

**METRA – UP NORTHWEST LINE  
HARVARD, ILLINOIS/  
CLINTON, WISCONSIN  
COMMUTER RAIL EXTENSION  
FEASIBILITY STUDY**

**FINAL REPORT**

**PREPARED FOR:  
VILLAGE OF CLINTON, WISCONSIN**

**FEBRUARY 19, 2002**

**EDA & ASSOCIATES  
DEERFIELD, ILLINOIS 60015**

**E  
D  
A**

**And Associates**

P.O. Box 554  
Deerfield, IL 60015

The Organizational Consultants

Office (847) 945-7597  
Fax (847) 945-3022

FINAL FEASIBILITY REPORT  
HARVARD ILLINOIS/CLINTON WISCONSIN  
METRA COMMUTER RAIL EXTENSION STUDY

TO

PHIL BLAZKOWSKI, DIRECTOR  
PLANNING AND DEVELOPMENT  
ROCK COUNTY  
51 S. MAIN STREET  
JANESVILLE, WISCONSIN 53545

DENNIS NIELSON, PRESIDENT  
VILLAGE OF CLINTON  
301 CROSS STREET  
P.O. BOX 129  
CLINTON, WISCONSIN 53525

FROM

EDA AND ASSOCIATES  
P.O. BOX 554  
DEERFIELD, ILLINOIS 60015  
EARLE D. ADAMSON  
PRESIDENT

February 19, 2002

HARVARD ILLINOIS/CLINTON WISCONSIN  
METRA EXTENSION  
FINAL REPORT

TABLE OF CONTENTS	PAGE(s)
INTRODUCTION -----	1
EXISTING CONDITIONS -----	2
DEMOGRAPHICS -----	2-3
ROCK COUNTY CENSUS PROJECTIONS -----	3
POTENTIAL OPERATIONS -----	3-4
FARE STRUCTURE -----	5
CAPITAL IMPROVEMENTS -----	5-6
OPERATING DEFICIT COSTS -----	6
POTENTIAL RIDERSHIP -----	6-7
RECOMMENDATION -----	7
CONCLUSION -----	7-8
Exhibit I Ridership Questionnaire -----	9-10
Exhibit II 2020 Ridership Forecast -----	11
Exhibit III Capital Costs -----	12
Exhibit IV Net Operating Costs -----	13
Exhibit V Comparison VCMX/USA – New Starts -----	14
Exhibit VI Comparison VCMX/USA – Established Services -----	15
Exhibit VII Metra’s Fare (A) and Rail Map (B)-----	16
Exhibit VIII Metra’s Budget Increase 2002 -----	17
 ATTACHMENT	
– The Economic Impact of Existing and New Commuter Rail Service on Retail and Recreational Spending	

March 6, 2002

# **Final Report Harvard/Clinton Metra Extension**

February 19, 2002

## **INTRODUCTION**

In October 1999, State and Local Officials of Rock and Walworth Counties, Wisconsin formed a rail coalition whose purpose and objective would be to study the feasibility of a Metra Commuter Rail extension from Harvard, Illinois to Clinton, Wisconsin including a stop in Sharon, Wisconsin.

The proposed extension would operate over the Union Pacific's current freight corridor to Janesville, Wisconsin. This distance equals 15.9 miles including five miles of right away to the Illinois-Wisconsin state line.

This study has been sponsored by the Wisconsin Department of Transportation; Rock County; the Villages of Clinton; Sharon, Turtle, and the City of Beloit; and Townships of Clinton, Turtle and Sharon. The Village of Clinton, Wisconsin is the primary agent assigned to monitor and coordinate this study.

At this point, let it be known that Metra and the Union Pacific have supplied statistical and engineering data and information to this firm as a public service. This does not imply, in any way that Metra or the Union Pacific have ever solicited, sponsored or financed this feasibility study.

This study evaluated the physical and operational feasibility of an extension of Metra's service to Harvard, Illinois and then to Clinton, Wisconsin. This service route would be over the Union Pacific's main line to Janesville, Wisconsin. Our study recommendation concludes that the proposed Metra Harvard, IL to Clinton, WI extension with projected ridership is feasible. The projected capital cost of \$18,800,000.00, and a net operational cost of \$1,275,000.00. The monies to be considered by the committee may be reviewed at Exhibit III, Capital Cost, Page 12 and Exhibit IV, Net Operating Costs, Page 13.

This study includes:

- Examination of existing conditions, including land use, railroad physical plant, and environmental features
- Identification of physical improvements necessary to provide safe and efficient commuter rail service
- Financial analysis of the necessary upgrades to the physical plant
- Assessment of potential connections with other transit service (Beloit and Janesville bus and shuttle bus services)
- Evaluation of ridership potential

Forecasted population growth in this sector of Rock County was furnished by WISDOT and Rock County Planning Departments. This ridership potential is supported additionally by the rapidly increasing population and business development of McHenry County, Illinois and Dane County, Wisconsin. (Clinton, located in Rock County and Sharon, located in Walworth County are geographically centered between these two fast growing counties.)

The proposed extension of the existing rail line is further enhanced by the positive potential ridership factor. A determination of the study, and its feasibility of an extended service from Harvard, Illinois to Clinton, Wisconsin are provided in the form of first recommendations.

## **EXISTING CONDITIONS**

Existing physical and operating characteristics of the route were evaluated to identify what new facilities, platforms, passing tracks, sidings, grade crossings and signals that will be required to make this extension functional and operational. Our initial analysis found the railroad to be in good condition, and costs to implement the service would be minimal in comparison to other new start studies proposed to Metra for their extended services. (See Exhibit V, New-Start Services, Page 14.)

EDA and Associates obtained direct input from the Clinton and Sharon Village Officials regarding needed interest in sponsoring stations and parking. Based on our direct survey from potential new riders, local and state officials all indicated support for the commuter service throughout this 15.9-mile corridor. Village Officials understand station and parking sites is a crucial process that will continue to evolve throughout the series of this rail corridor evaluation study. The communities in the study area have a vested interest in selecting potential sites, given that Metra requires in Illinois both land dedication and commitment for funding the construction of stations and parking facilities be these host Villages. Our analysis find ample parking space is available in Clinton and Sharon, with minimal upgrading needed to put automobile parking into service. Working with the Village Engineers of Clinton and Sharon found no present obstacles environmentally that would impact any construction of platforms, station facilities, turnouts and sidings.

Further analysis of our study recommends, in lieu of building a storage and service yard at Clinton that all trains be deadheaded to Clinton for their morning pickup schedules returning to Harvard and Chicago, Illinois. The returning westbound evening crew and equipment will return from Clinton to Harvard, Illinois overnight using the existing storage and crew facilities in Harvard. This cost will be deferred on the recommendation upon wait and see determination as to what the future of this service may bring in new ridership for the Metra system.

The Union Pacific's Northwest Line is operated directionally (by time table) as an East-West route with trains running east to Chicago and west to Harvard with a proposed final stop and return to Clinton, Wisconsin. The single-track railway consists of 15.9 miles of welded 136-pound rail. Automatic block signaling and one passing track located in Clinton. In the 15.9-mile corridor there are 20 railroad grade crossings, 18 public and two private. Only five have bells and flashing lights the other fifteen have cross buckboards and or highway stop signs. This present condition is inadequate for 79 mile an hour passenger train movements. It is recommended that some of these grade crossings be closed or new technology of crossing gates installed, insuring improved safety for auto traffic, freight trains and public in general. Our estimated cost for this recommended improvement is \$ 2,500,000.00. (See Exhibit III, Capital Costs, Page 12.)

The consultants, in cooperation with officials of Metra and the Union Pacific at this time, see no obstacle related to this proposed extension that would prevent a potential service of this extension. There are upgrades (i.e. grade crossings, sidings, and turnouts) that need to be constructed and upgraded in order to enhance a safe and efficient commuter rail service.

## **DEMOGRAPHICS**

Wisconsin Department of Transportation, and Rock County Planning Commission provided EDA with growth statistics for Rock County. Additional data was researched for statistics for Walworth County. The data obtained was collected from the 2000 census reports, i.e. population, households and employment forecast in these counties. The figures show growth is expected to be moderately high. However, the rapid growth of Dane and Walworth Counties in Wisconsin and McHenry County in Illinois is predicted to encourage potential ridership throughout the corridor of these two sites, Clinton and Sharon, Wisconsin.

The Committee recognizes that Commuter Rail service to their communities will enhance their joint efforts in plans for increasing economic development in Rock County area, Cities, Villages and Towns (i.e. industrial and small business development, home real estate, tourism and employment). The Committee has presently expressed no opposition of this study on the proposed Metra extension.

The following figures were provided by WISDOT, and further in this report, will substantiate our recommendations to the feasibility of this proposed extension. The Illinois portion of the figures indicated was obtained from data received from 2020 plan of Northeast Illinois Planning Commission.

ROCK COUNTY CENSUS PROJECTIONS		2000	2020	PERCENT
*	Dane	426,526	510,155	20%
*	Rock	152,307	166,802	10%
*	Walworth	84,943	94,955	12%
*	McHenry, IL	193,625	361,413	87%

One (1%) percent population increase = Four (4%) percent increase in auto trips.

WISDOT estimated traffic between Illinois and Beloit, WI at 42,990 vehicles per day during year 2000 and in 2020 WISDOT estimates a 62 percent increase or 69,550 vehicles per day. Traffic increase between Rockford-Chicago on the I-90 Corridor is estimated by EDA to increase by 159 percent between 2000 and 2020 based upon projected population increase of 130 percent. These increases will thereby cause total congestion and gridlock, during the weekday morning and evening “Rush Hours” using current highways and roadways. Upgrading and creating a new and modern commuter rail extension is an excellent option for the traveling public.

**POTENTIAL OPERATIONS**

It is recommended that the proposed service be operated as an extension of Metra’s existing service on its Union Pacific Northwest line between Harvard and Chicago. Such an operation would provide a practical approach to both extending service west of Harvard and providing through service in the corridor without requiring passengers to change trains at Harvard, thus encouraging ridership for potential Wisconsin residents. Commuter rail service on Union Pacific’s Northwest line is operated directly by the Union Pacific Railroad Company. The extension of commuter rail service between Clinton and Harvard would ultimately be subject to negotiations and cooperative agreements between Union Pacific Railroad, Metra, railway labor unions, and implementing agencies in Wisconsin, local counties and communities. Their objective would be to work on matters pertaining to operating responsibilities, train crew agreements, railroad access and land use agreements, division of revenues, expense and subsidies.

To provide for the Harvard-Clinton commuter rail extension, the single-track railway line of 15.9 miles of welded rail, 136 pounds, automatic block signals, A.T.S.. would require a modest upgrade to meet standards allowing maximum mainline operating speeds of 79 M.P.H. for commuter passenger trains. One passing siding of two miles in length may be added allowing trains traveling in the opposite direction to meet and pass each other. Train operations would be governed by signal indication, timetable, and authority of the Union Pacific Railroad train dispatchers.

Freight train movement and traffic is not considered to be a significant constraint in operating this proposed service. Presently Union Pacific is operating four trains daily to Janesville, WI. These freight trains would

operate on the present operating curfew in effect now with Metra's commuter service to Harvard. The recommended addition of the single passing siding is intended primarily to provide flexibility of both freight and commuter passenger on the same line in the event of occurrences that may occur outside of regular operating schedules of all trains.

An important factor determined in this study effecting cost savings, is the existing mainline welded rail between Harvard and Clinton. This track structure will materially reduce the annual operating maintenance cost required for this service to be implemented.

The advantages of continuous welded rail are:

- Has a life span one third longer than jointed rail
- Reduces cost of annual maintenance by about one half
- Reduces the number of broken rails; thus enhancing safety
- Increases tie life
- Provide higher speeds
- Reduces wear and tear on engines and coaches
- Eliminates the "clickey-clack" of jointed rail, thus reducing noise impact to nearby residents.

The recommended train times and operations for the proposed extension would consist of three inbound trains from Clinton, WI to Chicago, IL during the morning peak period, and three outbound trains from Chicago to Clinton during the afternoon peak period. In addition, one train would operate in each direction during the midday period. These trains would be operated as through trains along the entire corridor. The chart below is a sample schedule.

DEPART EASTBOUND DAILY		ARRIVE
From Clinton	To Sharon	To Ogilvie Transportation Center
Train 1 – Early AM	AM	AM
Train 2 – AM	AM	AM
Train 3 – AM	AM	AM
Train 4 – Midday	Midday	Midday
DEPART WESTBOUND DAILY		
From Ogilvie Transportation Center	To Sharon	To Clinton
Train 1 – Midday	Midday	Midday
Train 2 – Rush PM	PM	PM
Train 3 – Rush PM	PM	PM
Train 4 – Rush PM	PM	PM

The results from our ridership survey predict that "Weekend Service", is anticipated to be very active. On Saturday, two trains would operate and on Sunday, one train would operate inbound from Clinton to Chicago during the morning period and outbound from Chicago to Clinton during the late afternoon period. The service running time estimated by EDA and Metra Operations is 98 minutes. These trains would operate throughout the year.

Conventional locomotive hauled commuter train equipment, consisting of bi-directional trains with diesel locomotives and bilevel gallery coaches operating in a "push-pull" mode is to be used and proposed in this feasibility study. This type of equipment presently being used by Metra has been proven to have a long-established record with respect to availability, dependability, performance and safety of their passengers.

## FARE STRUCTURE

The proposed fare structure for the extension service is based on a one-way charge of an adult fare, and the zone system is defined for the Clinton-Harvard-Chicago service based on an extension of the distance based fare zone used by Metra on its entire commuter rail system. The forecasted fare structure would be integrated with the fare presently being used today in the Metra's operation. This is important since the service under this alternative in this proposal is to be operated as an extension of the Metra's Union Pacific Northwest Line. The fares one-way and projected thus far is Clinton to Chicago \$ 7.75 and Sharon to Chicago \$ 7.35. These figures are based on the present Metra's 2001 fare structure. Thus, multi-ride reduced fares in the form of ten-ride tickets and monthly passes similar to those available now will be applied to this proposed extension service. The fares presented in the report are subject for change, and if Metra approves the projected extension, the fares will be adjusted to the 2002 budget fare increase formula. (See Exhibit VII, Fares, Page 16 and Exhibit VIII, Budget Increase, Page 17.)

## CAPITAL IMPROVEMENTS

To support the potential Metra Commuter Rail extension, Harvard, IL to Clinton, WI as described in the previous section will require some improvements. These improvements include the construction of a two-mile passing track, an upgrade to the existing siding in Clinton, railroad/highway crossing upgrades, station platforms/facilities, equipment/coaches, turnouts and moderated upgrading of parking lots. Improvements are recommended based on the need for added flexibility upon implementation of commuter service. Equipment needs were based on the anticipated volume of passengers on each train, analysis of the proposed frequency of service between Clinton and Chicago, integration with existing commuter train schedules on the Metra UP Northwest Line, and attempting to maintain the most efficient equipment utilization possible. To meet the forecasted ridership demands of the potential Clinton to Harvard extension, one coach would need to be added to each of the trains extended beyond Harvard. The minimum train size presently on this line is one locomotive and four coaches. In actual practice, non-peak period trains may require less than four coaches but experience on Metra, and other commuter rail systems has shown that, except on the longest trains, changing train lengths for midday and evening schedules becomes inefficient because of additional operating costs and is time consuming and may cause delays. Since this proposed extension will be operated as part of Metra's Union Pacific (UP) Northwest District service, it is essential that the equipment to be acquired will actually be used in the overall Metra UP Northwest District equipment pool. The spare equipment required would be integrated with Metra's general spare equipment pool already in place and would be available as needed.

Additional weekday peak-period equipment needed to operate the proposed extension would require that four coaches be procured in addition to the equipment already required by Metra for its Harvard-Chicago service. This would total one coach to each of the four trains being proposed on this extension. The capital cost of the required equipment under this alternative is estimated at \$8,000,000.00. The estimate of coach requirements is based on Metra's equipment utilization practices for the Metra-UP Northwest District Line. Subsequent future changes to operational patterns for this route such as an extension of existing midday trains beyond Harvard could affect the amount of equipment necessary to implement service between Harvard and Clinton. If this study is approved by Metra, the figure of \$8,000,000 will remain, however it can be opened for discussion as to the ownership of the cars, buying or leasing. At this meeting Metra has agreed to assume the cost of the locomotives for this extension.

The line item in Exhibit III, Page 12 identified as "Contingencies" \$300,000 has been added to all capital cost estimates-except for equipment procurement—as a percentage of the total material and installation-cost estimation. The rate used by Metra for this item is 30 percent respectively. This rate is based on similar rates



used by Metra in its feasibility and long-range planning work. Should detailed planning and engineering work continue and the estimation of capital costs becomes more precise, it may be appropriate to revise the factors for these items.

In Exhibit III, Page 12 the line item identified as Passing Track-Sidings, the amount of \$5,000,000 remains. It is the conclusion of the Union Pacific that their proposed two (2) mile siding is essential for their daily operation of freight service effectiveness. If Metra accepts the feasibility study recommendations, more detailed engineering studies will need to be conducted to determine the exact length and location of these sidings, with more defined cost presented. Although the UP Management has agreed to respect the present curfew of freight trains by not operating at peak commuter schedules they do have a respected business with the GM plant in Janesville, and the new siding being proposed is essential to protect their service requirements.

This Union Pacific Northwest line is in good condition, and its condition contributes to low capital dollar required to implement to proposed service.

## **OPERATING DEFICIT COSTS**

The annual operating cost is based on our projected passenger ridership, which includes line items of train crew personnel, fuel and power, railroad access and use, maintenance of equipment, administration, insurance and contingencies totaling \$2,470,000.00. The net operating cost figure of \$1,275,000.00 is based upon Metra's calculation and analysis of the fare box recovery of 48 cents on the dollar and estimated proportionality on a formula that Metra now pays the Union Pacific Railroad. To reemphasize, if Metra accepts this study, the estimated capital cost of \$18,800,000.00, will be more defined by the additional studies and analysis in Phase Two. For future references, the operating costs will change annually when there is an increase or decrease in ridership or fare adjustments. (See Exhibit IV, Operating Cost and Header, Page 13.)

## **POTENTIAL RIDERSHIP**

The consultants conducted an extensive hands on potential ridership survey throughout Rock County, WI and towns in Northwest Illinois, using our internally developed questionnaire (See Exhibit I, Ridership Questionnaire, Pages 9-10). The questionnaire prepared by EDA & Associates was distributed specifically to the City, College, Chamber of Commerce of Beloit, Villages of Clinton, Sharon and Turtle. State of Wisconsin, Senator Judy Robson's office also participated in the distribution of the questionnaire throughout her district.

EDA and Associates advertised the feasibility study, and conducted interviews with the newspapers of Beloit, Sharon, Clinton and Janesville. Our advertising purpose was to seek new ridership for boarding at the proposed train stations of Sharon and Clinton, WI on this proposed Metra UP's Northwest line extension. The survey numbers are shown on Page 7. The survey results were reviewed with Metra officials and are incorporated in Metra's formula to project cost of this proposed operation. (See Exhibit II, 2020 Ridership Forecasts, Page 11.) Metra, Union Pacific Railroad, Rock County Planning Commission, Wisconsin Department of Transportation, State Officials, Senator, Representatives, City of Beloit, and Villages of Clinton, Sharon and Turtle contributed and provided input into the survey. EDA and Associates did not distribute the questionnaire or survey within Dane County, Wisconsin.

The questionnaire was distributed throughout Rock, Walworth counties, and across the Illinois State Line to McHenry County, IL. Researching towns in Illinois was to determine the number of Wisconsin residents presently using Metra stations in Harvard, McHenry, Woodstock and Crystal Lake, IL. Our research found that an average of 95 Wisconsin residents are now using Metra's service at these locations, with the majority of riders using Harvard. The present ridership of 95 is not being used in our projection of potential ridership for

this study. However if these riders begin using the proposed extension service from Clinton and Sharon it would help reduce the parking congestion at these Illinois railroad stations.

If this proposed service was implemented today (2002) our survey numbers are:

2001 Potential Daily Riders:

Sharon, Wisconsin	75
Clinton, Wisconsin	<u>225</u>
Total	300

Based on the percentages of population growth by 2020 mentioned on Page 3 in this report for Rock and Walworth Counties, our survey numbers indicate:

2020 Potential Daily Riders:

Sharon, Wisconsin	149
Clinton, Wisconsin	<u>348</u>
Total	497

These figures and the forecasted annual revenues would give this service a revenue/operating cost of 48 percent on the dollar. Metra's recovery ratio on cash fares is 55 percent for their entire system. (See Exhibit II, 2020 Ridership Forecasts, Page 11.)

Further research and perhaps the strongest transit competition to this proposed Metra Extension is Van Galder USA Coach Bus Company. Van Galder presently operates from their station located in Janesville, WI over Interstate 90 to destinations in Illinois. The two major stops from Janesville to Illinois are O'Hare Airport and Chicago Union Station. Our analysis of this operation is estimated to be 300 passenger trips a day. A one-way bus fare to Chicago Union Station is \$20.00 and the running time is approximately three and half-hours. This we believe will be a potential market of riders to this proposed extension if implemented. Our projected one-way estimated cost for rail service Clinton to Ogilvie Transportation Center is \$7.75 and running time is estimated at 98 minutes.

## RECOMMENDATIONS

This report has shown that potential commuter service along the Union Pacific's Northwest Line Harvard, Illinois to Clinton, Wisconsin appears to be physically feasible. However, there are significant capital costs involved, particularly to the two mile passing track needed to avoid conflicts with existing freight train traffic. It should be understood that this conclusion and recommendation is qualified based on the findings of this study alone, and does not account for any "unknowns" that may emerge from more detailed studies. Furthermore, at the present time the results of this study cannot and should not be construed as indicating that the Clinton Extension will be considered operationally viable or even desirable at the completion of the recommended remaining studies for:

- Funding Source Federal, State, Counties, Villages and City
- Refined Cost Estimates
- Environmental Impacts Unforeseen
- Station Facilities Parameters (Land Use)

## CONCLUSION

Based upon the study, it is concluded that the potential extension of commuter rail service between Harvard, IL Sharon and Clinton, WI appears to be physically feasible both financially and technically. The projected

Capital Cost for this operation is \$18,800,000.00. The Annual Operating Costs is \$2,470,000. 00 minus the annual fare revenue \$1,195,000.00 leaving a balance due for operating expenses of \$1,275,000.00 or a fare box return of 48 percent on the dollar. The money figures to be addressed by the Committee if continuance of this project if approved is \$18,800,000.00 Start-up Capital Cost and an Annual Net Operating Cost of \$1,275,000.00.

Exhibit V on Page 14 and Exhibit VI on Page 15, will show a comparison of the proposed Harvard/Clinton Extension as a new start in comparison to other new starts throughout the USA, and a comparison of this potential service in cost to those long establish rail services throughout the Mass Transit System in the USA.

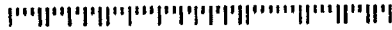
The study results of the projected ridership and startup cost of this projected ridership and startup cost of this project in comparison with these two exhibits certainly should give consideration of a feasible project for Metra's acceptance.

In order to foster economic growth in South Central Wisconsin, and lessen congestion, avoid gridlock on the Interstate 90 corridor through rail solutions with priority given to projects that provide solutions to adding single occupant vehicle capacity. To improve the traveling public's mobility and accessibility to goods, service and cultural centers, multi-mode choices especially for the elderly, disabled and economically disadvantaged, these enablements Metra could bring to South Central, Wisconsin.

# Exhibit I - Ridership Questionnaire

EDA and Associates, Deerfield, IL is currently conducting an independent feasibility study for a possible extension of commuter rail service from Harvard, IL to Sharon and Clinton, WI. Sponsors of this study are: The Villages of Clinton, Sharon, Turtle WI, the City of Beloit, Rock County WI, and the Wisconsin Dept. of Transportation. This is a survey to see you your family, and friends, would find this service beneficial to your needs. We value your opinion and would appreciate you filling out this questionnaire and returning to us at the address shown (no postage required).

1. Are you currently using the Metra service Harvard, Illinois to Chicago, Illinois or points in between?  
 Yes       No  
If yes:       Daily       Weekly       Monthly
2. Are you now driving to work from Wisconsin to Illinois?  
 Yes       No  
If yes, to what town? \_\_\_\_\_  
How many passengers are in the vehicle? \_\_\_\_\_  
Do passengers work in Illinois?       Yes       No
3. What would be the primary purpose of your trips?  
 Work       School       Personal-Medical-Dental       Recreational       Other
4. What is your estimated daily costs commuting to your job in Illinois? \$ \_\_\_\_\_



DEERFIELD IL 60015-9739  
PO BOX 554  
EDA AND ASSOCIATES

POSTAGE WILL BE PAID BY ADDRESSEE

**BUSINESS REPLY MAIL**  
FIRST-CLASS MAIL PERMIT NO. 258 DEERFIELD, IL



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES



5. How much time do you now spend commuting by car to your work in Illinois? \_\_\_\_\_
6. How far do you live from:  
 Clinton, Wisconsin  or Sharon, Wisconsin?   
 0 to 5 miles       5 to 10 miles       10 to 20 miles       Greater than 20 miles
7. Would you consider a 90 minute rail commute from Clinton or Sharon, Wisconsin to Chicago, Illinois for a fare in a range of \$7.00 to \$8.00 one way?  
 Yes       No  
 If yes, how frequently?  Daily       Weekly       Monthly       Weekends
8. At what station in Illinois would you detrain? \_\_\_\_\_
9. What train times would you prefer?      AM \_\_\_\_\_      PM \_\_\_\_\_
10. If the proposed new service made a stop at O'Hare Airport would this service be beneficial to your needs?  
 Yes       No  
 If yes, how frequently?  Daily       Weekly       Monthly       Weekends  
 For:  Business       Personal
11. If you chose to use the train at either Clinton, Wisconsin, or Sharon, Wisconsin, what type of train service would best fit your needs?  
 Express train with few station stops       Local train making intermediate stops  
 If a local train, how far from the depot where you detrained would you have to travel to get to your work or destination  
 1/4 mile       1/2 mile       1 mile       Over 1 Mile
12. Would a Bus or Van be used by you if available?       Yes       No
13. How would you get to the commuter station to start your trip?  
 Get dropped off       Walk       Take a bus       Drive alone and park  
 Car pool       Other
14. How many time would you estimate you would ride the train in one month?  
 1-2 times       20-29 times  
 3-4 times       30-39 times  
 5-9 times       40 or more times  
 10-19 times       Never
15. What type of train ticket would you purchase?  
 One Way       Ten ride       Monthly       Weekend       O

Your response is appreciated and completely confidential. Thank You.

Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State: \_\_\_\_\_

**Exhibit II**  
**UP-Northwest Line Extension Proposal**

**\*\*\*2020 Ridership Forecasts\*\*\***

**Average Fares**

Station	Milepost	Zone	Avg Fare
Harvard	63	M	\$4.65
Sharon	71	O	\$5.18
Clinton	79	P	\$5.46
Harvard-Sharon		M-O	\$0.61
Harvard-Clinton		M-P	\$0.94
Weekend			\$2.50

**Ridership & Revenue Estimates**

2000 to 2020 Growth: 10%

	Station	Weekday			Saturday	Sunday	Year
		New Riders	Diverted	Total			
Daily Boardings	Sharon	121	28	149	15	9	
	Clinton	<u>294</u>	<u>55</u>	<u>349</u>	<u>40</u>	<u>20</u>	
	Total	415	83	497	55	29	
Days per Year		255	255	255	52	58	365
Annual Psngr Trips	Sharon	61,710	14,025	75,735	1,602	1,021	78,360
	Clinton	<u>149,787</u>	<u>28,050</u>	<u>177,837</u>	<u>4,118</u>	<u>2,297</u>	<u>184,250</u>
	Total	211,497	42,075	253,572	5,720	3,318	262,610
Annual Revenue	Sharon	\$319,658	\$8,555	\$328,213	\$4,004	\$2,552	\$334,770
	Clinton	<u>817,837</u>	<u>26,367</u>	<u>844,204</u>	<u>10,296</u>	<u>5,742</u>	<u>860,240</u>
	Total	\$1,137,495	\$34,922	\$1,172,417	\$14,300	\$8,294	\$1,195,010

**Service Supply Estimates**

Route Miles	15.9	15.9	15.9	
Trains per Day	8	4	2	
Train Miles per Day	254.4	127.2	63.6	
Train Miles per Year	64,872	6,614	3,689	75,175

**Cost Estimates**

Capital Cost	\$18,800,000
Annual Operating Cost	\$2,470,000
Annual Revenue	\$1,195,000
Annual Operating Deficit	\$1,275,000

**Performance Measures**

Revenue/Operating Cost	48%
Operating Cost per Passenger Trip	\$5.31
Operating Deficit per Passenger Trip	\$4.86
Revenue per Passenger Trip	\$4.55
Operating Cost per Train Mile	\$32.86

Source: METRA & EDA

27-Dec-01

**Exhibit III**  
**Summary of Capital Cost**  
**Commuter Retail Service**  
**Of The Harvard/Clinton Extension**

Capital costs associated with the Clinton, Wisconsin extension would include the addition of four coaches to supplement the existing Chicago to Harvard service. These additional coaches are based on current operational practices and needs to accommodate the projected ridership. The current locomotive fleet would be adequate to provide for the additional coaches and passenger loads.

The remainder of the capital costs are directly related to the extension of the service and are necessary to protect the safety of the ridership and the public along with passing trackage which is needed to facilitate on-time performance.

Item	Cost of Material and Installation
Grade Crossing Upgrade	\$2,500,000
Passing Track-Sidings	\$5,000,000
Passenger Coaches	\$8,000,000
Passenger Station facilities / Platforms	\$2,000,000
Signaling and Communications	\$1,000,000
Contingencies	\$300,000
<b>Total</b>	<b>\$18,800,000</b>

Source: METRA

**Exhibit IV**  
**Estimated Annual/Total Net Operating Cost**  
**Of The Harvard/Clinton Extension**

The total annual operating costs are based on the incremental costs associated with the customary charge for fees and services for trackage, right-of-way, bridges and other structures. The incremental charges also include train dispatching, supervision, grade crossing, communication and other operational functions. Also reflected are labor, material, equipment and overhead.

Crew costs are based on a three-person crew consisting of a Conductor, Asst. Conductor and Locomotive Engineer for the incremental time and mileage factors associated with existing labor conditions.

Category and Items	Projected Annual Amount Weekly Service Totals (In 2001 dollars)
<b>Operating Cost</b>	
Train Crew	350,000
Fuel and Power	300,000
Railroad Access and Use	700,000
Maintenance of Equipment	870,000
Administrative	63,000
Insurance	100,000
Contingencies	87,000
<b>Total Cost</b>	<b>\$2,470,000</b>
<b>Operating Revenue</b>	
Passenger Fares	\$1,195,000
<b>Net Operating Cost</b>	<b>\$1,275,000</b>
Percent of Total Costs Recovered Through Operating Revenues	48%

Source: METRA



**Exhibit V**

**Comparison of Selected Characteristics for Commuter Service  
Alternatives for Clinton-Harvard Corridor and Other Existing New-Start Services**

Characteristics	Existing New-Start Systems								
	Commuter Rail Walworth	Commuter Rail Clinton	Metra North Central (Chicago- Antioch)		Metro Link Los Angeles	Shoreline East New Haven	Tri- Rail Miami	Virginia Railway Express Washington	Coaster San Diego
	Forecast 2020	Forecast 2020	Existing 1997	Forecast 2010					
<b>Route Characteristics</b>									
Number of Routes	1	1	1	1	7	1	1	2	1
Length in Miles	24.8	15.9	53	53	416	51	70	98	41
Year Opened			1996	1996	1992	1990	1994	1992	1995
<b>Ridership Characteristics</b>									
Weekday Passengers	930	994	3,600	5,900	18,000	1,200	9,000	8,000	3,500
Annual Passengers	250,200	262,510	670,000	1.5 mil.	4.4 mil.	291,500	2.7 mil.	1.8 mil.	910,000
Annual Passengers – Miles (millions)	14.6	16.4	20.2	45.3	155.1	5.9	87.0	62.3	24.8
<b>Operating Characteristics</b>									
Annual Train - Miles	72,900	75,175	134,600	188,500	840,600	129,900	625,300	199,000	198,400
Passengers Per Train – Mile	3.4	3.49	5.0	8.0	5.2	2.2	4.3	9.0	4.6
<b>Operating Cost Characteristics</b>									
Annual Total Operating Cost – In Millions	\$3.1	\$2.5	N/A	\$6.1	\$52.0	\$5.8	\$21.7	\$13.7	\$9.2
Annual Revenues	\$1.1	\$1.2	N/A	\$3.7	\$16.4	\$1.1	\$5.3	\$7.9	\$1.8
Recovery Rate (percent)	37	48	N/A	61	31	19	24	58	19
Annual Net Operating Cost – In Millions	\$2.0	\$1.3	N/A	\$2.4	\$35.6	\$4.7	\$16.4	\$5.8	\$7.4
Net Operating Cost Per Passenger	\$7.99	\$5.31	N/A	\$1.60	\$8.09	\$16.12	\$6.07	\$3.22	\$8.13
Net Operating Cost Per Passenger – Mile	\$0.13	\$0.16	N/A	\$0.05	\$0.23	\$0.80	\$0.19	\$0.09	\$0.30
Total Operating Cost Per Train – mile	\$42.52	\$32.86	N/A	\$32.36	\$61.92	\$44.83	\$34.63	\$68.63	\$46.56

Source: METRA

Exhibit VI

Comparison of Selected Characteristics for Commuter Service Alternatives for Clinton-Harvard Corridor and Other Long Established Rail Services

Characteristics	Chicago		New York City Area				Other Northeastern Cities				San Francisco
	Potential Commuter Service Extension	Commuter Rail	Metra	South Shore Line	Long Island Railroad	Metro North	New Jersey transit	MBTA Boston	SEPTA Philadelphia	MARC Baltimore Washington	CalTrain
<b>Route Characteristics</b>											
Number of Routes	1	1	3	1	10	5	10	9	7	3	1
Length in Miles	24.6	15.9	155	90	319	268	348	287	292	187	77
<b> ridership Characteristics</b>											
Weekday Passengers	930	994	72,600	8,700	325,800	208,000	158,500	85,000	77,700	20,000	18,500
Annual Passengers (millions)	0.25	0.26	23.1	2.6	97.7	62.4	47.5	25.5	23.3	4.8	5.5
Annual Passengers - Miles (millions)	14.6	16.4	504.8	72.8	2,224.4	2,001.7	1,169.2	476.5	328.5	144.5	126.6
<b>Operating Characteristics</b>											
Annual Train - Miles	72,900	75,175	2.16	340,000	16.90	12.24	8.05	2.29	2.22	914,400	920,600
Passengers Per Train - Mile	3.4	3.49	10.7	7.6	5.8	5.1	5.9	11.1	10.5	5.2	6.0
<b>Operating Cost Characteristics</b>											
Annual Total Operating Cost - (millions)	\$3.1	\$2.5	\$92.2	\$21.0	\$634.1	\$469.2	\$332.1	\$108.7	\$142.8	\$37.3	\$41.4
Annual Revenues (millions)	\$1.1	\$1.1	\$58.1	\$10.7	\$298.4	\$262.2	\$182.1	\$45.0	\$62.0	\$15.7	\$12.8
Recovery Rate (percent)	37	48	63	51	47	56	55	41	43	42	31
Annual Net Operating Cost - (millions)	\$2.0	\$1.3	\$34.1	\$10.3	\$335.7	\$207.0	\$150.0	\$63.7	\$80.8	\$21.6	\$28.6
Net Operating Cost Per Passenger	\$7.99	\$5.31	\$1.48	\$3.96	\$3.44	\$3.32	\$3.16	\$2.50	\$3.47	\$4.50	\$5.20
Net Operating Cost Per Passenger - Mile	\$0.13	\$0.16	\$0.07	\$0.14	\$0.15	\$0.10	\$0.13	\$0.13	\$0.25	\$0.15	\$0.23
Total Operating Cost Per Train - mile	\$42.52	\$32.86	\$42.70	\$61.88	\$37.52	\$38.33	\$41.27	\$47.46	\$64.31	\$40.78	\$45.03

Source: METRA

## Exhibit VII - A Fares

### FARES

RIDERS NOT PRESENTING VALID TICKETS MUST PURCHASE A ONE-WAY TICKET FROM THE CONDUCTOR.

ZONE	STATION	CLASS OF TICKET	A	B	C	D	E	F	G	H	I	K	
A	OGILVIE TRANSPORTATION CENTER - CHICAGO *Clybourn	ONE-WAY	\$ 1.75										
		10-RIDE	14.90										
		MONTHLY	47.25										
		REDUCED ONE-WAY	0.85										
		REDUCED 10-RIDE	8.50										
REDUCED MONTHLY	31.90												
B	*Irving Park *Jefferson Park *Gladstone Park	ONE-WAY	\$ 1.95	\$ 1.75									
		10-RIDE	16.60	14.90									
		MONTHLY	52.65	47.25									
		REDUCED ONE-WAY	0.95	0.85									
		REDUCED 10-RIDE	9.50	8.50									
REDUCED MONTHLY	35.65	31.90											
C	*Norwood Park *Edison Park Park Ridge *Dee Road	ONE-WAY	\$ 2.75	\$ 1.95	\$ 1.75								
		10-RIDE	23.40	16.60	14.90								
		MONTHLY	74.25	52.65	47.25								
		REDUCED ONE-WAY	1.35	0.95	0.85								
		REDUCED 10-RIDE	13.50	9.50	8.50								
REDUCED MONTHLY	50.65	35.65	31.90										
D	Des Plaines *Cumberland Mount Prospect	ONE-WAY	\$ 3.15	\$ 2.75	\$ 1.95	\$ 1.75							
		10-RIDE	26.80	23.40	16.60	14.90							
		MONTHLY	85.05	74.25	52.65	47.25							
		REDUCED ONE-WAY	1.55	1.35	0.95	0.85							
		REDUCED 10-RIDE	15.50	13.50	9.50	8.50							
REDUCED MONTHLY	58.15	50.65	35.65	31.90									
E	Arlington Heights Arlington Park (Race Track)	ONE-WAY	\$ 3.50	\$ 3.15	\$ 2.75	\$ 1.95	\$ 1.75						
		10-RIDE	29.75	26.80	23.40	16.60	14.90						
		MONTHLY	94.50	85.05	74.25	52.65	47.25						
		REDUCED ONE-WAY	1.75	1.55	1.35	0.95	0.85						
		REDUCED 10-RIDE	17.50	15.50	13.50	9.50	8.50						
REDUCED MONTHLY	65.85	58.15	50.65	35.65	31.90								
F	Palatine	ONE-WAY	\$ 3.90	\$ 3.50	\$ 3.15	\$ 2.75	\$ 1.95	\$ 1.75					
		10-RIDE	33.15	29.75	26.80	23.40	16.60	14.90					
		MONTHLY	105.30	94.50	85.05	74.25	52.65	47.25					
		REDUCED ONE-WAY	1.95	1.75	1.55	1.35	0.95	0.85					
		REDUCED 10-RIDE	18.50	17.50	15.50	13.50	9.50	8.50					
REDUCED MONTHLY	73.15	65.85	58.15	50.65	35.65	31.90							
G	Barrington	ONE-WAY	\$ 4.30	\$ 3.90	\$ 3.50	\$ 3.15	\$ 2.75	\$ 1.95	\$ 1.75				
		10-RIDE	36.55	33.15	29.75	26.80	23.40	16.60	14.90				
		MONTHLY	116.10	105.30	94.50	85.05	74.25	52.65	47.25				
		REDUCED ONE-WAY	2.15	1.95	1.75	1.55	1.35	0.95	0.85				
		REDUCED 10-RIDE	21.50	19.50	17.50	15.50	13.50	9.50	8.50				
REDUCED MONTHLY	80.65	73.15	65.85	58.15	50.65	35.65	31.90						
H	*Fox River Grove Cary	ONE-WAY	\$ 4.65	\$ 4.30	\$ 3.90	\$ 3.50	\$ 3.15	\$ 2.75	\$ 1.95	\$ 1.75			
		10-RIDE	39.55	36.55	33.15	29.75	26.80	23.40	16.60	14.90			
		MONTHLY	125.55	116.10	105.30	94.50	85.05	74.25	52.65	47.25			
		REDUCED ONE-WAY	2.30	2.15	1.95	1.75	1.55	1.35	0.95	0.85			
		REDUCED 10-RIDE	23.00	21.50	19.50	17.50	15.50	13.50	9.50	8.50			
REDUCED MONTHLY	86.25	80.65	73.15	65.85	58.15	50.65	35.65	31.90					
I	Crystal Lake	ONE-WAY	\$ 5.05	\$ 4.65	\$ 4.30	\$ 3.90	\$ 3.50	\$ 3.15	\$ 2.75	\$ 1.95	\$ 1.75		
		10-RIDE	42.95	39.55	36.55	33.15	29.75	26.80	23.40	16.60	14.90		
		MONTHLY	136.35	125.55	116.10	105.30	94.50	85.05	74.25	52.65	47.25		
		REDUCED ONE-WAY	2.50	2.30	2.15	1.95	1.75	1.55	1.35	0.95	0.85		
		REDUCED 10-RIDE	25.00	23.00	21.50	19.50	17.50	15.50	13.50	9.50	8.50		
REDUCED MONTHLY	93.75	86.25	80.65	73.15	65.85	58.15	50.65	35.65	31.90				
K	*Woodstock *McHenry	ONE-WAY	\$ 5.80	\$ 5.45	\$ 5.05	\$ 4.65	\$ 4.30	\$ 3.90	\$ 3.50	\$ 3.15	\$ 2.75	\$ 1.95	
		10-RIDE	49.30	46.35	42.95	39.55	36.55	33.15	29.75	26.80	23.40	16.60	
		MONTHLY	156.60	147.15	136.35	125.55	116.10	105.30	94.50	85.05	74.25	52.65	
		REDUCED ONE-WAY	2.90	2.70	2.50	2.30	2.15	1.95	1.75	1.55	1.35	0.95	
		REDUCED 10-RIDE	29.00	27.00	25.00	23.00	21.50	19.50	17.50	15.50	13.50	9.50	
REDUCED MONTHLY	106.75	101.25	93.75	86.25	80.65	73.15	65.85	58.15	50.65	31.90			
M	HARVARD	ONE-WAY	\$ 6.00	\$ 5.60	\$ 5.20	\$ 4.80	\$ 4.45	\$ 4.05	\$ 3.65	\$ 3.25	\$ 2.85	\$ 2.45	
		10-RIDE	56.10	52.70	49.30	46.35	42.95	39.55	36.55	33.15	29.75	23.40	
		MONTHLY	178.20	167.40	156.60	147.15	136.35	125.55	116.10	105.30	94.50	74.25	
		REDUCED ONE-WAY	3.30	3.10	2.90	2.70	2.50	2.30	2.15	1.95	1.75	1.55	
		REDUCED 10-RIDE	33.00	31.00	29.00	27.00	25.00	23.00	21.50	19.50	17.50	15.50	
REDUCED MONTHLY	123.75	116.25	108.75	101.25	93.75	86.25	80.65	73.15	65.85	58.15	50.65		

NOTE: ZONES J AND L ARE NOT SHOWN. FARES ARE BASED ON TRAVEL THROUGH THESE ZONES.

\* No tickets sold at these stations.

- Reduced Fares are available for Senior Citizens, Customers with Disabilities, Students and Children.
- An extra \$1.00 is charged on currency transactions involving bills \$50 and larger.
- If you need to ride beyond the zone limits of your ticket, you must notify the train crew, or a \$5.00 penalty will be charged in addition to the incremental fare of \$1.00 for the first zone and 50c for each additional zone (or reduced rate for Senior Citizens and Customers with Disabilities).



# Exhibit VII - B Metra Rail Map

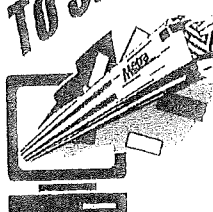
## Metra Territory . . .

Metra operates 12 commuter rail lines that provide service to 224 outlying stations in the six-county area of northeast Illinois.

Flexible schedules, convenient connections, and assorted fare programs make Metra the smart and economical travel choice to many destinations.

So why drive. Learn to fly on Metra.

**Your Electronic Ticket To Savings**



**Metra Monthly and 10-Ride Tickets Available Through The Internet!**

For details visit our web site at [www.metra-rail.com](http://www.metra-rail.com)

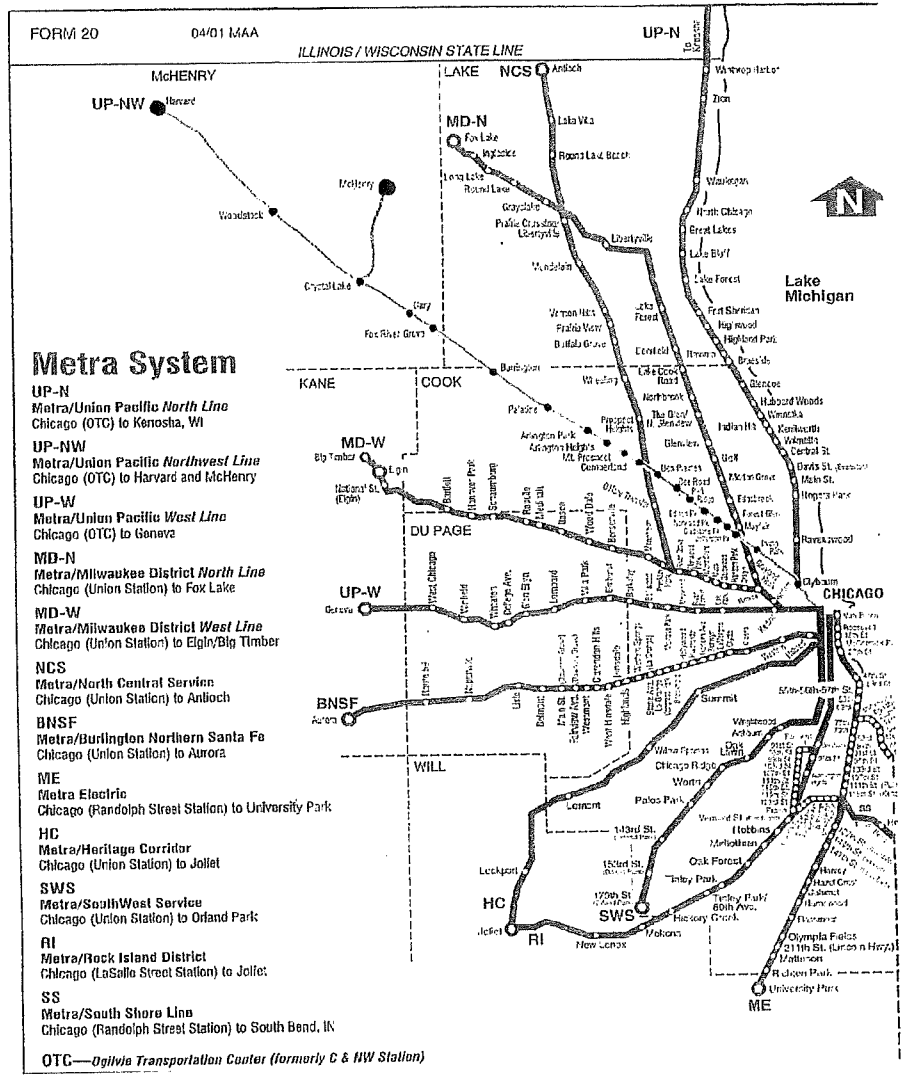


Exhibit VIII  
Metra's Budget Increase 2002

Metra

# ON THE BULLET

NOVEMBER 2001

## 2002 budget includes fare increase

A preliminary 2002 budget including a mid-year fare increase was approved by the Metra Board of Directors. After public presentations throughout the commuter agency's six-county territory (see schedule on back page), the budget will be on the agenda for final approval at the November board meeting.

The 2002 plan comes in the context of further ridership growth, steady progress on three New Start projects, and ongoing capital improvements including orders for much needed new cars and locomotives.

"Meanwhile, the costs of providing safe, reliable, and convenient service have steadily increased," said Metra Chairman Jeffrey R. Ladd. "Thus, our proposed 2002 operating budget envisions our first fare increase in six years, which will likely take effect June 1. It will be a 5 percent increase. State law requires that 55 percent of our total operating budget must be paid with fares. Therefore, to avoid cutting service a fare increase will be needed to reach the required level."

This will be only the second fare increase in 13 years. Fares were last increased in 1996. Even with the 2002 fare increase, the cost of our service will have risen about 20 percent since 1984 when Metra assumed control of commuter operations, compared with a 74 percent increase in the cost of living index and a 51 percent increase in the cost of gasoline.

"In view of further cost pressures, we believe our proposed fare increase is both prudent and reasonable," Ladd said. "With it comes our pledge that we will continue to operate our service in the

most cost effective manner consistent with safety and reliability."

The preliminary 2002 budget includes \$450 million for continuing operations. That represents a 4.15 percent increase over 2001 estimated costs.

The preliminary 2002 plan also provides \$371 million for capital improvements, with an emphasis on projects critical for ensuring safe, reliable and quality service. Also, because of long-term regional growth, Metra continues to look at ways to operate more trains and carry more customers. Some measures such as longer platforms and more commuter parking physically increase capacity. Other strategies, like improved signaling and communications, focus on making the system more efficient in handling trains and passengers.

Major capital expenditures include some \$118 million for rolling stock, most of which will be used to acquire new locomotives and train cars. Metra's oldest locomotives will be replaced by new, more efficient and more powerful units by late 2004. Delivery of 300 new stainless steel bi-level cars will take place between 2003 and 2005.

Another major capital expenditure includes \$81 million for three New Start projects: expansion of the North Central Service with more double track, extension of the Union Pacific-West line into Central Kane County, and improvement and extension of the SouthWest Service into Will County. Other capital expenditures include \$65 million for track and structure, including some \$38.8 million for bridge rehabilitation, and \$53 million for station and commuter parking improvements.



Printed on recycled paper



# Appendix

**THE ECONOMIC IMPACT OF EXISTING AND NEW COMMUTER RAIL SERVICE  
ON RETAIL AND RECREATIONAL SPENDING  
IN THE VICINITY OF STATION AREAS**

**AUTHOR: Thomas Marchwinski, NJ TRANSIT**

Address: NJ TRANSIT Headquarters  
Business Planning- 4th Floor  
One Penn Plaza East  
Newark, NJ 07105-2246

Phone: (973) 491-7751

FAX: (973) 491-7747

E-Mail: [CPLNTWM@njtransit.state.nj.us](mailto:CPLNTWM@njtransit.state.nj.us)



## ABSTRACT

This paper quantifies the impact both existing and new commuter rail services have on the economies of local jurisdictions, and selectively on direct state government revenues. Specifically, the paper investigates and documents increased spending by rail riders on retail services in local station areas, and increased spending by recreational rail travelers in resort areas as a result of the presence of rail service. Actual ridership surveys conducted on three commuter rail lines in New Jersey during 1995 and 1996 are utilized to establish relationships between increased spending in local station areas, as well as other economic impacts such as induced ridership, and relocation of residents as a result of improved commuter rail service. The surveys are large scale surveys of two entire rail lines, the Morris & Essex Line and the Atlantic City Line, and a weekend survey during the summer tourist season of the coastal portion of the North Jersey Coast Line. With a 40% to 60% return rate, these surveys represented a rich database to estimate the impact that commuter rail service has on local economies.

# **THE ECONOMIC IMPACT OF EXISTING AND NEW COMMUTER RAIL SERVICE ON RETAIL AND RECREATIONAL SPENDING IN THE VICINITY OF STATION AREAS IN NEW JERSEY**

## **I. Introduction and Background**

Commuter rail has increased in importance in recent years as a transit mode with the expansion of services to new metropolitan areas such as San Diego, Los Angeles, South Florida, Dallas, and Washington, DC; as well as an expansion of existing services in the traditional commuter rail metropolitan areas of New York, Chicago, Boston, and San Francisco. With this expansion of services, Commuter Rail is one of the fastest growing transit services in terms of overall percentage increase in ridership. This expansion of commuter rail service can also be an opportunity to improve the economic potential of the communities served by rail stations. A number of studies have identified the impact that commuter rail service has on local property values. These studies have indicated that the overall impact of a commuter rail station can range up to an increase of 6.7% in property values.(1,2)

However there are other economic impacts of a commuter rail service that have been less studied, such as increased retail spending in local communities as a result of rail riders, and increased tourism and tourist spending associated with commuter rail service to recreational areas. Other benefits to communities include the relocation of residents and workers to a community to take advantage of the increased accessibility offered by a new or improved commuter rail service, and increased support employment from added retail and tourist spending.

This paper attempts to quantify some of the local economic benefits that accrue to communities as a result of "hosting" a commuter rail station. Recent analysis of zoning patterns near existing and proposed rail stations in Southern California indicate that many municipalities are biased in their perceptions of the benefits of rail service, and often attempt to zone for the maximum amount of retail and office development, and minimize residential zoning in proximity to stations. These local municipalities try to maximize the job producing potential of land near transit stations, to the detriment of residential uses.(3) In addition, proposals for rail service extensions in New Jersey, Massachusetts, and other areas are often opposed by local residents because of fears of negative impacts from commuter rail service. Thus the positive, economic benefits of rail service are often overlooked or not presented in discussions of new rail service.

Three commuter rail services in New Jersey, all operated by NJ TRANSIT (NJT), which have recently conducted major ridership surveys, are examined for their economic impact on local station areas and communities. The focus will be on retail and recreational spending by rail users, which will be quantified based on actual survey responses regarding spending patterns. New rail riders generated by commuter rail service, tourist trips that would be lost without the rail service, and the associated economic impacts on local economies will also be examined and quantified.

## **II. Profile of Commuter Rail Line with Major Service Improvement Surveyed for Local Retail & Commuter Related Economic Impacts-Midtown Direct Service on the Morris & Essex (M&E) Lines**

Map 1 illustrates the entire NJ TRANSIT rail system, and specifically the Morris & Essex Lines (M&E) and the North Jersey Coast Line (NJCL). Both of these lines serve as traditional commuter lines, however the NJCL also has a significant summer recreational ridership component due to its proximity to ocean beaches. The M&E Lines will be analyzed to represent the profile of the local economic impacts associated with a major new rail service improvement (Midtown Direct) on an established commuter rail line. However elements of this analysis can also be applied to new suburb-to-city commuter oriented rail lines. Following is a brief description of the M&E Lines and the markets served.

### A. Morris & Essex Lines (M&E) Description

This line consists of a main line, the Morristown Line, and two branch lines, the Gladstone Branch and the Montclair Branch. Collectively, these lines are referred to as the Morris & Essex Line or M&E, and serve as a commuter rail line to New York City, Newark, and other intermediate locations. This rail line was developed in the 1850's, and consists of some of the oldest commuter railroad suburbs in the nation. Many of the stations are in the center of small to mid-sized downtown areas, and a significant portion of the area served by these lines are prime examples of neotraditional development. Some of the area also has post-World War II suburban development, especially areas beyond one mile from the train stations.

The M&E is an electrified commuter rail service with 39 stations, extending 43 miles (69km) from Penn Station New York to Dover, with a five mile branch to Montclair and a 22 mile branch to Gladstone. The line serves 16,000 eastbound boarding riders a day in 1996. There are two terminal rail services: 1.) Riders can transfer at Hoboken to the PATH rapid transit system or ferry service to reach Lower and Midtown Manhattan. 2.) Riders can travel directly into Midtown Manhattan at Penn Station via a new rail connection just opened in 1996, known as Midtown Direct. The Midtown Direct Service opened in June, 1996, and at the time of the November 1996 survey carried 6,000 eastbound riders.

### B. M&E Improvement (Midtown Direct) and Local Station Impacts

The Midtown Direct service offers a no-transfer, direct rail trip to Manhattan, saving 15 to 20 minutes in travel time each way to Midtown Manhattan compared to the existing service to Hoboken with a PATH transfer. Based on this service enhancement, by November, 1996 about 2,400 new riders were using the M&E commuter rail service. This level of new ridership occurred just five months after initiation of of this major new service enhancement in June, 1996. The M&E Line was examined for the impact of this new rail service on increased retail spending in local station areas, and other related economic impacts associated with a new service added in an existing rail oriented corridor, such as residential relocations to the service area from outside New Jersey and the immediate service area. A survey of M&E riders was conducted in

November, 1996 with a 40% response rate, resulting in a margin of error of +/- 0.6% for a 95% confidence interval. Questions specific to the number of intermediate stops made by commuters within a 0.5 mile (800 meter) radius of the station for shopping and services, and the amount of spending by different category were asked. Residential relocation as a result of the new Midtown Direct service was also quantified along with location of prior residence.

### C. Local Station Area Impact Area

The survey found that in total, about 40.5% of M&E rail riders stop at stores or services within a 0.5 mile (800 meter) radius of their boarding station. This amounts to a total of 6500 average daily passengers. The 0.5 mile or one-half mile radius has been defined by NJ TRANSIT staff as the primary impact area of a commuter rail station. This is based on the primary impact area being the area where the majority of rail riders will walk to/from the station. A 10 minute walk radius for an average person traveling at a typical walk speed of 250 feet per minute (76 meters per minute) is 2,500 feet (760 meters). This is approximately 0.5 miles (800 meters), and represents the practical area for walk access to commuter rail.

Recent literature from other studies, especially in California (4,5) suggests that the primary impact area of a rail station is 0.25 miles (400 meters). The data from the survey support the NJ TRANSIT standard, based on access mode splits by station radius. Overall, the walk, auto drive-park, auto drop-off, and other mode station access mode split by distance to the rail station is summarized for the entire rail line in Table 1. The table indicates that walk access constitutes the primary access mode to rail stations up to 0.5 miles, with a walk share of 64% for trips located 0.25 to 0.5 miles from the station (400-800 meters). For trips between 0.5 and 1.0 miles (800-1600 meters), auto drive-park becomes the primary access mode to rail, with a 48% share, although walk trips still constitute a 34% share. In the one to two mile range (1600-3200 meters), auto drive-park trips become the major rail rider access mode, with 74% of all rail trips using this mode. Drop-Off trips increase from 7% of access trips within 0.25 miles to 16% for trips between 0.5 and 1.0 miles.

**Overall 31% of all riders on the M&E start their rail trip from within a 0.5 mile access distance to the rail station, and 50% are within a one mile radius. Almost 70% of rail riders within a 0.5 mile radius of the station walk to the station. These survey findings confirm that a one-half mile radius distance from a commuter rail station is the primary impact area for pedestrian activity and rail ridership impacts on the local economy.**

### D. Local Retail Spending Impacts of New Rail Service

Overall, M&E riders stop an average of 2.53 times per month at stores and services within a 0.5 mile radius of their boarding station. This represents the average number of days per month a rider will stop to visit stores or conduct services **on the way to or from the train station**. The survey question was worded to indicate an intermediate stop as part of the trip to/from the train station. A separate question asked which stores were visited and the amount of stops per month.

On average, rail riders visit 8.2 establishments or services during a typical month. However, since only 40.5% of riders stop at all to use retail and services in the primary impact area, those

riders that do stop are more frequent users of retail and other services. Overall these riders stop an average of 6.24 days per month, or 1.6 times a week to spend in the local station area. Overall these riders visit 20.2 establishments in a typical month. This indicates that many riders perform trip chaining, linking two or more visits together during one stop to or from the station. Overall riders average 3.23 different store visits per day they stop, indicating that multiple stops or visits at different stores or services are common. This “trip-chaining” makes for efficient use of the times riders do stop near the train station. The retail areas near many stations along the M&E have a mix of retail and service establishments in traditional downtowns. This data supports the view that mixed use and physical proximity will encourage trip chaining as people try to make the most of their limited time.

The survey also found that **“new” rail riders tended to stop about 20% more than existing riders. Overall, new riders stop an average of 3.04 times per month at stores in the primary impact area, compared to just 2.53 times per month for existing riders.** New riders are defined as riders diverting from bus, auto, and other modes as well as new riders resulting from relocations as a result of the Midtown Direct service, and residents making new rail trips because of the improved accessibility and service. **Overall new rail riders increased the number of stops for shopping and services by 7,300 per month, representing 23,600 new visits per month to establishments within the 0.5 mile impact area of 38 rail stations.**

Using a regression analysis, an equation of moderate predictability was developed to forecast the number of stops per month by new rail riders. The equation is  $y=1.0715+.0106 x$ , where  
y=stops per month at stores within 0.5 miles of a boarding station made by new rail riders  
x=number of new daily boarding riders  
R Squared=0.44

Although not a strong correlation, this equation indicates that for every 100 new rail riders, 2.13 stops per month per new rider will be made for retail and services within 0.5 miles of the boarding station. This seems to indicate that the more new rail riders generated by a station, the larger the number of stops for local services made by these new riders. This could indicate some critical mass of new riders generates increased stopping and spending in the local area, or it could relate to the fact that new riders board at larger stations which already have a critical mass of rail commuter shopping and service needs. The latter may be the case given the older, developed nature of the M&E Lines with its traditional downtown development focused on rail stations. Regarding access distance, new riders were found to be close to the average access distance of existing riders. Further research on the various factors that influence rail rider spending, including access mode and retail environment in the vicinity of the station needs to be undertaken.

It was also found that new rail riders tended to have a slightly higher mean household income compared to existing riders, with a mean annual household income of \$111,300. Existing riders had a mean annual household income of \$102,700. **Thus new rail riders had a mean household income that was 8% higher than existing riders, which could partially explain the higher overall spending by new riders in local station areas.**

In terms of spending, total spending on goods and services in the 38 primary impact station areas along the M&E amounts to \$20.7 million per year. This amounts to \$1,298 per average daily boarding rider per year, or about \$27 per week. Subtracting spending on services like banks and ATM's, the total amounts to \$13.4 million in spending per year, \$834 per rider per year, or \$16.74 per rider per week. This is direct spending, and does not include multipliers for jobs supported which will increase the economic impact.

New rail riders, because of the higher amount of stop-off trips per month, and possibly due to higher mean household incomes, average spending of \$1,559 per year for all goods and services in primary station areas, and \$1,002 per year if bank services are excluded. The new rail riders are estimated to have added \$3.76 million in increased spending in the primary station impact areas along the M&E lines. If bank services are excluded, the total increase in spending amounts to \$2.42 million along the entire M&E. It should be noted that a recent survey of commuter rail rider spending in local areas in Chicago confirms the magnitude of the rail rider spending indicated in this survey data. The Chicago study indicated that commuters, with an appropriate mix of shopping opportunities, will spend between \$20 and \$30 per week or \$1,000 to \$1,500 per year in station areas.(6) This almost exactly matches the data in this survey. It should be noted the Chicago study indicated this range for the best conditions, whereas the M&E data is for an entire rail line.

As an example of the impact of new rail riders on local retail spending, the municipality of South Orange stands out. Recently, just prior to the opening of Midtown Direct, four new stores were located adjacent to and inside the train station. The ridership surveys indicate that new riders are spending almost 30% more per rider than existing riders. This town also had a significant amount of new residents relocating into the municipality in anticipation of the new Midtown Direct service. Overall, annual retail spending in the local station impact area is estimated to have increased by \$400,000 solely due to new rail riders at this station.

#### E. Residential Relocation Impacts

The opening of a new rail service to Midtown Manhattan from the M&E Lines was expected to have a positive impact on real estate values and experience relocations from other parts of the region because of the improved access and travel time savings to Manhattan. Based on work by Robert Armstrong, NJ TRANSIT has estimated that residential real estate values will increase by 2.2% in towns with stations.(7)

Confirmation of the increased demand for housing and intra-regional household relocations as a result of the Midtown Direct rail service was the response to a survey question asking if riders moved as a result of Midtown Direct. A total of 670 riders, or 4% of all riders moved because of the implementation of Midtown Direct service. Of these riders, 530 were actually using Midtown Direct. This represented 8.9% of the total Midtown Direct ridership, and almost 22% of the new riders of Midtown Direct. The 140 movers that are not regular users of Midtown Direct represent riders that use Midtown Direct occasionally, or work in various locations in Manhattan. These people may have other reasons for not being regular users of Midtown Direct. This

relocation of people to the M&E Line service area was not accounted for in the ridership forecasts, and NJ TRANSIT will now be considering residential relocation for forecasting ridership for any major new rail projects.

In terms of the local economic impacts of these riders that moved into the M&E area, these riders are estimated to generate \$982,000 in new annual retail and service sales in the primary station impact area, and \$630,000 in new non-bank purchases along the M&E lines. This only includes spending by the commuter component of the household within 0.5 miles of boarding stations; actual retail sales by other household members and other locations are not included or calculated. **However with a mean annual household income of \$102,800 per year, these residential relocations represent \$68.9 million in new annual household income in the corridor. However, it appears that about 30% of these relocations were within the four county area served by the M&E Lines.** This could represent potential riders that wished to move closer to the M&E Lines because of the new service. A portion of these moves may not increase overall household income in the M&E corridor, but they could represent gains in household income in individual towns. Even assuming that only 70% of the household income from residential relocations created by Midtown Direct is new, this still represents an increase of \$42.3 million in new household income in the M&E service area.

One important point is that since the survey was only conducted 5 months after service opened, the full impact of residential relocations from Midtown Direct service is probably understated. In fact, since the survey was conducted in November, 1996, Midtown Direct ridership has grown by another 20% or 1,200 people to a total of 7,200 per day (October, 1997). The full financial impact of the service and a true cost-benefit of the capital investment will be completed after service has been open for two years.

In summary, the Midtown Direct Service had a positive impact on retail and local service spending, and also residential relocation. Since the ridership survey was conducted only five months after the start of service, local area economic impacts are still occurring. Thus the full impact of this service on the local economy is still growing and will need to be measured in the future after full maturation of the service.

### **III. Profile of Existing Commuter Rail Line with Local Recreational Spending Impacts- North Jersey Coast Line (NJCL)**

This line will be used to document the impact of a seasonal rail service on tourist spending in local station areas, where an existing commuter rail service for traditional suburb-to-city trips is the main function of the rail service. This illustrates how commuter rail can function to serve trips beyond just the traditional work trip to the city center.

#### A. Description of NJCL Service and Market Area

This North Jersey Coast Line (NJCL) is a 67 mile long commuter rail line between Bay Head and Newark/Hoboken/New York. The line was developed in the 1870's, and has frequent commuter

service during the traditional peak hours. The line also serves a resort and beach area with significant year round residents for the southernmost 16 miles between Long Branch and Bay Head, with beaches within walking distance of rail stations. This area is known as the "Jersey Shore", and encompasses the coastal area of Monmouth County and northern Ocean County. The area contains some of the oldest resort communities in the country. Another 14 miles of the line serves an area with short drive or bus access to beach areas between Matawan and Long Branch (See Map 1). A major racetrack is also along the line with direct service.

The NJCL is electrified between New York and Long Branch, a distance of 51 miles (82km), allowing direct rail service to Manhattan. South of Long Branch, diesel shuttle service is operated off-peak and weekends on a 16 mile (26km) segment to Bay Head. During weekday peak commuting hours, diesel rail service is operated directly to Newark/Hoboken from this line segment, with a transfer at either location to New York via rapid transit or at Newark to a connecting NJ TRANSIT train to New York. On summer weekends, extra shuttles are operated between Long Branch and Bay Head, and two to three additional express trains to/from this area are operated each way for tourists and day trips to Hoboken/Newark with connections to New York. This additional weekend service is referred to as Summer Shore or weekend services.

#### B. NJCL Survey Results and Market Description

Passenger surveys have been conducted on the NJCL in 1992, 1993, and 1996 of the summer weekend service. This service was surveyed on both Saturdays and Sundays, during the late afternoon and evening for all eastbound trains (to New York/Newark) between approximately 3 and 8 PM when most tourists and day-trippers depart the area. The surveys achieved a response rate of 38 % in 1993 and 35 % in 1996. Questions were used to document the impact the weekend commuter rail service has on recreational spending, state tax revenues, tourism related employment, and additional tourist travel. The surveys also document the reduction of regional and local auto travel by recreational users.

The majority of recreational travelers are persons visiting for the weekend, mostly from New York City and the urban core area of northern New Jersey (Hudson and Essex counties). A total of 67% of trips come from New York State, most of these are from New York City, and 32% from New Jersey. A total of 53 % of the riders spend one or two nights at the shore area, typically weekend oriented travelers, and another 10% stay more than two nights. A total of 36% of weekend (Saturday/Sunday) riders are day-trippers. Overall, an average of 2900 riders are carried eastbound from the shore area (Matawan to Bay Head) during the five hour Sunday evening period, and another 1725 riders travel during the same period on Saturdays. The Sunday peak ridership is approximately equal to the weekday AM Peak Period on two commuter rail lines in northern New Jersey, indicating the volume of travel.

Compared to the previous survey in 1993, NJCL ridership for the same stations and trains increased 35% for the entire weekend peak period between 1993 and 1996. In terms of choice riders, about 55% of riders were captive to transit, but a significant amount (37%) had access to



an auto. Thus the ridership is a mix of transit dependent and choice riders.

### C. Economic Impacts of NJCL Recreational Service and Cost-Benefit

In terms of economic impacts, the weekend recreational riders are middle income, with the median income falling in the \$35,000-\$50,000 household income range. However a significant amount (24%) had annual household incomes over \$75,000. This disposable income relates to the impact recreational rail riders have on spending in the local economy. **Overall, during the 14 week summer recreational season from Memorial Day to Labor Day, NJCL rail riders spend \$7.8 million on meals, lodging, amusements, shopping, and other spending associated with visiting towns near the rail line. Based on survey results which excluded local residents, this spending amounts to \$173.36 per non-resident rail rider per weekend, with a total of 3210 non-resident recreational riders per weekend using rail. Overall recreational riders visting NJCL service area communities represent 80% of weekend rail ridership, and amount to 45,000 people per summer season.**

This spending by recreational riders has impacts on direct and indirect employment in the tourist and other related industries (food, lodging, entertainment etc.) Based on employment multiplier data from the New Jersey Division of Travel and Tourism (8), NJCL recreational rail rider spending adds 125 Direct and 60 Indirect or a total of **185 jobs to the local economy. In terms of taxes, a total of \$920,000 in additional state tax revenue and \$390,000 in additional local tax revenue was generated by NJCL summer recreational rail riders.(9) Total additional state and local tax revenues of \$1.3 million are almost \$29 per recreational rail rider. Local tax revenue amounts to \$8.67 per rider. The extra train service costs approximately \$140,000 in added labor, fuel, and propulsion costs. From a state cost-benefit standpoint, the additional train service has a return of \$6.58 in added state tax revenue for every additional dollar spent in direct operating costs. Adding in local tax revenues, this comes to a total of \$9.28 in additional tax revenue to New Jersey government per rider.**

The cost-benefit ratio and economic impacts indicate that the NJCL summer weekend service contributes positively to the local economies in terms of added spending, employment, and tax revenue. However, some critics have argued that most of the recreational riders carried by the train would travel to the area even if there was no rail service. Buses and cars could be used instead. The rider survey asked the question "How would you make this trip if no rail service was available"? **A total of 41% of all riders and 34% of recreational riders indicated that they would not make the trip if there was no rail service. Thus the lack of rail service would result in the loss of significant recreational trips, about 15,500 per season. These lost trips would probably shift some of their spending to other towns not near the rail line, and overall there would be a minimum loss of \$2.18 million in direct spending in the towns served by the rail line because of foregone trips due to the lack of rail service. This is a reduction of 28% of the spending generated by rail recreational riders in their contribution to the local economy. In terms of state and local taxes, a total loss of \$367,000 per season would result at a minimum from not having rail service.**

#### IV. Profile of New Commuter Rail Line with Recreational/Casino Impacts- Atlantic City Rail Line (ACRL), Philadelphia to Atlantic City

The Atlantic City Rail Line (ACRL) will be used as an example of a new commuter rail line's impact on recreational, tourism, and casino spending, including regional tourist spending and casino impacts. Generation of statewide tax revenue is also a significant impact because of the special nature of the casino industry. The line also serves to expand the potential area from which casinos can draw workers.

##### A. Description of ACRL Line

This is NJ TRANSIT's newest rail line, having opened in 1989. Rail service has operated in the Philadelphia-Atlantic City corridor since the 1870's, however it was mainly geared to recreational services. From the late 1960's to 1983, service consisted of two to three round trips oriented to Philadelphia commuters, with a transfer required at Lindenwold to the PATCO rapid transit line to reach Center City Philadelphia (See Map 2). The reopening of service was geared to casino workers and the development of the casino industry in Atlantic City. The line carries between 1100 and 1500 daily riders (2200 to 3000 trips), with summer ridership about 25% higher due to recreational trips. AMTRAK operated three to five round-trips daily from Washington, Philadelphia, and New York direct to Atlantic City until April, 1995 when direct service was terminated. NJT service from Philadelphia now serves as a connector to the Northeast Corridor at Philadelphia, with 13-14 round trips per day on the 67 mile (108 km) long route. There are six intermediate stations between Atlantic City and Philadelphia.

##### B. ACRL Survey Results and Market Description

The ACRL was surveyed in August, 1995, about four months after the termination of AMTRAK service. The survey was performed on both a Thursday and Friday southbound towards Atlantic City. These two days represent a typical summer weekday and weekend day. **On average, approximately 45% of the ridership consists of casino workers, another 25% are casino visitors, mostly gamblers, another 10% are Philadelphia/Camden work trips, 10% are other recreational trips not related to the casinos, and the other 10% are other and business related trips.** As indicated by the 1995 survey, the line serves a variety of trip purposes, with recreational riders encompassing 28% of weekday and 40% of weekend trips. The 1995 survey had a 68% response rate, with 1,530 usable surveys returned from both days.

Overall, 67% of recreational riders board at 30th Street Philadelphia or Cherry Hill stations, with AMTRAK connecting riders accounting for 7% of weekday and 11% of total weekend trips. Since there are no casino workers connecting from AMTRAK, AMTRAK connecting riders account for 20% to 25% of the recreational riders. These trips are long-distance and Northeast Corridor recreational trips primarily going to the casinos for gambling.

The Atlantic City line rider survey asked questions related to tourist and visitor spending, including gambling budget, and location of spending. This service will be analyzed to estimate the

impact a new rail line can have on overall tourist spending, visitors, and state tax revenues.

### C. Economic Impact of ACRL on Casino Industry and Spending

At the time of the survey in 1995, there were 12 casinos in Atlantic City, employing 45,000 workers and generating \$3.58 Billion in annual casino "win". This "win" essentially represents the net loss of gamblers to the casinos from all forms of gambling (slots, table games, poker, etc.). In 1995, the casinos paid the state 8% of this "win", or \$286 million as taxes.(10) The ACRL service has two impacts related to the casino industry. First, the rail service brings workers to the casinos, especially from outside Atlantic County. Overall 22% of casino workers live within reasonable access of the rail line, and the ACRL has a market or mode share of 6% of these trips, about 600 workers per day. The overall 1.3% share of casino work trips using rail is expected to grow as casino workers find housing further out due to development restrictions from the Pinelands Management area, and the number of casinos and non-casino employment grows in Atlantic City.

The other impact the ACRL has on casinos is bringing visitors to the casinos to gamble. The ACRL has a small, but measurable impact on casino "win" and overall visitation. Based on the 1995 rail rider questionnaire, the amount of money spent and lost by rail riders on gambling was estimated. This was done by asking recreational riders the size of their own or the travel party's gambling budget. This ensured that respondents gave a realistic estimate of the amount they were willing to gamble and lose. Since the survey was conducted on the way to Atlantic City, gamblers were assumed to be more likely to reveal this information than if they were returning.

The median gambling budget among rail riders was \$130, which represents the median casino "win" from rail riders. This is about \$10 to \$20 above the overall median casino "win" of \$110-\$120 among all gamblers in Atlantic City in 1995 (11). Recreational rail riders, of which casino visitors represent about 75% of the total, have a median annual household income of \$35,000 to \$50,000. This indicates that rail riders visiting the casinos are in the middle income groups that represent the majority of casino visitors. **In terms of average or mean spending on gambling by ACRL users, the mean loss was \$271.98 per rider who gambled. A total of 107,300 annual rail riders visited and gambled at the casinos in 1995, contributing a total of \$32.2 million to casino "win". This represents a total of 0.9% of total casino "win" in 1995.** Thus the ACRL has a modest contribution to the casinos in terms of overall gambling revenue.

In terms of tax revenues, the **ACRL contributes \$2.58 million in annual state casino tax revenues based on the amount of casino "win" generated by rail riders.** Every ACRL rider that visits the casinos generates \$24.04 in state casino tax revenues. Since about 24% of the line's ridership is a casino visitor trip, **on average every rider on the ACRL generates \$5.77 in state casino tax revenue.**

### D. Economic Impacts of ACRL on Non-Casino Recreational Spending

In addition to casino gambling, other visitors to the Atlantic City area include those visiting the beaches, or visiting the casinos and spending money on non-gambling activities such as

entertainment, food, lodging, local transportation, shopping, etc. **This non-gaming recreational spending by ACRL riders amounts to \$29.1 million per year in the greater Atlantic City area.** In addition, the survey identified recreational spending by ACRL riders in Philadelphia of **a total of \$2.3 million per year.** The Atlantic City area expenditures by recreational rail riders translate into an additional 465 Direct and 215 Indirect jobs, for a total of **680 additional jobs in the Atlantic City area.** (12) In Philadelphia, only total new jobs created by recreational spending could be identified, and this was estimated to be 40 jobs.(13) In total, the spending by ACRL recreational riders is estimated to be responsible for creating a total of **720 Direct and Indirect jobs** in both metropolitan areas served by the line.

New Jersey state tax revenues are estimated to be **\$3.67 million** per year from recreational spending by ACRL users. Local New Jersey tax revenues are estimated to total **\$1.42 million** from spending by rail users. Spending by ACRL recreational users in Philadelphia generates an additional \$0.085 million in Pennsylvania state tax revenues and \$0.027 in Philadelphia tax revenues.(14) These Pennsylvania impacts do not include the impact of commuters carried by the ACRL to Philadelphia and the increased retail spending and wage and income taxes generated by these riders.

**The total impact of the ACRL on New Jersey state tax revenues, including the casino tax, is \$6.25 million per year. Local taxes add another \$1.42 million for a total tax revenue impact of \$7.67 million per year.** This amounts to New Jersey governmental tax revenue of \$16.90 per total ACRL rider. However, the Atlantic City rail line has a low operating cost-recovery ratio, with rail revenue covering only about 20% of its operating costs. Operating losses were estimated at \$11 million in FY 96. This is expected to be lowered to \$10 million per year by FY 98. One of the reasons for this operating loss is that the costs include an extensive feeder bus system which connects all of the casinos to the ACRL terminal, which is not within easy walking distance of most casinos. In addition, the line passes through a very low-density area, and with a single track line has some operating constraints which limit operations. Overall the Atlantic City Rail Line operating deficits amount to \$22 per rider (\$11 per trip) using FY 1996 ridership. **Thus the total New Jersey state and local tax revenues generated by gamblers and recreational riders currently cover 77% of the net ACRL operating deficits. From a direct New Jersey governmental cost-benefit perspective, the rail line operates at a loss of \$5.10 per rider, for a total return of a loss of \$2.3 million per year.**

Although the ACRL operates at a net loss from a strict governmental economic cost-benefit standpoint, there are other indirect benefits related to mobility, air pollution and accident relief, and long-term viability that are not addressed. For example, almost 50% of the current rail riders would divert to auto trips if the service was eliminated. In addition, the prospect of three to five new casinos has the potential for increasing ridership at minimal cost. Finally, the Atlantic City Convention Center recently opened adjacent to the ACRL terminal.

These additional developments could add significant rail ridership with resultant secondary economic impacts that the ACRL may approach a break-even basis from a governmental cost-benefit basis. Given the relatively modest level of ridership, the ACRL generates enough

additional state and local tax revenues from recreational rider spending that it almost covers the overall operating deficit. In New Jersey, this is extraordinary, given that the overall commuter rail system has a cost recovery from fares of about 50% of direct operating costs. With the secondary state/local tax revenues, the ACRL is probably in the same cost-benefit range as some other NJ TRANSIT rail lines.

## **SUMMARY IMPACTS AND CONCLUSIONS**

This paper has documented the direct, and where possible the indirect impacts of commuter rail service on local economies. A common theme is that commuter rail service has direct, quantifiable impacts on retail and recreational spending in station areas and nearby communities. The impact of new services can be substantial, as indicated by the M&E experience with Midtown Direct. Additional spending of \$1,000 to \$1,500 per year per new rider can have an impact on local retail economies. The residential relocation impacts of \$40 to \$60 million in new household income directly attributable to the new rail service is also significant.

The paper also illustrates that residential relocation into an area served by a commuter rail improvement can be significant in terms of the local economy, with new rail riders often spending more per capita than existing rail riders, in this case new rail riders stopped 20% more than existing riders. Finally, this analysis indicates that the amount of new rail riders relocating from a commuter rail service improvement can be quantified, and should be incorporated into the ridership forecasting process for new projects. NJ TRANSIT is now incorporating this residential relocation factor into its ridership forecasts for some new rail services.

Regarding recreational and tourist spending, commuter rail can have an impact on tourist economies. As indicated in the North Jersey Coast Line summer services, the incremental costs of adding special recreational train service can be more than offset by increased state and local tax revenues, and local economic spending. The NJCL summer service is estimated to return \$6 to \$9 per recreational rider in direct and indirect tax revenues for each dollar spent on service. The reason for this high return rate is that the NJCL operates as a regular commuter service with a significant regular weekday service. The marginal cost to add more weekend rail service is easily off-set by the increased tax revenues generated by bringing new recreational riders and spending to the local economy.

The Atlantic City Line example illustrates that starting a new rail line in an area without an established commuter base, with high fixed costs and without a longer term perspective can lead to the conclusion that a new service has a negative cost-benefit. Even with casino gambling, the Atlantic City line does not generate enough recreational spending to cover its operating deficits. However compared to other rail lines in New Jersey, it generates significant recreational spending and state/local tax revenues, to the point that almost 80% of its operating deficits are covered by tax and economic benefits generated by recreational riders. With almost \$8 million per year in tax revenues generated, the Atlantic City line, although a small impact in the scale of overall Atlantic City spending, still is growing and has a positive impact on the economy of New Jersey.

This paper has also illustrated that there are many other areas for research on the local economic impacts of commuter rail. The secondary impacts on retail employment and job creation of commuter rail service expansion is one area for more research. The impacts of new residential relocations as a result of new rail service, and incorporating this impact in ridership forecasting is another area where others should pursue research. Repeating this type of analysis at regular intervals after the opening of a new station or rail line would also be useful to gain some perspective on the long-term impact of commuter rail service in local communities. Other commuter railroads should also conduct surveys to illustrate the positive correlation between rail service and local economic activity. Too often only the negative impacts of commuter rail service are examined in environmental documents assessing the impact of a new service with an emphasis on noise, traffic etc. The positive impacts of increased retail spending, increased housing demand, and impacts on housing values and multiplier effects also need to be included in environmental documentation to give the total picture of the impact of a transportation investment. These types of studies should only be conducted for major new rail projects or at location where a significant change in travel access, service, or travel time is contemplated.

## REFERENCES

1. *Impacts of Commuter Rail Service as Reflected in Single Family residential Property Values*. Armstrong, Robert, TRB, 1996.
2. Voith, R. Transportation, Sorting, and House Values. Journal of the American Real Estate & Urban Economics Association. Vol 19, 1991.
3. *L.A. Story: A Reality Check for Transit Based Housing*, Barnett, M. And Crane, R. Journal of American Planning Association, Spring, 1997.
4. Cervero, R. Transit Based Housing in California: Evidence on ridership Impacts, Transport Policy 3. 1994.
5. Bernick and Carrol. Study of Housing Built Near Rail Transit Stations: Northern California IURD Working Paper 546. UC Berkeley, 1991.
6. Local Economic Impacts in Commuter Rail Station Areas, METRA, Chicago, December, 1994.
7. Ibid Reference #1, and Marchwinski, Impact of Midtown Direct Service on Residential Property Values and Tax Revenues in the Morris & Essex Lines. Unpublished, 1995.
8. Longwoods International, Presentation at Governors Conference on Tourism, Atlantic City March, 1997.
9. Ibid.
10. Casino Control Commission, Casino Win and State Casino Revenue for each casino for 1995, FAX Winter, 1996.
11. Vogel, H. *Entertainment Industry Economics*, Cambridge University Press, 1994. Page 225.
12. Ibid Reference #8
13. Tourism and Travel Needs in the Delaware Valley. Philadelphia, Delaware Valley Regional Planning Commission, July, 1997.
14. Ibid.

**TABLE 1**

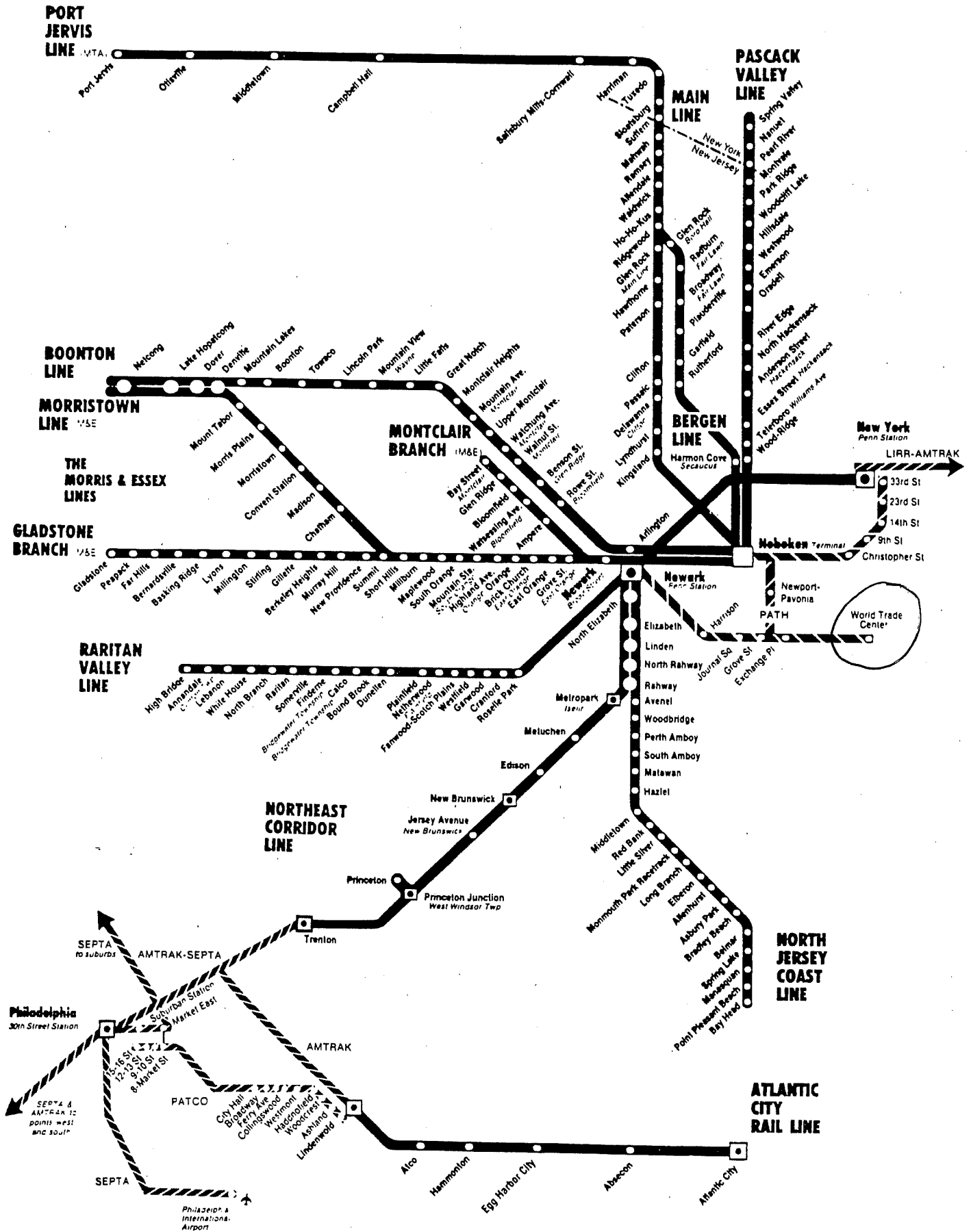
**RAIL STATION ACCESS MODE SPLIT BY DISTANCE FROM STATION.**  
Morris & Essex Lines All Day

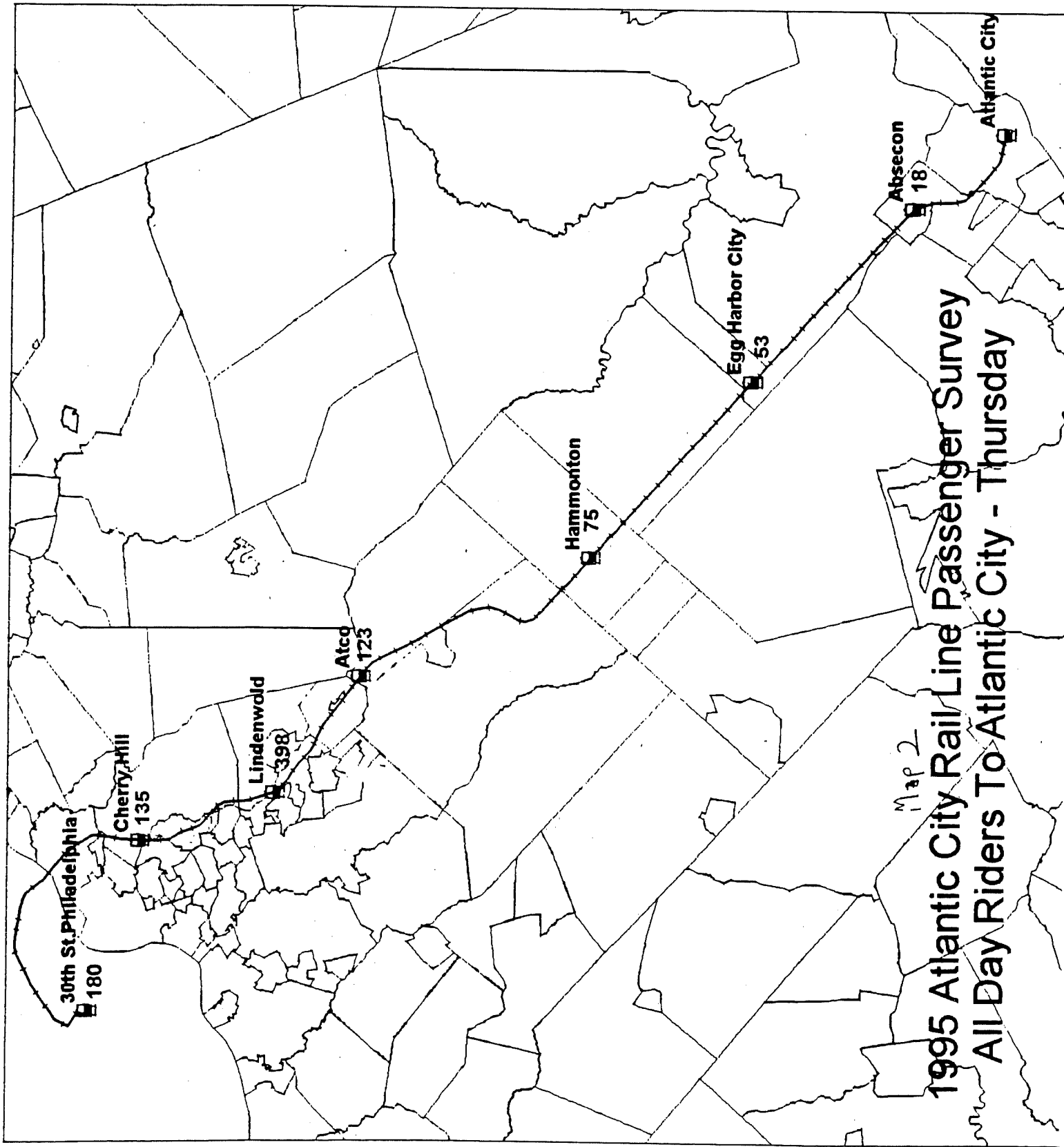
Distance to Rail Station	Walk Mode Share	Auto-Drive Mode Share	Auto-Drop Mode Share	Bus Mode Share	Proportion of All Access Trips
< 0.25 Miles	77 %	13%	7%	3%	14%
0.25-0.5 Mi.	64%	23%	12%	0%	17%
0.5-1.0 Mi.	34%	48%	16%	2%	19%
1-2 Miles	9%	74%	17%	1%	20%
2+ Miles	3%	79%	15%	3%	30%
<b>TOTAL &lt; 0.5 Miles</b>	<b>70%</b>	<b>18%</b>	<b>10%</b>	<b>2%</b>	<b>31%</b>
Line Total	<u>32%</u>	<u>52%</u>	<u>14%</u>	<u>2%</u>	<u>100%</u>

Note: Bicycle trips included with walk mode share, and accounted for 1% of walk trips or 0.4% of all rail trips.



# NJ TRANSIT Rail System Map - Map 1





Map 2

# 1995 Atlantic City Rail Line Passenger Survey All Day Riders To Atlantic City - Thursday

## RELATIONSHIP BETWEEN TRAVEL TIME AND INDUCED RIDERSHIP

- As part of Midtown Direct service, a relationship between “Induced” Ridership per Household and Travel Time has been established.
- With shorter travel times to Midtown Manhattan, more “induced” ridership per household was produced.
- With an R Squared of 0.74, a strong correlation was found between travel time from Midtown Manhattan and the amount of riders per household who did not make the trip before June, 1996.
- The regression equation is:

$$y = -0.0001648x + 0.0144 \text{ where}$$

y=Induced Rail Riders per Household in a Municipality with a rail station  
x=Average Rail Travel Time to Penn Station New York from Boarding station

- Using this equation, a town located 30 minutes from Penn Station New York would have an Induced or New Trip rate of 0.0095 trips per household. For a town of 1,000 households, Midtown Direct would generate 9.5 new trips to Penn Station on a typical weekday.
- A town located 45 minutes from Penn Station would have a New Trip rate of 0.007 trips per household or 7 new trips per 1,000 households. At 60 minutes from Penn Station, the trip rate is 0.0045 trips per household, or 4.5 trips 1,000 households.
- At 87 minutes from Penn Station, the New Trip rate per household is effectively 0, with no new trips produced. This seems to indicate that with a rail travel time approaching 1.5 hours (90 minutes), the long travel time effectively discourages any induced or new ridership, despite the significant travel time savings over pre-existing rail service. This seems to indicate that the induced ridership aspects of the Midtown Direct service are concentrated in the area between 30 and 75 minutes of Penn Station.
- This regression analysis indicates that the shorter the trip, the greater the amount of induced ridership per household.

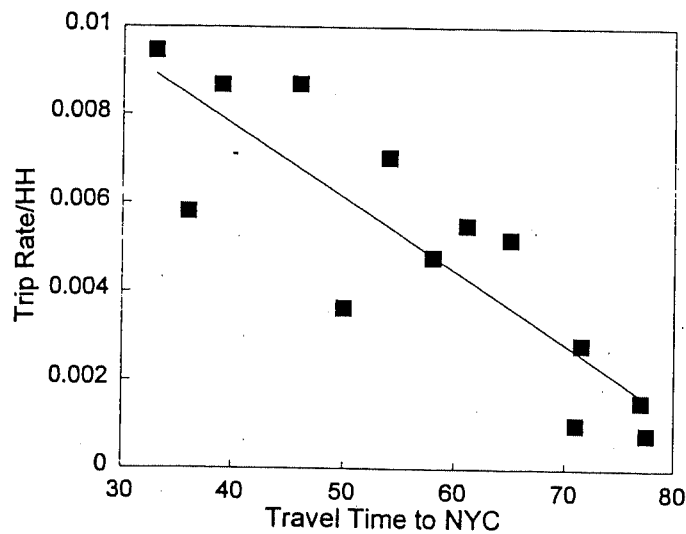
Riders who board at stations located in the residential town

Boarding Station Name	Origin Town Name	travel to NY before	Rail Travel Time	Household	Trps/HH
Lyons	Bernards	18	71.5	6,345	0.0028
Chatham	Chatham Twp.	13	50	3,571	0.0036
Convent station	Morris Twp.	34	58	7,097	0.0048
Bernardsville	Bernardsville	2	77.5	2,449	0.0008
Denville	Denville	5	71	4,876	0.0010
Dover	Dover	8	77	5,153	0.0016
Morris Plains	Morris Plains	10	65	1,921	0.0052
Morristown	Morristown	37	61	6,712	0.0055
Maplewood	Maplewood	46	36	7,918	0.0058
Madison	Madison	38	54	5,400	0.0070
Millburn	Millburn	60	39	6,909	0.0087
Summit	Summit	67	46	7,694	0.0087
South Orange	S. Orange	49	33	5,178	0.0095

Regression Output:

Constant 0.01438  
 Std Err of Y Est 0.00157  
 R Squared 0.73791  
 No. of Observations 13  
 Degrees of Freedom 11

X Coefficient(s) -0.00016484  
 Std Err of Coef. 0.0000296205



$$\text{Trip Rate/HH} = \text{T.Time} * (-0.00016) + 0.0144 (+\text{or-}) 0.00003$$

