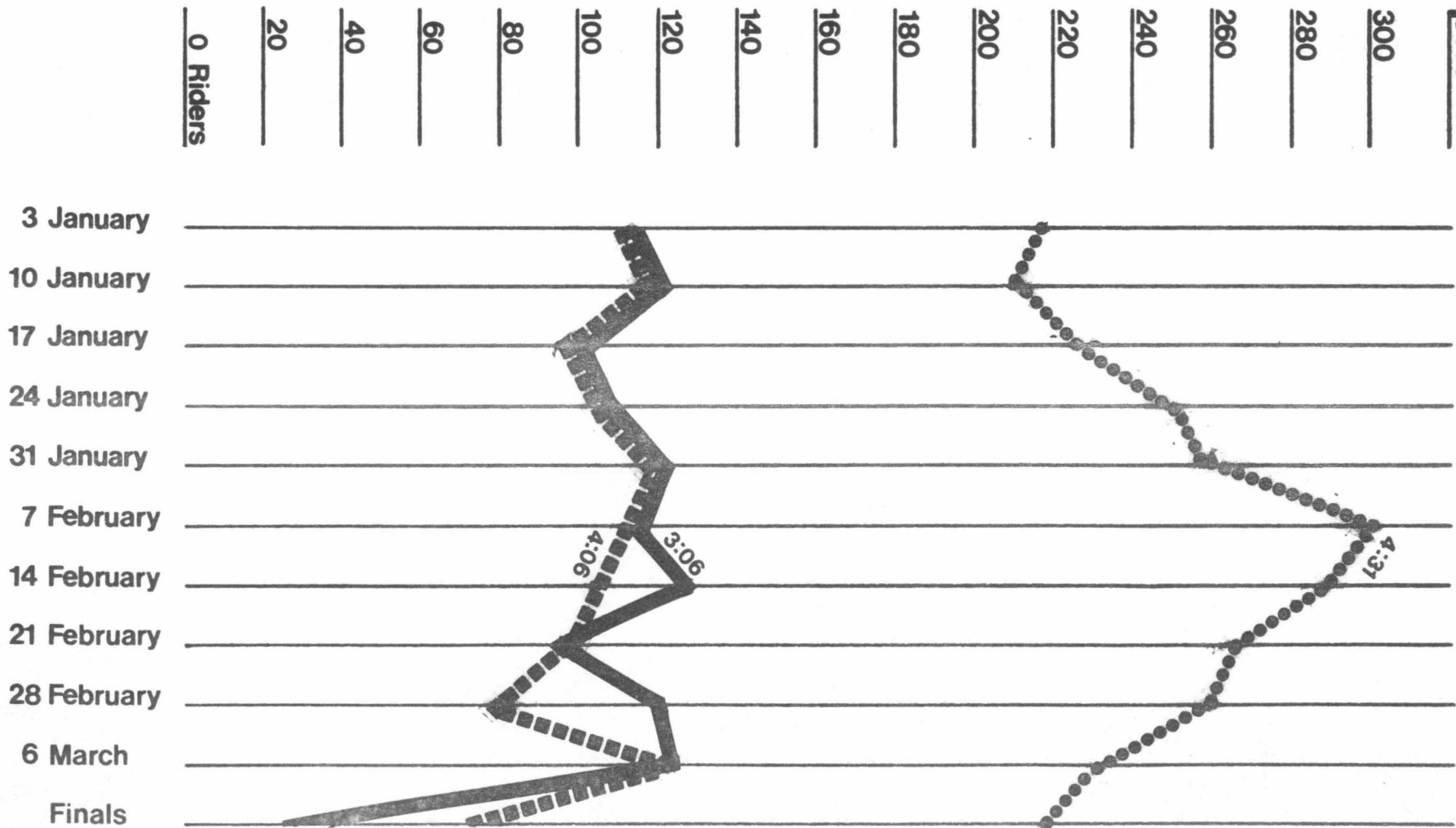
Morning trips showed a relatively small increase in ridership over Fall Quarter. Afternoon ridership on the other hand, increased nearly 25% from Fall Quarter. As with Route B, this is an indication that more people are utilizing the Express Bus on a round trip basis.

Route C best exemplifies the viability of the Express Bus concept. A potential market was identified, a route established and then expanded to serve an even larger potential market. As the route was refined and became better known, patronage steadily increased and is still increasing. It is interesting to note that patronage is strong among both Civil Service staff and students. Moreover, Civil Service patronage of Route C is the highest and most stable in the system.

# Route C am



# Route C pm



## **Route D**

ROUTE D, THE SMALLEST ROUTE IN THE EXPRESS BUS SYSTEM, POSTED A 19% INCREASE IN RIDERSHIP OVER FALL QUARTER. A GREATER PROPORTIONATE INCREASE IN AFTERNOON RIDERSHIP INDICATES THAT MORE PEOPLE ARE USING THE BUS ON A ROUND TRIP BASIS.

Route D serves the northwestern corner of Richfield and Southwest Minneapolis. At the time the origin-destination survey was taken there was no express route serving this area and local transit patronage to the University was negligible. However, on the basis of auto person trip origins, the University instituted Route D as of Fall Quarter, 1971.

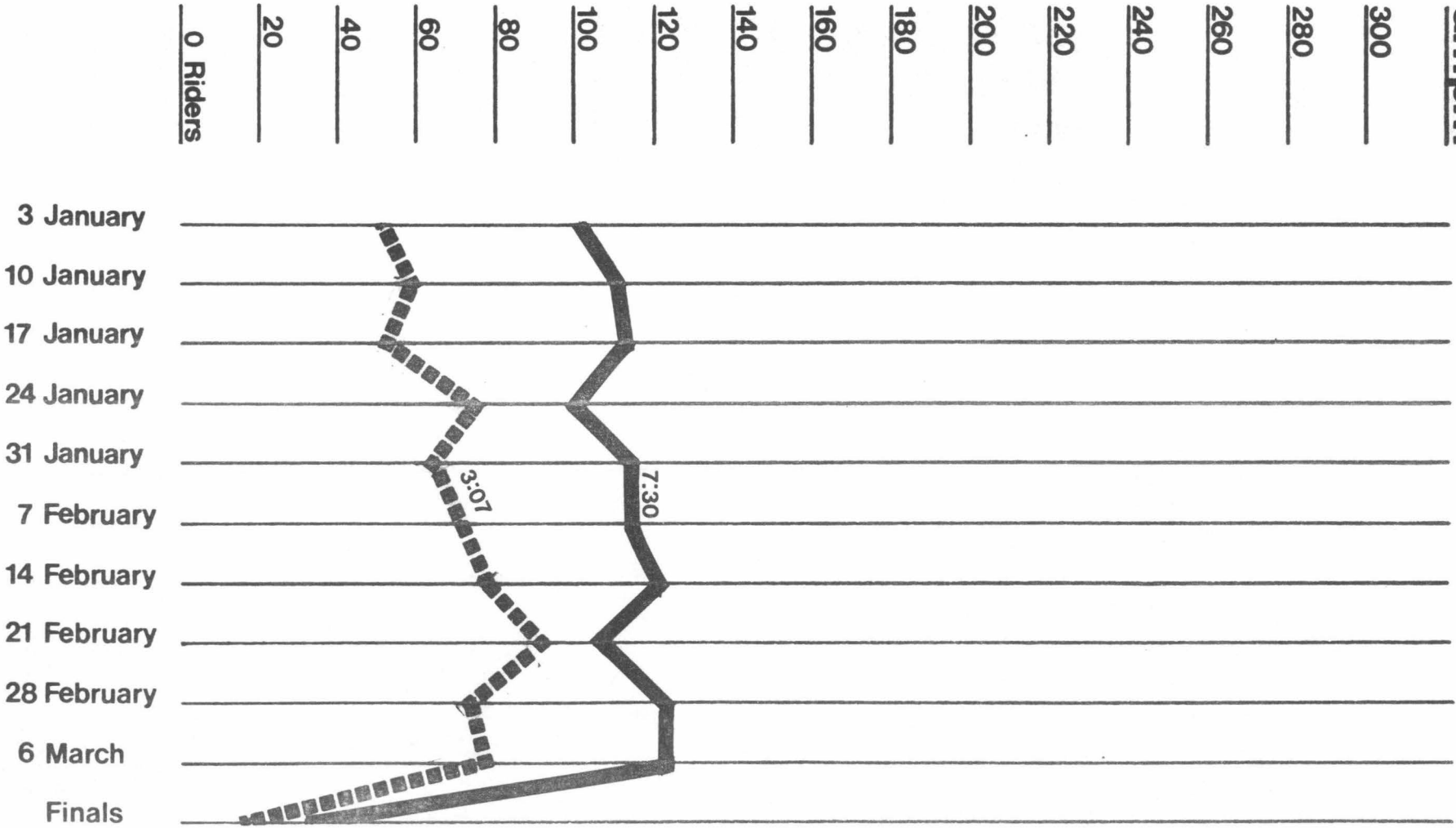
Route D makes only one morning and one afternoon trip, representing the smallest route in the system. Both trips are designed for students. Average ridership on the morning trip remained fairly stable throughout the quarter, showing a small increase during the last two weeks of classes. Ridership dropped off substantially finals week.

The afternoon trip averaged about eight fewer riders per day than the morning trip. Although ridership increased unevenly over the quarter, it did begin to show a positive growth pattern by the end of the quarter. As with the morning trip, ridership dropped off almost entirely during finals week.

Compared to Fall Quarter, Route D posted a Winter Quarter gain in ridership of 19%. As with Routes B and C, the overall increase in afternoon ridership was the most significant, again indicating greater round trip patronage.

Considering that Route D is one of the newest routes in the system, it experienced remarkably steady patronage. It is serving a growing number of student patrons, which is the primary group the Express Bus is intended to serve.

# Route D ampm



7:30

3:07



## **Route E**

ROUTE E IS AMONG THE MOST POPULAR ROUTES IN THE EXPRESS BUS SYSTEM. IT IS THE ONLY ROUTE THAT RELIES MAINLY ON TRANSFER PASSENGERS.

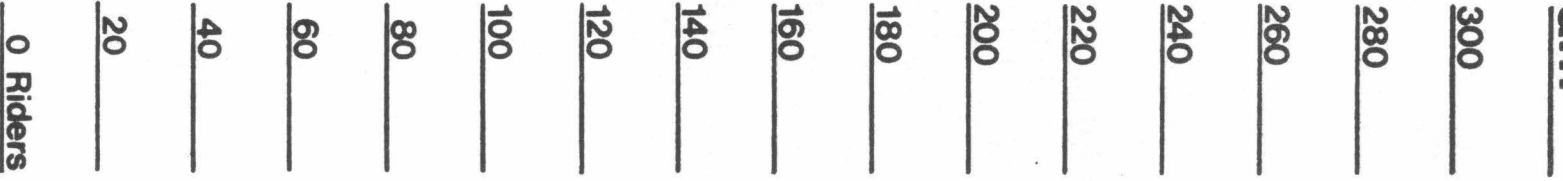
Route E originates in Downtown St. Paul and serves mainly transfer passengers from residential St. Paul. This route is among the most popular in the system, one of the reasons being a fare advantage over regular MTC service. From the origin-destination survey, a pattern of already existing transit ridership was identified to the north and east of Downtown St. Paul. In addition, a potential market in terms of auto person trip origins was also identified.

Route E makes three morning and two afternoon trips. The two later morning trips were more popular than the early trip. This can be partially explained by the transfer nature of the route: In order to make connections with the 7:15 AM trip a rider may have to leave home significantly earlier than if he patronized a regular MTC bus. The later, student-oriented trips also experienced steadier patronage with the exception of finals week, where ridership dropped off sharply. Ridership on the early trip declined more during finals week than might be expected if the route is serving mainly Civil Service staff. Apparently students are also utilizing the early trip.

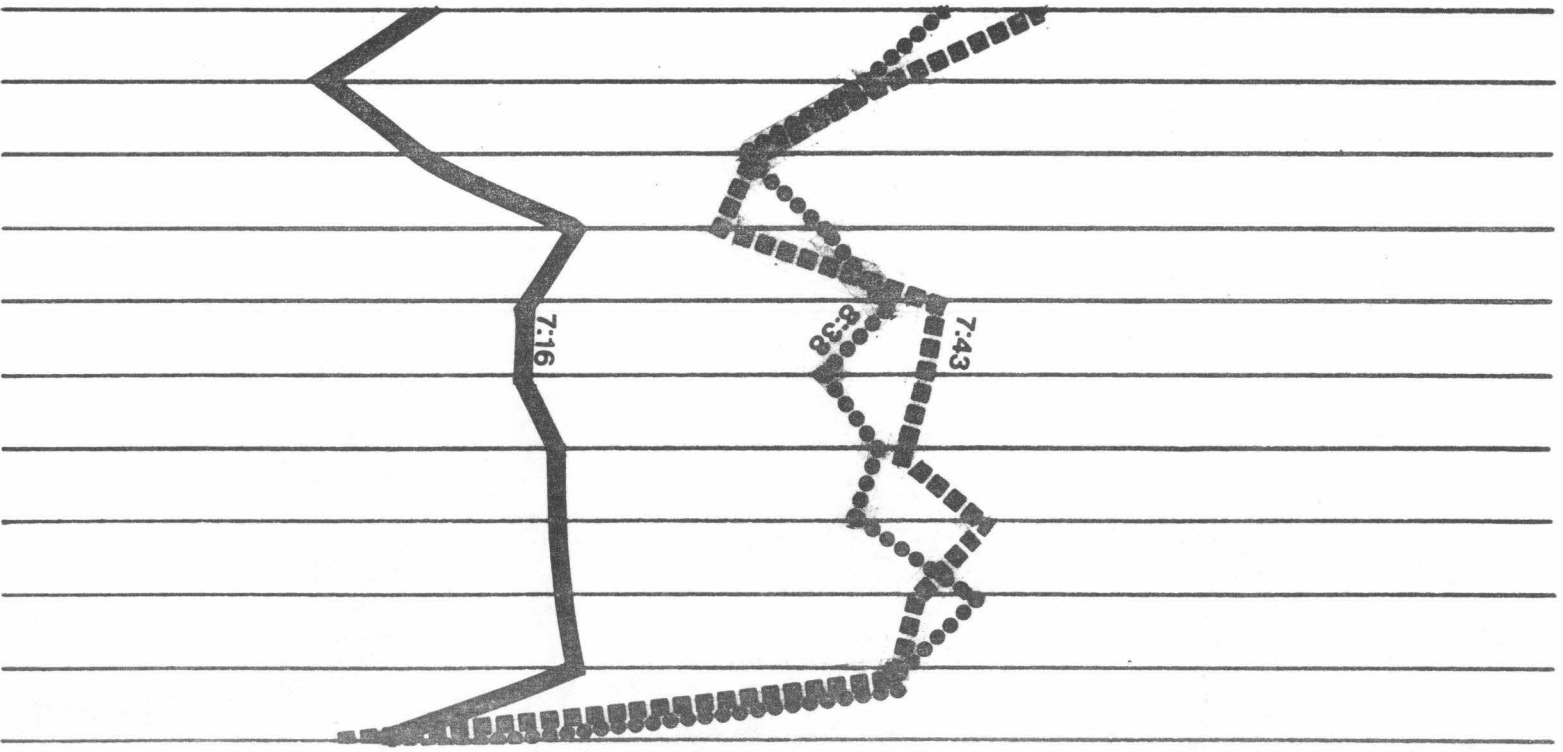
Ridership on the afternoon trips was fairly constant over the quarter. However, the early trip was by far the more popular, having nearly twice the patronage as the later trip. This later trip exhibited similar characteristics to the Civil Service - oriented morning trip in that ridership during finals week dropped off significantly.

Morning trips showed an overall increase of 14% in ridership from Fall Quarter, although the weekly pattern of change was erratic in nature. Afternoon trips posted an even greater increase of 22% over Fall Quarter. Again, the trend seemed to be toward a higher proportion of round trip patronage.

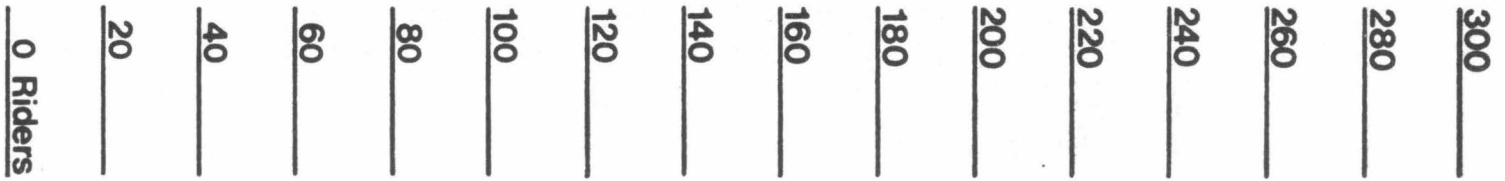
# Route E am



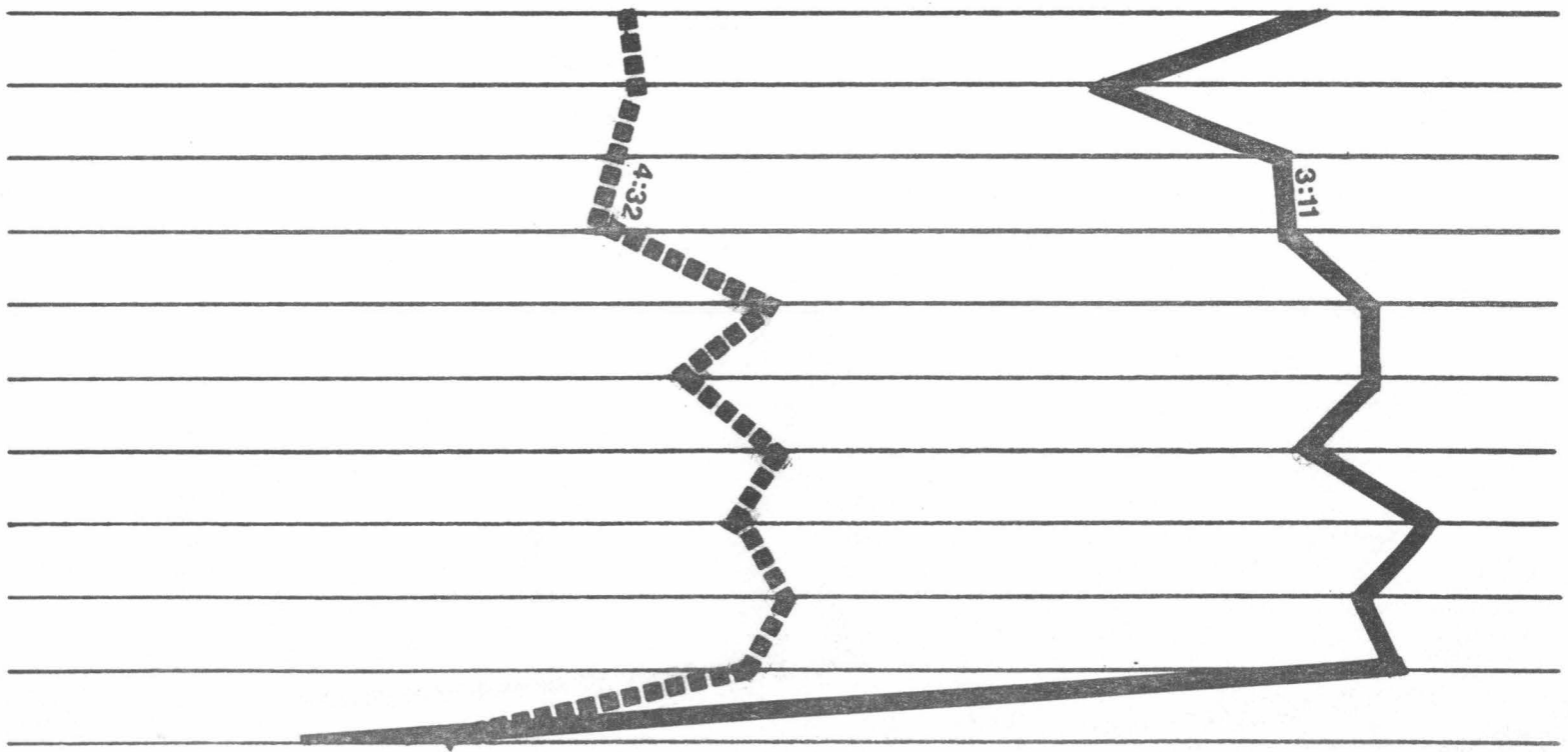
- 3 January
- 10 January
- 17 January
- 24 January
- 31 January
- 7 February
- 14 February
- 21 February
- 28 February
- 6 March
- Finals



# Route E pm



- 3 January
- 10 January
- 17 January
- 24 January
- 31 January
- 7 February
- 14 February
- 21 February
- 28 February
- 6 March
- Finals



**Route F**

ROUTE F HAD THE SECOND HIGHEST OVERALL RIDERSHIP IN THE EXPRESS BUS SYSTEM. THE OVERALL INCREASE IN RIDERSHIP FROM FALL QUARTER WAS NEARLY 28%.

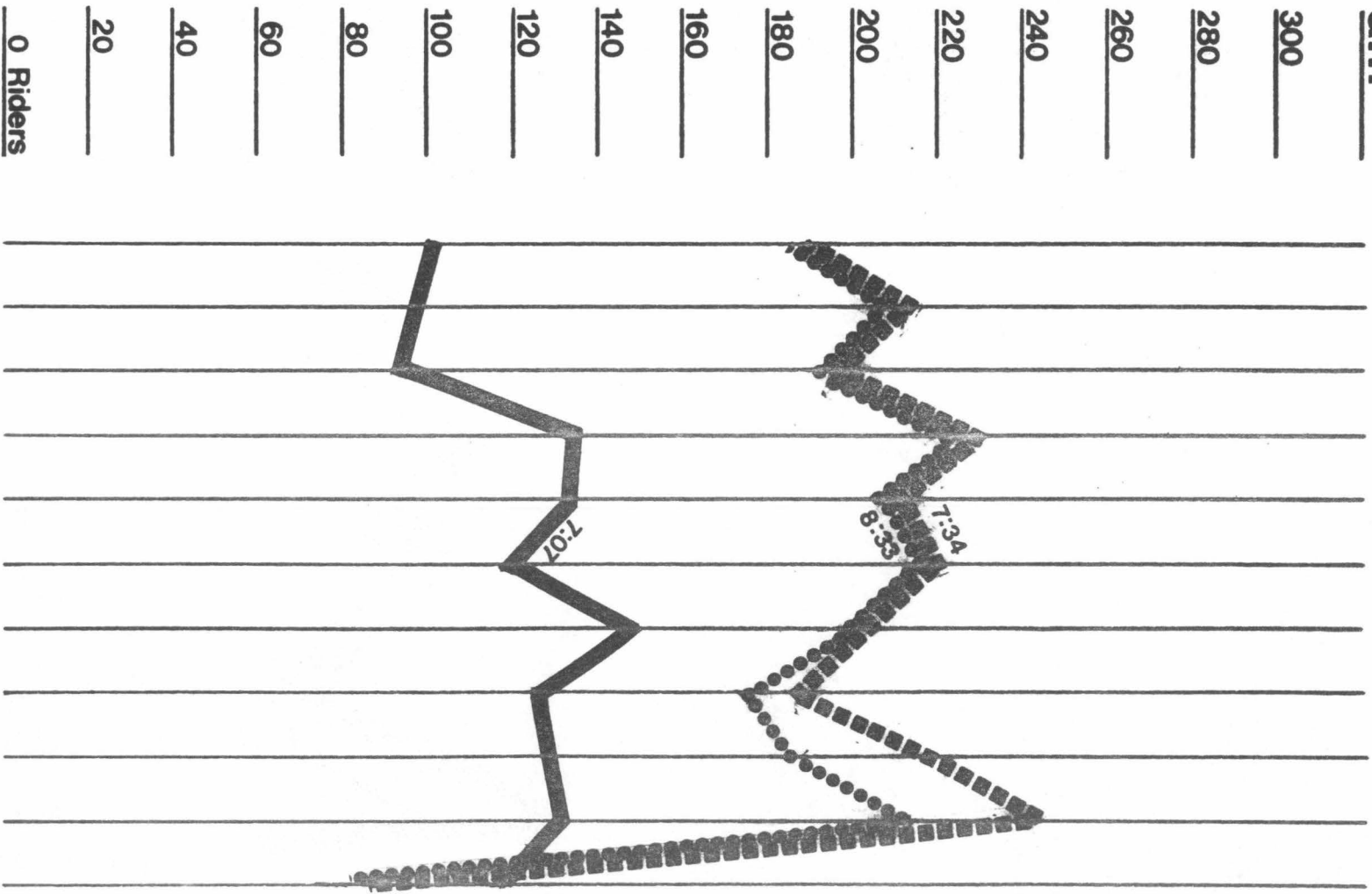
Route F serves the southwestern area of St. Paul. Total ridership on this route is the second highest in the system. Not only is there a fare advantage here similar to that found on Route E, but the potential market is also one of the greatest in the system.

Route F makes three morning and two afternoon trips. As with Route E, the two later morning, student-oriented trips were more popular, although they experienced the normal decline during finals week as did other student-oriented trips. The early morning trip showed a moderate increase over the course of the quarter and virtually no decrease during finals week, indicating strong Civil Service patronage.

The two afternoon trips posted similar average patronage. Both peaked in ridership during the sixth week, then declined slightly. Ridership dropped off significantly on the later trip during finals week, indicating stronger student patronage than might be expected by the departure time (4:32 PM).

Compared to Fall Quarter, both the morning and afternoon trips showed the greatest increases during the first half of the quarter. In addition, the overall increase from Fall Quarter was approximately the same, nearly 28%. Along with Route A, this was the only route in the system that did not exhibit the trend toward increasing round trip patronage.

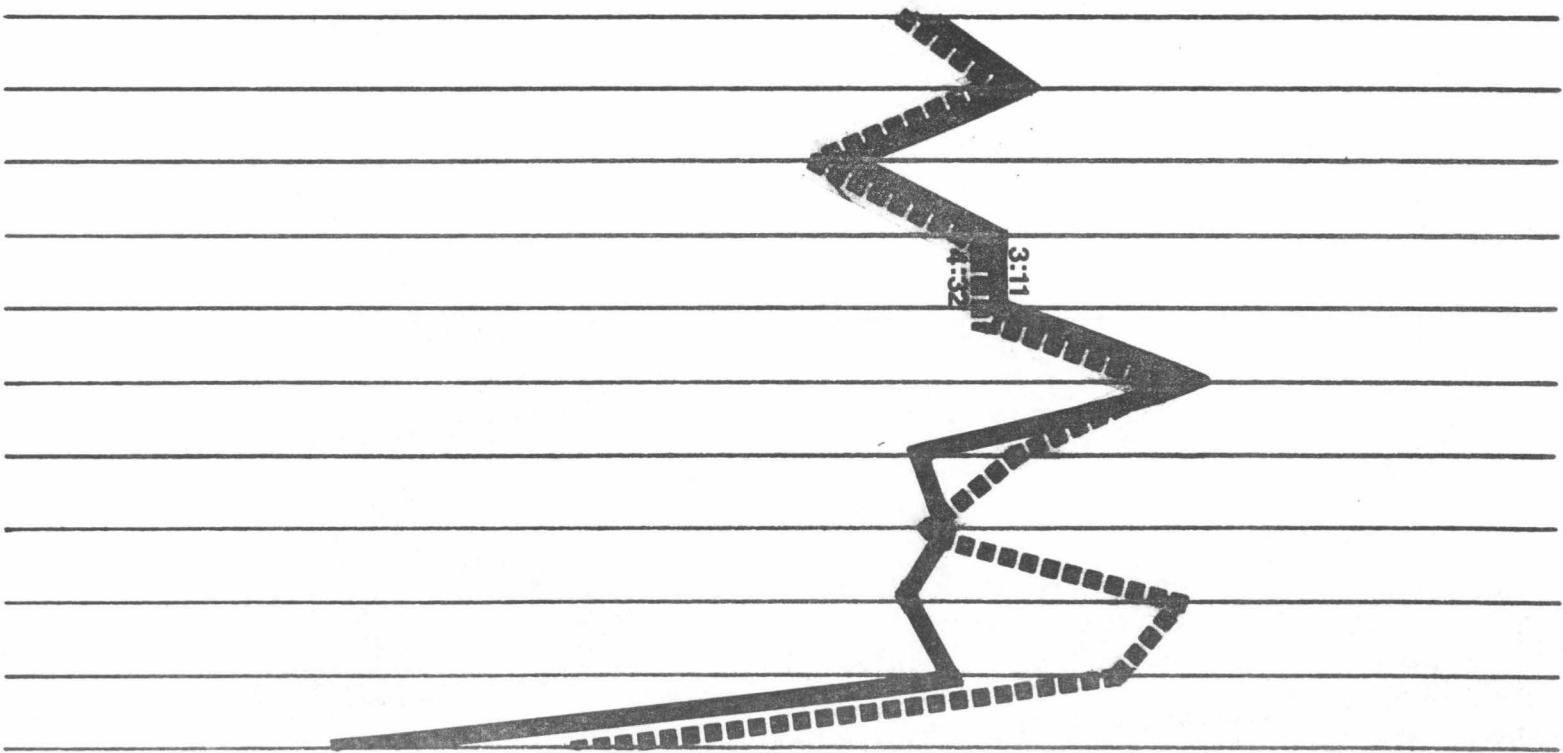
# Route F am



# Route F pm

300  
 280  
 260  
 240  
 220  
 200  
 180  
 160  
 140  
 120  
 100  
 80  
 60  
 40  
 20  
 0 Riders

3 January  
 10 January  
 17 January  
 24 January  
 31 January  
 7 February  
 14 February  
 21 February  
 28 February  
 6 March  
 Finals





## **Route J**

ROUTE J WAS THE ONLY ROUTE THAT EXPERIENCED ANY REALIGNMENT SINCE FALL QUARTER. THIS REALIGNMENT HAD AN OVERALL POSITIVE AFFECT ON RIDERSHIP.

Route J serves Columbia Heights, western St. Anthony and the northernmost section of Southeast Minneapolis. The origin-destination survey indicated low transit patronage from this area, however, there is a substantial market for transit in view of the number of auto person trip origins, especially in St. Anthony.

Route J makes two morning and two afternoon trips. It was the only route that was in any way changed from Fall Quarter. On Monday, January 31, a minor realignment was made between New Brighton Boulevard and the University Campus. (Refer to the map for exact routing).

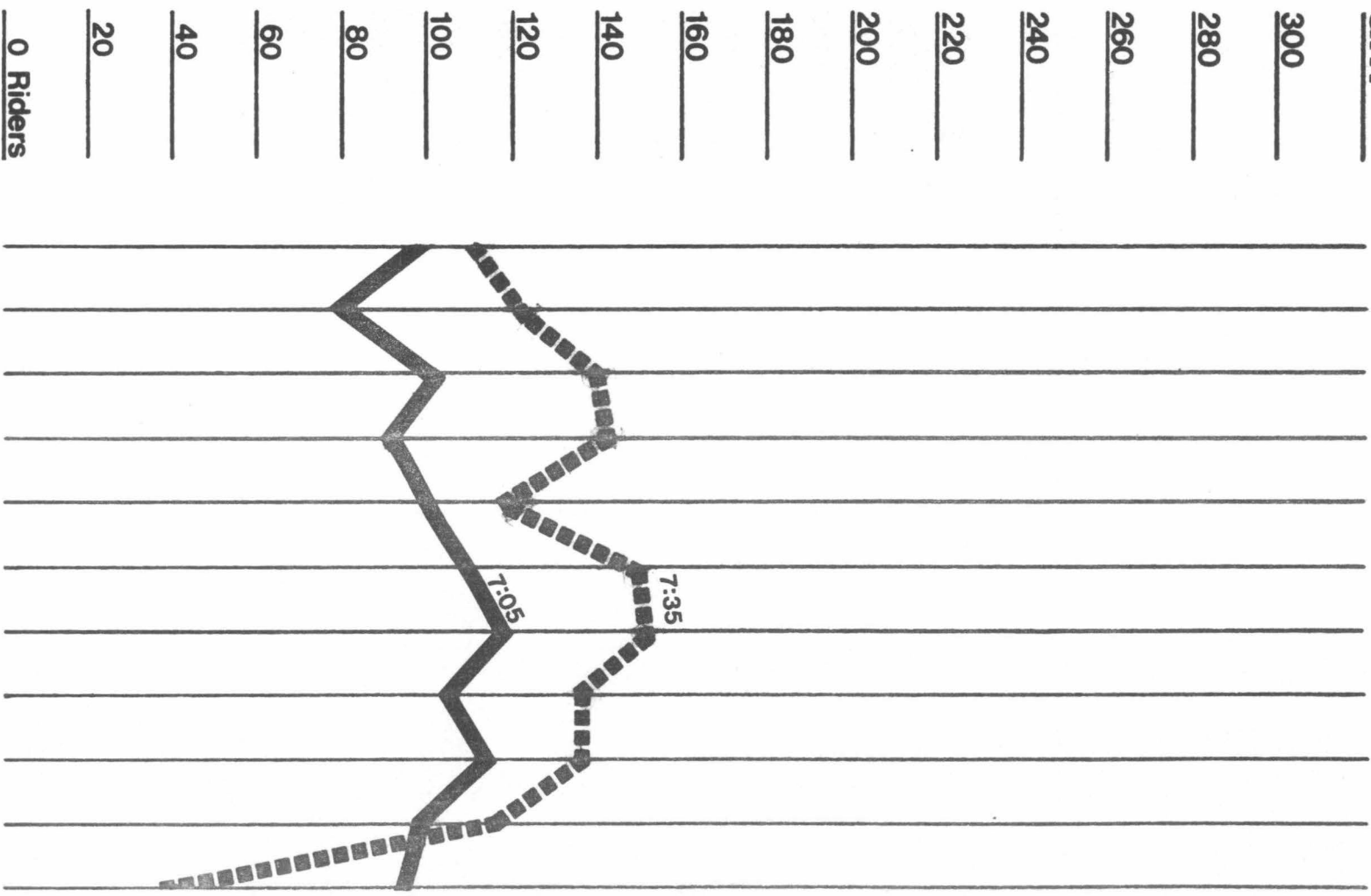
Between the two morning trips, the later, student-oriented trip posted higher average ridership. On the other hand, the early trip was more consistent. The week the route realignment was made seemed to affect only the student-oriented trip and then just for that week.

The later afternoon trip showed significantly greater ridership than the early trip. This is the reverse of the morning trend, where the student-oriented, rather than Civil Service-oriented trip was more popular. Apparently a number of students are patronizing the later trip. This seems to be further substantiated by the fact that the route realignment also affected only this trip in the afternoon.

Generally observed trends, such as a substantial decrease in ridership during finals week on student-oriented trips, held true for Route J.

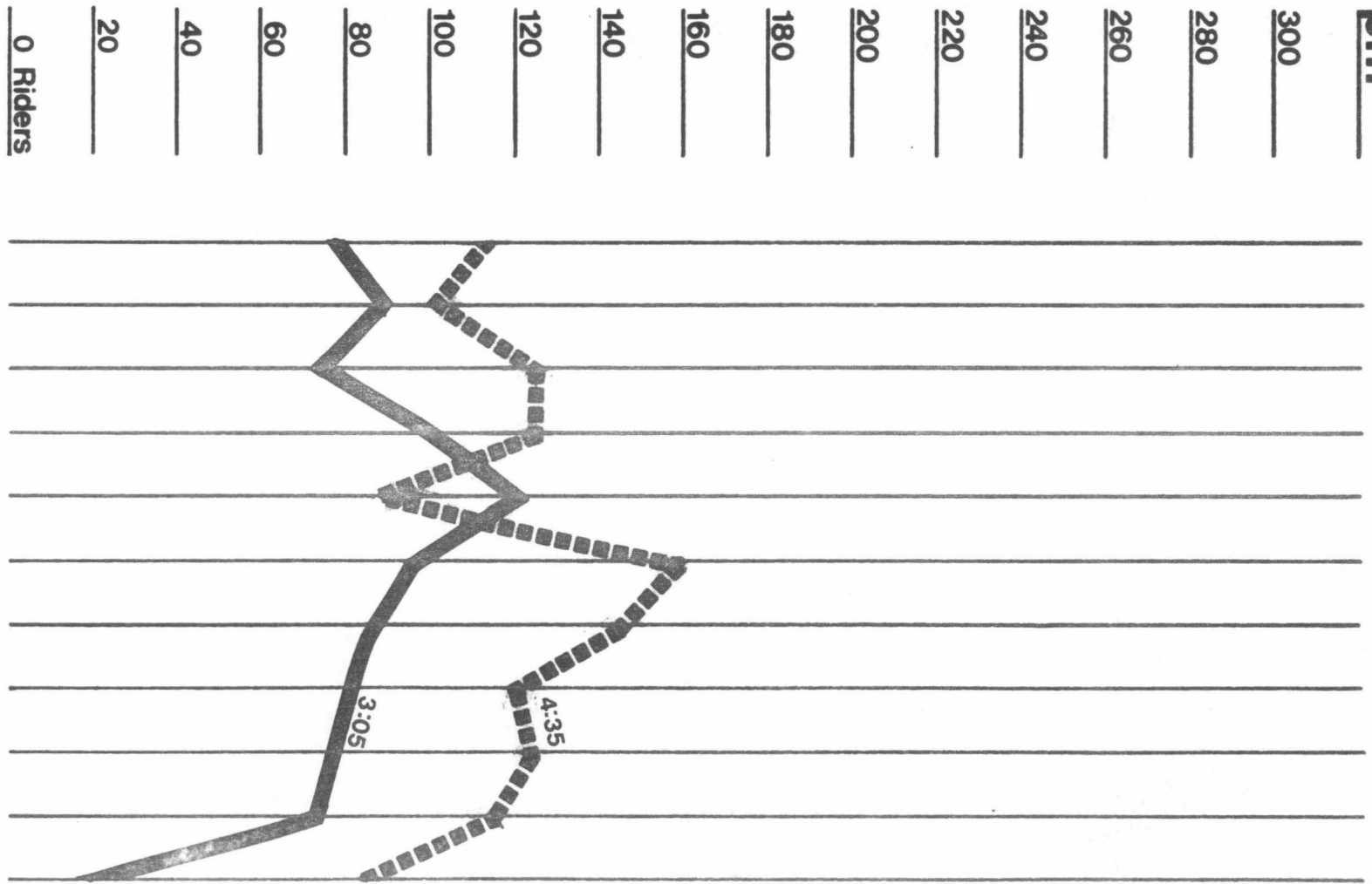
The minor realignment in Route J affected ridership adversely during the first week of its institution only. Thereafter, even greater increases in ridership over Fall Quarter were recorded. Overall, the route experienced a 23.6% increase. The trend toward more round trip patronage was again revealed in the greater proportionate gains on afternoon trips.

# Route J am



3 January  
 10 January  
 17 January  
 24 January  
 31 January  
 7 February  
 14 February  
 21 February  
 28 February  
 6 March  
 Finals

# Route J pm



## **Conclusion**

Total Express Bus ridership increased 21% over Fall Quarter. The greatest proportionate gains on all routes were recorded during the last week of classes and finals week. This seems to indicate two possible trends: 1) More Civil Service patronage, and 2) More students continuing to use the Express Bus during finals week (studying on campus, etc.).

Routes C, E, and F remained by far the most popular routes in the Express Bus System. 69% of the total system ridership was generated by these three routes. Route C alone contributed 28% to the total. Two important factors must be mentioned concerning these routes. First, they are the only routes that offer the same fare (Route C) as a regular MTC bus or a fare advantage (Routes E and F). The remaining routes charge a \$.10 premium for an Express Bus ride. More significantly, these routes are also the only routes in the system that are breaking even.<sup>2</sup>.

Although Routes C, E, and F posted substantial increases in total ridership, in all cases except Route F (which recorded the greatest increase), the less utilized routes experienced greater proportionate increases in patronage from Fall Quarter. In addition, the mid-quarter advertising campaign (Minnesota Daily, 26 January 1972) had the greatest effect on increasing ridership the last half of the quarter on these routes. This is a strong indication of a growth potential for these routes, especially the two relatively new routes - Route B and Route D.

The most significant trend observed during Winter Quarter was the increase in round trip patronage. Although in all cases, total afternoon ridership remained lower than morning ridership; the higher proportionate gains in the afternoon illustrated a narrowing of this gap.

Irregularities and variations in Winter Quarter ridership, as displayed on the ridership graphs, can be explained in part by adverse weather - people are not as willing to wait for a bus under inclement conditions. This is a characteristic common to regular bus service as well. In spite of the weather, impressive gains in ridership were recorded during Winter Quarter, as noted earlier. It seems fair to conclude that the total Express Bus System is a healthy and growing system, fulfilling its function of providing a substantial number of both students and staff with a viable alternative to the automobile.

2. Figures derived using regular MTC operating cost of \$10.00 per hour.

PERCENTAGE INCREASES IN TOTAL RIDERSHIP  
WINTER QUARTER, 1972

<u>ROUTE</u>	<u>INCREASE</u>
A	23.9%
B	22.0%
C	17.0%
D	19.1%
E	17.5%
F	27.7%
J	23.6%

## **Recommendations**



The Express Bus System has been a two-year experiment by the University in developing and offering a viable alternative to automobile transportation to the campus. The experiment has worked. After less than two years, three out of the seven routes are generating enough revenue to break even. The other four routes have demonstrated the potential of breaking even in their consistent pattern of ridership growth. During the Winter Quarter a total of nearly 46,000 people chose to ride the Express Bus over another mode of transportation.

In their 13-Point Bus Improvement Program, the Metropolitan Transit Commission anticipated developing more and direct express routes to high activity areas such as the University Campus. The University took the initiative and with the help of the MTC, established routes serving the campus. A recognized need was therefore met. However, the University's funding for the Express Bus System was for a two-year period only. Under the original agreement between the University and the MTC, it is now the MTC's responsibility to either integrate this system into their regular operations or allow over 800 people daily to seek another means of transportation to the campus. It is reasonable to assume that the majority would revert back to the automobile. In light of the MTC's role of providing a viable alternative to automobile transportation in the Metropolitan area, the necessity of continuing the Express Bus System is imperative.

The following recommendations are meant to serve as aids to the MTC should they adopt the University Express Bus System. Route changes or extensions are based on Bather, Ringrose, and Wolsfeld's origin-destination survey and current ridership. Where existing MTC routes are indicated for use as University Express Routes, it is assumed that present Express Bus routing would be retained. In addition, a special placard would be placed on the window of the MTC bus denoting its University destination.

#### ROUTE A

1. The route should remain the same, however, some consideration might be given to better serving the potential transit market between 35th Street and Lake Street.
2. If the MTC desired to fully integrate Route A into an already existing route, they could extend Route 22 (34th Avenue South) to 52nd Street and Cedar, for such purpose.

#### ROUTE B

1. Route B will be extended to Southdale in the very near future in order to provide park and ride service.
2. Existing MTC routes serving this area which could assimilate Route B into their schedules are Route 6-C (Como-Xerxes-France) and Route 6-D (Edina and Southdale).

#### ROUTE C

1. Route C is a well-established route. Since Routes B and D cover areas to the west and south of Route C, no changes or extensions are recommended.
2. With some modification, MTC Route 4-X (Bryant-Penn) could function in part as an express route in place of Route C. The modification would entail extending Route 4-X south along Lyndale to 42nd Street.

#### ROUTE D

1. In view of auto person trip origins, Route D could be extended to Southtown. This extension would provide greater service to Richfield.
2. Several existing MTC routes could assume the function of Route D. They include Route 4-C (60th and Penn), Route 4-D (76th and Penn), and Route 4-E (Southtown Shopping Center).

#### ROUTE E

1. Due to Route E's unique function as a collector in downtown St. Paul, no changes or extensions are recommended.
2. Route 16A (Minneapolis-St. Paul) is the most logical MTC route to assume Route E's function.

#### ROUTE F

1. Due to the present success of Route F, no changes or extensions are recommended.
2. There are no MTC routes directly serving Minneapolis from this area. However, Route 4-B (Snelling) does originate in this area, although it serves St. Paul. Route 4-B could be utilized in place of Route F if a substantial advertising program accompanied the changeover.

#### ROUTE J

1. In light of ridership potential and auto person trip origins, no changes or extensions are recommended.
2. Route 4-A (Johnson-New Brighton) serves roughly the same area as Route J. It could be modified in part to assume the function of Route J.

A few additional comments and recommendations are necessary. First, in terms of the MTC taking over the Express Bus System, a massive advertising campaign will be needed in order to minimize initial ridership losses. In addition, the MTC should consider establishing contact with new students through the late summer Student Orientation Program. This contact could be in the form of a presentation or promotional brochure included in the new student information packet. The University could assume this function in cooperation with the MTC. It should also be noted here that it would be the University's function to advertise any system changes (routing or scheduling) in the Minnesota Daily without charge to the MTC.

On the question of Express Bus fares, the MTC should eliminate the \$.10 premium now charged on most routes for an Express Bus ride. On the other hand, any fare changes on Route E and Route F must be explored carefully. These routes currently enjoy a fare advantage over a regular MTC bus and much of their success can be attributed to this fact. Inquiry in this area could be done in conjunction with the MTC's study of zone boundaries and fare structure, currently underway.

# **Appendix**

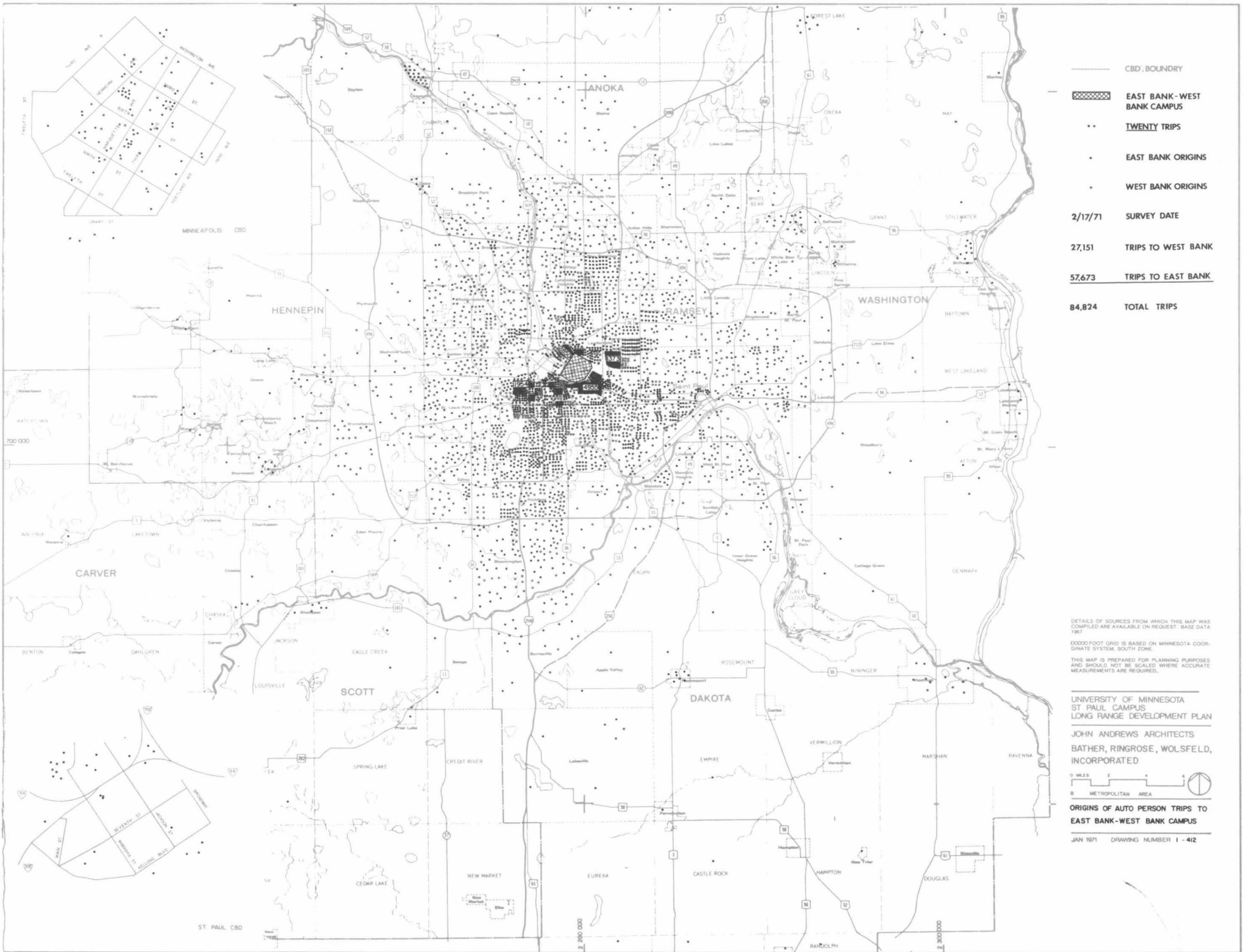
EXPRESS BUS REVENUE

WINTER QUARTER, 1972

<u>ROUTE</u>	<u>AVERAGE DAILY RIDERSHIP (ALL TRIPS)</u>	<u>FARE</u>	<u>REVENUE</u>	<u>REGULAR MTC OPERATING COST*</u>
A	66	\$.40	\$26.40	\$65.00
B	74	\$.40	\$29.60	\$45.00
C	237	\$.30	\$71.10	\$70.00
D	37	\$.40	\$14.80	\$20.00
E	165	\$.40	\$66.00	\$65.00
F	178	\$.40	\$71.20	\$65.00
J	<u>83</u>	\$.40**	<u>\$33.20</u>	<u>\$45.00</u>
	840		\$312.30	\$375.00

\* Hourly cost of \$10.00 multiplied by total running time.

\*\* No zone changes figured.



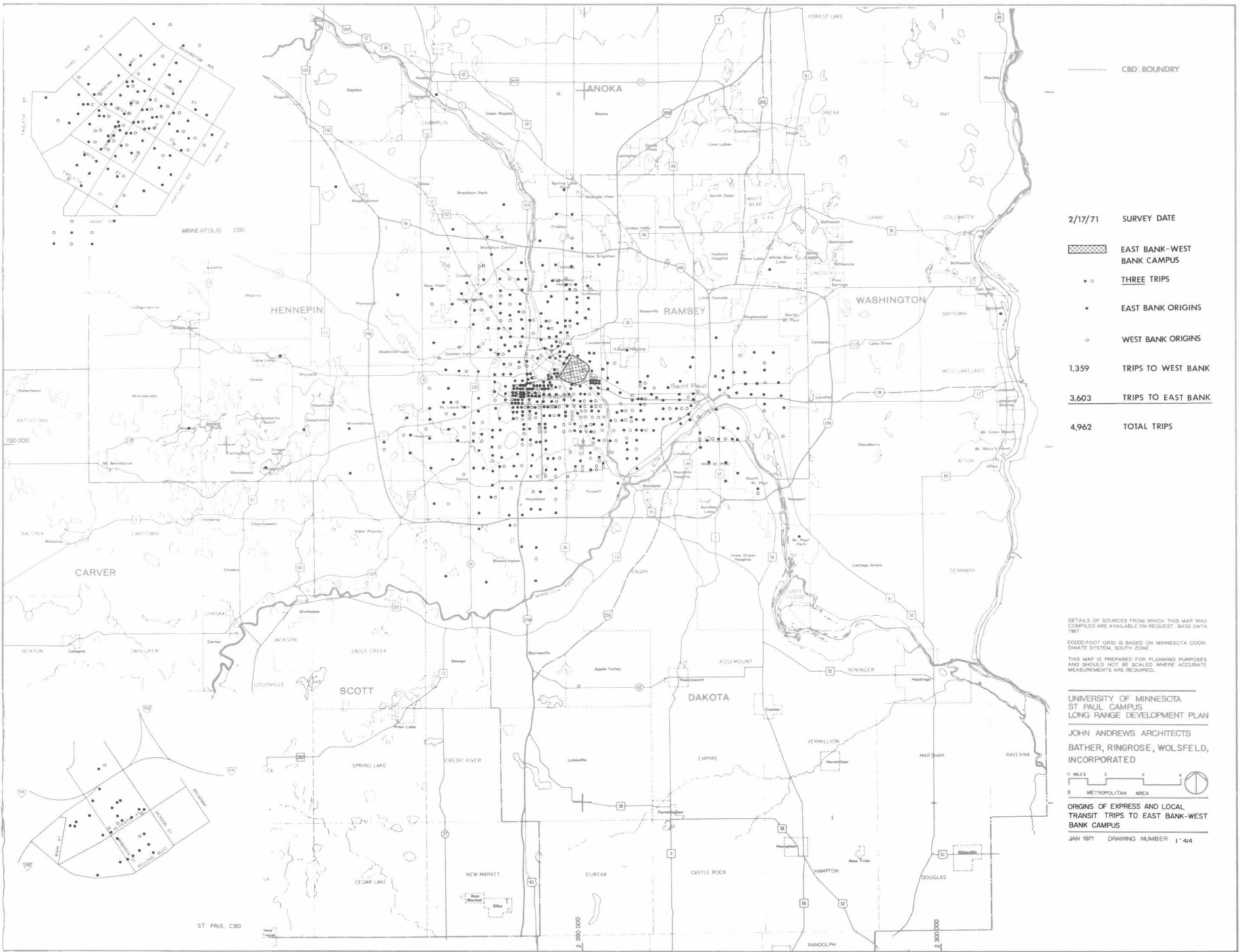
- CBD BOUNDARY
  - ▨ EAST BANK-WEST BANK CAMPUS
  - TWENTY TRIPS
  - EAST BANK ORIGINS
  - WEST BANK ORIGINS
- |         |                    |
|---------|--------------------|
| 2/17/71 | SURVEY DATE        |
| 27,151  | TRIPS TO WEST BANK |
| 57,673  | TRIPS TO EAST BANK |
| 84,824  | TOTAL TRIPS        |

DETAILS OF SOURCES FROM WHICH THIS MAP WAS COMPILED ARE AVAILABLE ON REQUEST. BASE DATA 1967.  
 5000 FOOT GRID IS BASED ON MINNESOTA COORDINATE SYSTEM, SOUTH ZONE.  
 THIS MAP IS PREPARED FOR PLANNING PURPOSES AND SHOULD NOT BE SCALED WHERE ACCURATE MEASUREMENTS ARE REQUIRED.

UNIVERSITY OF MINNESOTA  
 ST. PAUL CAMPUS  
 LONG RANGE DEVELOPMENT PLAN  
 JOHN ANDREWS ARCHITECTS  
 BATHER, RINGROSE, WOLSFELD,  
 INCORPORATED



ORIGINS OF AUTO PERSON TRIPS TO EAST BANK-WEST BANK CAMPUS  
 JAN 1971 DRAWING NUMBER I-412



- CBD BOUNDARY
- 2/17/71 SURVEY DATE
- EAST BANK-WEST BANK CAMPUS
- ○ THREE TRIPS
- EAST BANK ORIGINS
- WEST BANK ORIGINS
- 1,359 TRIPS TO WEST BANK
- 3,603 TRIPS TO EAST BANK
- 4,962 TOTAL TRIPS

DETAILS OF SOURCES FROM WHICH THIS MAP WAS COMPILED ARE AVAILABLE ON REQUEST. BASE DATA 1967.

500000 FOOT GRID IS BASED ON MINNESOTA COORDINATE SYSTEM, SOUTH ZONE.

THIS MAP IS PREPARED FOR PLANNING PURPOSES AND SHOULD NOT BE SCALED WHERE ACCURATE MEASUREMENTS ARE REQUIRED.

UNIVERSITY OF MINNESOTA  
ST. PAUL CAMPUS  
LONG RANGE DEVELOPMENT PLAN

JOHN ANDREWS ARCHITECTS  
BATHER, RINGROSE, WOLSFELD,  
INCORPORATED



ORIGINS OF EXPRESS AND LOCAL  
TRANSIT TRIPS TO EAST BANK-WEST  
BANK CAMPUS

JAN 1971 DRAWING NUMBER 1-414

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