



**Economic Benefits Assessment of Reinstitution of Rail Service
in Rahway Valley/Staten Island Corridor:**
(Completion of Phases, I, II, and III)

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Department of Economic
Development

I. PROJECT OVERVIEW

Introduction

The County of Union (the County) has been actively involved in supporting the New Jersey Department of Transportation's (NJDOT) effort to preserve the Rahway Valley/Staten Island Rail Corridor (the Corridor) since the Delaware Otsego Corporation, the former owner sought abandonment of these lines in 1991-92. The NJDOT, in developing the State Rail Plan, has identified these two lines as part of the Core Rail Freight System – those lines essential to the State's rail freight infrastructure.

The NJDOT purchased the lines in 1994 pursuant to the New Jersey Orphaned Bridge and Abandoned Railroad Bond Act of 1989. The NJDOT signed a right of entry agreement with the County in 2000 with the intent of reinstating rail service in the Corridor. In 2002, the County entered into a contract with the Morristown and Erie Railway (M&E) to provide rail freight service and to assist the County in redeveloping and revitalizing the corridor.

This project was undertaken by Union County for the economic development capability of short line railroads to retain and attract businesses in existing or former industrial corridors throughout the state. The County anticipated that reinstated rail freight service would be a significant advantage in attracting port related businesses, redeveloping vacant and/or underutilized industrial property, providing alternative transportation options for businesses to acquire raw materials and opening up new markets for their finished products. In addition, as municipalities and counties identify ways to regionalize and share services, a local rail line could provide freight movement transportation savings.

The purpose of this document is to provide an overview of the economic benefits to the County, and more broadly to the State of New Jersey, resulting from the reinstatement of rail service in the Corridor. The benefits identified in this document were compiled from studies undertaken by the County, the M&E, outside consultants and staff of the NJDOT and other state agencies.

Previous Studies

In 1994 the County conducted an initial survey of businesses in the corridor to determine the level of interest, support and need for rail service. The responses were positive and indicated that a Class III short line railroad operator would be the most efficient and responsive method to operate both lines.

Business for the rail-line was identified to come from primarily former customers and new transloading opportunities. Through this initial study effort the County continued their discussions with potential customers as they embarked on the task of identifying and interviewing short line rail operators.

In 1998-99, the consulting team of Anne Strauss-Weiner and Edwards & Kelcey drafted report entitled, “*Staten Island/Rahway Valley Corridor Market Assessment and Strategic Actions*”(Corridor Report). The team had been retained by the County to conduct a more extensive analysis of the market potential for railroad transportation services as well as emerging opportunities for new or renewed industrial businesses.

The report enumerated specific industrial categories that would provide suitable fits for the environment of the Corridor. These categories included, but were not limited to, plastics, chemical products, petroleum products, metal products, paper products and food products. Many of these industries historically existed in the Corridor and the team concluded that these industries would constitute base line and start-up customers upon which a customer base would grow.

The Corridor Report also identified emerging opportunities that had not been previously identified. These emerging opportunities included:

- A new Polypropylene plant under construction at the ConoccoPhillips refinery;
- Rail based demanufacturing and remanufacturing facilities; and
- Reload and Transload facilities to serve off-line industries.

Significantly, the Corridor Report concluded that the Corridor contained “*...both vibrant businesses and vacant properties ripe for redevelopment...*” and “*...that businesses that tend to use rail for either inbound or outbound freight movements are among the fastest growing.*”

The Corridor Today

Over the past several years, Union County Staff, in consultation with the Louis Berger Group, Inc., undertook an evolving potential customer analysis of the Corridor businesses and industries both on and off the main lines. Data included in this economic assessment was obtained from the North Jersey Transportation Planning Authority (NJTPA), New Jersey Department of Labor (DOL), US Demographic and Census Data, the New Jersey Manufacturers Register, the International Traffic Engineers (ITE) trip generation manual, the NJDOT and the M&E.

The evolving customer analysis supports the conclusion that the Corridor remains an active, but underutilized corridor with room for significant growth. The analysis finds the Corridor remains oriented to manufacturing and processing activities and reflects the mixture of industries as identified in the initial Corridor Report. The analysis concludes that the businesses within the Corridor can be characterized as follows:

- Both on line and off line industries that could be rail served would be drawing from similar supply categories outside the region making them conducive to rail haulage of basic materials.

- A large percentage of properties within the Corridor are underutilized, thus creating opportunity for industry and employment growth in the region.
- Both on line and off line industries are oriented to national and international markets and not local markets. This is conducive to rail usage since rail has advantages in long haul markets.
- The industrial market in the Corridor remains strong, according to 2006 fourth quarter statistics, with low vacancy rates for buildings with tenants large enough to utilize rail-based services.
- The average business “on-line” in the Corridor has sales revenues in the range of \$1-\$5 million with several in excess of \$10 million.
- There are many large industrial companies located “off-line” within the Corridor region with average sales in excess of \$10 million that would be oriented to utilize rail-based services.

The industrial infrastructure in the Corridor is mostly 30 to 40 years old and the buildings are overwhelmingly occupied by small to medium sized companies that are privately owned. Some of the buildings in the corridor have been modernized or altered accordingly over the years to accommodate expansion or new technologies.

Historically, companies purposely positioned their buildings along the corridor so that they could be rail served, some of which still have sidings in place. Many of the buildings are located on 2 to 8 acre parcels that were designed to accommodate light manufacturing and distribution activities and will likely continue to serve in that role.

As noted above, data from the Corridor Report and the evolving customer analysis indicates that the Corridor businesses serve regional, national and international markets. To serve these markets requires significant quantities of inbound supplies. For example, Corridor businesses are receiving inbound raw materials for manufacturing, processing and distribution in large quantities that could be rail delivered. Those materials include plastic pellets, resins, rolled paper, dimensional lumber, sheet rock and other building materials, as well as food additive supplies such as dextrose, spices, vegetable oils, and sheet metals.

Likewise, manufactured and processed products in the Corridor including scrap metals, bottled cooking oils, scrap paper, and processed and packaged foods are moved outbound. These materials are presently being moved by truck but could be shipped by rail as new service options are developed by the short line operator.

Growing the Corridor

Given the amount of available industrial property suitable in size and configuration to accommodate rail-based businesses, the evolving customer analysis has found substantial opportunities exist to attract new businesses to the Corridor through potential redevelopment of vacant and underutilized properties. The Corridor's marketability is enhanced by its proximity to the port and other major rail lines and roadways. Ongoing growth in port activities and an aggressive marketing campaign, will maintain the attractiveness of the corridor to similar businesses.

Several industrial realtors have already expressed interest in placing industry along the Corridor with the intention of providing rail service to their clients. Samples of these requests include:

- 80,000 square ft. for a food related processor;
- 25,000 square ft. for a building materials distributor;
- 100-120 square ft. for a food distributor;
- 60-80,000 square ft. for plastics packaging manufacturer;
- 12,000 square ft. for plastics recycler; and
- 20,000 square ft. for plastics reload and packaging facility.

To date, extensive discussions have been held with several businesses along the line, most of which have expressed interest in obtaining rail service once instituted. An aggressive marketing program is planned in order to build upon this initial outreach effort.

The factors driving this demand are reflective of overall changes in the economics of truck versus rail service. Moreover, they are due to conditions not present when the previous operator ceased service on the SIRR/RVRR in 1991-92. Since that time, two large trunk line railroads have replaced Conrail, thus opening up more markets to single line rail service. The Port is now an important economic driver and many of the industries which have moved into the Corridor since the early 90's process imported materials that are shipped out to national markets - distances that are conducive to rail haulage.

In addition, transloading facilities are a major growth area in the rail freight industry. Long haul movements are made by rail to an off loading facility with the so-called "last mile" made by truck to off-line industries. This basic movement allows businesses to achieve reductions in transportation cost, warehousing costs, carrying charges and other direct and indirect supply line expenses. The evolving customer analysis has identified a significant number of suitable opportunities for this type of operation

An inventory of industrial buildings and properties within the Corridor in Phases I, II and III from the City of Linden to the Township of Union, excluding Springfield and Summit (which constitute Phase IV), reveals the following:

- Approximately 30 acres of vacant industrial property and 51 acres of underutilized properties are currently available on-line in the Corridor. This acreage is suitable for approximately 1.6 million sq. ft. of industrial or warehouse development.
- Approximately 3.35 million sq. ft. of occupied industrial and warehouse space is currently suitable to be rail served. Many of these buildings are currently underutilized.
- Approximately 826,000 sq. ft. of industrial and warehouse space is unoccupied, available and is being actively listed on the market.
- Approximately 3.51 million sq. ft. of industrial and warehouse space exists in the corridor towns off-line, which has the potential to receive commodities by rail and to be served by a reload/transload facility located on line.
- Existing throughout the corridor are smaller buildings and properties that could be combined to create newer and more efficient buildings for rail-based industries or serve as transload/reload facilities for off-line businesses.

II. Assessing the Economic Benefits

The New Jersey State Rail Plan Model/Methodology

NJ DOT developed a cost-benefit methodology in its “New Jersey State Rail Plan” (Rail Plan) which is the basis for assessing the benefits of providing rail service. The cost-benefit methodology by NJDOT is a key analysis to determine whether a rail project is economically viable and whether it is consistent with the goals and objectives of the State Rail Plan.

In applying this methodology, the benefits portion of the cost-benefit equation includes calculations regarding three major impact areas: (1) *Job and Wage Impacts*, (2) *Transportation Cost Impacts*, and (3) *Railroad Impacts*. The methods to calculate these three benefit impact areas, as set forth within the Rail Plan, were established by the Federal Railroad Administration (FRA) and published in the FRA’s Rail Planning Manual and were utilized in the County’s study. The Cost/Benefit analysis as described in more detail later are provided in the 3-5% (base, constraint, and aggressive scenarios) opportunity cost range.

Annual benefits are multiplied over 5 years, the project time frame in the Plan, and decreased at a rate of 4% per year over the initial period of the project. A more detailed explanation of the methodology is contained in Appendix B.

Below is a description of the three major items, Jobs and Wages, Transportation Costs, and Railroad economic impacts that are used in the calculation of the Cost/Benefit analysis which follow these descriptions:

1. Jobs and Wage Impacts

Pursuant to the Rail Plan cost/benefit model, the estimate for new job growth in Corridor businesses resulting from the reactivation of rail service should be in the range of 3-5%. It is anticipated that through the completion of phase III 280-515 new jobs would be created and an additional 216-480 new jobs are anticipated if a major redevelopment plan were implemented providing for additional construction of short spur lines to near by clusters of industrial properties. This opportunity is discussed in more detail in Section III Additional Benefits and Opportunities later in this report.

The annual wage rate of \$36,000 is projected as the aggregate for these jobs which is based on the average prevailing annual rate for all production, transportation and warehousing jobs in businesses in the Central Jersey area as calculated by the Department of Labor. Notably, only primary job and wage impacts were used in the analysis. Secondary jobs were not calculated. The table below shows the number of jobs used in the cost/benefit analysis and the resultant estimated total annual salaries and associated State and Federal salary income tax revenue:

Type	Jobs by Percent, Salaries and Income Tax Revenue		
	3%	4%	5%
Number of Jobs	280	393	515
New Salary (\$ Millions)	10.8	14.1	18.5
New State & Federal Income Taxes (\$ Millions)	1.97	2.57	3.37

The employment benefit input amounts utilized in the cost/benefit analysis was obtained by multiplying the number of new jobs created by the aggregate wage rate and multiplied by 5, the length of the project period

2. Transportation Cost Impacts

Transportation costs will be reduced with the switch from truck to rail service. Rail costs on basic commodities, which will constitute the majority of inbound and outbound supply traffic, varies significantly from truck rates as the ratio of trucks to rail cars varies with shipping volumes. Data indicates that in tight margin industries, as in the building supply industries, savings in the 3-5 percent range means the difference in being competitive or non-competitive. Likewise, in the plastics industry, where costs for plastic pellets are measured in mills per pound, large rail car volumes to distributors and manufacturers is significant to business growth since large quantities of material are purchased for mass production runs. These businesses exist within the Corridor and have expressed their interest to utilize rail service.

The savings for the average size company within the Corridor for transportation cost benefits by switching from truck to rail is estimated to be approximately \$200,000 per year in annual direct shipping cost savings. Savings in the higher ranges of \$300,000 per year will be achieved by industry dealing with higher value commodities shipped over longer distances; while lower end annual savings in the \$100,000 range are a more appropriate barometer for lower value commodities in shorter haul markets. Since the baseline market conditions indicate a heavy reliance on plastics, food additives, and paper, which are higher value commodities entering the market from the Midwest, South, and West, the above transportation cost savings estimates are generally on the conservative side.

With an annual anticipated cost savings of \$200,000 for each business switching from truck to rail shipping within the Corridor, businesses could reasonably anticipate saving approximately \$1 million in direct transportation costs over the course of the 5 year project period.

The benefit input was calculated by multiplying 10 (the initial customer base) by \$200,000 and then multiplied by 5, the length of the project period.

3. Railroad Impacts

The Plan cost-benefit analysis includes calculating the gain that would be accrued to the railroad company as a measured benefit. Since this is a start up project and revenues will be built up over a timeframe of several years, revenue estimates and revenue sharing with the County are conditioned on several factors in the Corridor. It should be noted all information regarding rail operations and maintenance costs, as well as contractual rates with shipping companies and customers, are proprietary to the railroad operator.

The number of carloadings and revenue projections has been estimated based upon the information collected from the various marketing surveys cited above as well as from recent work conducted by the Blanchard Company and the Louis Berger Group in consultation with the M&E. Growth to over 4000 carloadings a year is attainable. Currently, the M&E on its rail lines in Morris County is poised to reach that goal.

Given the proprietary nature of this information, cost/benefit estimates were used, and the rate of \$400.00 per carload was to determine rail revenues and estimated revenue to be shared with the County. This revenue estimate is likely on the conservative side, since higher value commodities such as plastics, which constitute a significant part of the estimated traffic base in the Corridor, command higher revenues.

In the start-up years, 500-1000 carloadings a year can be anticipated. As confidence in the staying power of the line and service grows, 1500- 2500 carloadings a year appear reasonable based upon M&E marketing successes in Morris County and the initial outreach that has taken place in Union County. M&E's operation in Morris County has a similar, older industrial base, comparable to the Corridor.

Traffic in the Corridor is anticipated to build up to 4000 carloads a year after complete reinstatement through Phase III. Thus, based on the \$400 per carload estimate, such traffic estimates would yield \$1.6 million in annual revenues to the Rail operator once the project has reached a degree of maturity.

The 4000 annual carload estimate applies generally to the period of time after the initial 5-year start-up period when a marketing program has been in effect and confidence in the railroads' success, viability, and staying power have been established. 4000 annual carloads over a 5-year period would yield revenues of \$8.0 million.

The benefit input was calculated by multiplying the revenue per carload by the number of carloads and multiplied by 5, the length of the project period and subtracting operating costs.

Calculating the Cost/Benefit Ratios: Applying the Plan Model

The State Rail Plan model estimates that public project benefits are in the 3-5% opportunity cost range. To assure consistency with the NJDOT State Rail Plan, these three categories have been applied to the cost/benefit analysis below to illustrate ranges of potential benefits.

Calculations of benefits were divided into: (1) *the constrained scenario (3% benefit impact)*, (2) *the base case scenario (4% benefit impact)*, and (3) *the aggressive scenario (5% benefit impact)*. In each of these scenarios, all benefits and costs were discounted 4% over the 5-year life of the project, in accordance with the State Rail Plan model

In assessing the potential to market vacant buildings in the Corridor for rail-based businesses, capture rate percentages of 10%, 15%, and 20% for vacant buildings and properties were used respectively for each of the three benefit scenarios.

By illustrating the project impact in this manner, the benefits can be measured and viewed as a range of possibilities depending on changing conditions in the corridor, the effectiveness of an aggressive marketing program, and the ability to take advantage of economic development opportunities.

In the Rail Plan, the NJDOT established an equation to calculate the ratio of the benefit to the cost of particular railroad projects. The Benefit-to-Cost equation requires the addition of the three major benefits categories in the Economic Benefits Methodology which as noted above, include employment and wage gains, transportation cost savings and rail revenue. The methodology also requires the subtraction of any disbenefits. The resulting number is then multiplied by 5 since the plan considers the initial life span of the project to be 5 years and that resulting sum is discounted at 4% a year and divided by the overall cost of the project.

The cost component to the analysis is the cost to complete the project. A total investment of approximately \$20.52 million dollars is used in this analysis as the cost to rehabilitate

and modernize the rail infrastructure. To date, \$11.62 million has been spent towards the completion of Phases I, II and III from Linden through Union Township, a distance of approximately 9.5 route miles, but totaling 12.1 track miles when passing sidings, storage tracks and runaround tracks are included.

An amount of approximately \$8.9 million is needed to reinstitute service through Phase III, which includes upgrading and signalization of all 16 public grade crossings, road surface crossings, track work and associated bridge improvements. This amount may be higher based on inflation, and steel and fuel costs as they commonly increase over time. Hence, if the project is delayed or spread over several years this can significantly increase the amount currently estimated to complete the project.

Completion through Phase III is critical in order to realize the economic benefits of the project and to produce a sustainable revenue base for the railroad and the County. No single segment or phase of the reactivation through phase III is economically viable alone.

To calculate the Benefit to Cost ratio, study used the three scenarios previously described (Constrained Scenario 3%, Base Case Scenario 4%, Aggressive Scenario 5%) as illustrated:

- Constrained Scenario- 3% benefit impact, post start-up period, identified initial customer base, some new businesses attracted to corridor, some transloading services, 5 year project span; **the benefit-to-cost ratio would be 2.67.**

(280 jobs x \$36,000 in annual wages = \$50,400,000) + (transportation costs savings to businesses = approx \$8.0 million) + (transportation revenues = approx. \$1,000,000) = \$59,400,000 million discounted .04 annually = \$54.8M and divided by \$20.52M (cost of project)= 2.67

- Base Case Scenario- 4% benefit impact, post start-up period, increased initial customer base, attracted new businesses and providing transloading services to off-line industry; **the benefit-to-cost ratio would be 3.72.**

(393 jobs x \$36,000 in annual wages = \$70,740,000 + (transportation costs savings to businesses = approx. \$10 million) + (transportation revenues = approx. \$2.0million) = \$82,740,000 million discounted .04 per cent per year = \$76.3 M and divided by \$20.52M (cost of project) = 3.72

- Aggressive scenario- 5% benefit impact, post start-up period, expanded initial customer base, attracted several new customers to corridor to fill vacant buildings, offer multiple transloading services to off line industries, **the benefit –to –cost ratio would be 5.33.**

(515 jobs x \$36,000 in annual wages = \$92,700,000) + (transportation costs savings to businesses = approx. \$12 million) + (transportation revenues = approx. \$3.0 million) = \$117,700,000 discounted .04 per cent per year = \$109,374,753 and divided by \$20.52M (cost of project) = 5.33

III. Additional Benefits and Opportunities

The NJDOT benefit-to-cost model only measures the direct economic impact in the three areas noted above (employment and wage impacts, transportation cost impacts and railroad impacts). It does not, however, include the indirect jobs created or the induced demand as a result of the increase in disposable income in the market. Nor does it include the increases in local taxes from revitalizing vacant and underutilized property.

These cost savings and additional revenues can be translated into new profits, additional investments, new jobs/employees or new sales and new sales taxes. The direct benefits of restoring rail service have been identified in the previous Cost/Benefits section while this section identifies additional benefits and opportunities related to the project as other direct or indirect benefits described as follows:

- **Reduction in Truck Trips and Air Quality**

[**NOTE:** The information for this section (Truck Trips and Air Quality) was previously agreed to be provided by New Jersey Department of Transportation based on discussion with the NJDOT's Commissioner at the last meeting regarding this project and the need for this report. The County prepared the data as requested by NJDOT Staff and it was forwarded to them to calculate air quality and roadway impact benefits. When the information for this section is provided by NJDOT it will be incorporated into this Economic Assessment report.]

- **Revenue Sharing**

The standard operating contract between the M&E and the County has a unique revenue sharing clause. Rather than a flat rental fee for lease of the rail line, the County opted to capitalize on the success of the rail line, which in the near and long term would produce the greater return on investment to the County. Once average monthly gross revenue is greater than \$85,000, M&E is obligated to share 10% of its gross revenues with the County. Thus, 4000 annual carloads would yield \$180,000-200,000 in annual payments to the County. The County plans to use this funding to jointly promote economic development along the Corridor

- **Portfields Development**

The PA-NY/NJ has identified vacant and underutilized industrial Brownfields close to the Port that are necessary for Port-related, inland industries. The vacant and underutilized properties identified in the Corridor could be redeveloped jointly with the PA-NY/NJ, thereby adding jobs and increasing tax value of properties. Currently, there are 114 acres in the Corridor eligible for redevelopment through the Portfields initiative.

- **Recycling**

As more materials and products are identified for reuse, a central collecting point and outbound movement by rail will be the most efficient way for resource recovery in the Corridor. Recently, the County modified its solid waste plan to move bulky waste items by rail reducing the tipping fee from \$84 dollars to \$64.89 a ton, thereby lowering its annual disposal costs by 25%. These types of cost savings for the movement of recyclables such as paper, plastics, ground tires, and other recoverable items will promote recycling and return greater income to municipalities and the County.

- **Shared Services**

The County has identified centralized purchasing of bulk materials and developing a centralized collection point for recyclables. Locating such facilities in the Corridor and taking advantage of the economies of bulk movement of goods by rail could accrue significant cost savings as demonstrated by the 25% reduction in tipping fees demonstrated by the switch to rail based movement of bulky waste items cited above.

- **Plastics Packaging**

The polypropylene facility located within ConocoPhillips ships out plastic pellets by rail for repackaging and bulk distribution to the local, regional and international markets. A unique opportunity exists to establish a packaging facility on the rail line within the Corridor, which would not only create jobs but also take advantage of the proximity to the Port to improve international marketability.

- **Railroad Car Repair Facility**

Federal regulations require rail cars carrying bulk items, such as plastics, foods and chemicals, to be relined to prevent contamination. This requires taking cars out of service and sending them to a regional facility for servicing and maintenance. Two private parties are presently discussing a preliminary proposal to establish such a facility in the Corridor to reduce the cost of this servicing and maintenance requirement.

- **Special Corridor Study and Improvement Plan**

The Route 22 corridor, including Route 28 (Westfield Avenue) and Route 27 (St. Georges Avenue), are heavily traveled truck routes serving the Corridor. An opportunity exists to reduce truck traffic in residential, retail, and commercial areas by providing for a new service road in the Route 22 area in conjunction with re-establishing rail access to an isolated industrial area bordering the municipalities of Union, Kenilworth, Cranford and Springfield. This initiative would (1) open up more than 40 acres of underutilized industrial property for redevelopment; (2) provide more than 905,000 square feet of current industrial space with rail service options and improved truck access; and (3) improve traffic flow in and around adjacent residential and commercial areas.

This targeted redevelopment opportunity would build upon the initial project benefits resulting from the reinstatement of rail service. Providing rail access to these potential properties would generate additional employment and salary tax opportunities above the cost/benefit scenarios described in Section II of this report. Applying a capture rate of 15% (constrained), 25% (base), and 30% (optimistic) to these properties can result in the following additional employment and salary income tax revenue to the corridor:

Type	Jobs by Percent, Salaries and Income Tax Revenue in Millions		
	3 %	4%	5%
Number of Jobs	216	360	480
New Salary (\$ Millions)	7.8	13	17.3
New State & Federal Income Taxes (\$ Millions)	1.42	2.36	3.15

- **Property Tax Revenue**

In order to estimate the increase in property tax revenues municipalities could anticipate from redevelopment of existing, vacant or underutilized properties in and around the rail corridor. The corridor data described in Section I of this report was used along with a comparison of other marketing and realty information to develop a total number of associated square feet of building area available to be served by rail. The estimated property tax revenue described in this section of the report used a total square footage of 7.52 million. The constrained scenario's capture rate of 10% was applied to the total square footage to assure a conservative number in this analysis.

A conservative market value of \$40 per square foot was assigned to estimate the market value of the buildings determined through this analysis. The market value of these properties was calculated using an average 2006 Union County Market Value Ratio of 37% (based on information from Union County Tax Assessment Office) for the Corridor municipalities.

The property tax revenue was calculated by taking the Market Value divided by 100 and multiplied by the averaged 2006 tax rate of 6.73 for Corridor municipalities. This results in \$2,024,853 in increased tax revenue as a result of improvements to existing corridor buildings or new buildings. Adding 25% above that amount for land value tax revenue as prescribed by the Union County Tax Assessor's Office results in an estimated additional amount of \$506,213. The annual total property tax revenue estimate for corridor municipalities is \$2.5 million developed in this assessment by combining the building and land tax revenue amounts together.

The potential property tax revenue benefit over the initial period of the project would be \$10.4 million as result of using the annual tax revenue noted above over 5 years with the 4% discount rate that was utilized in the Cost/Benefit section of this economic assessment report.

IV. Conclusions

As set forth above, the completion of the M&E Rail project to reactivate rail service through the Corridor will have tangible, significant economic and non-economic benefits to the County and the State. The direct and indirect economic benefits of reinstatement of rail service are summarized as follows:

- **280-515 new jobs** created in start-up and near term years of operation;
- **216-480 additional new jobs** as plans to capture additional redevelopment opportunities in the Corridor are realized.
- **Potential local property tax revenue over the initial 5 year period of the project is estimated at slightly over \$10.4 Million.**
- **Direct savings to Local Industry approximately \$2-3 million annually in direct transportation costs** as project advances.
- **Annual reduction of upward of 32,000 truck trips in the Corridor.**
- **Significant reduction in state and local roadway maintenance costs.**
- **Annual revenue income of \$180-200,000 to the County** to be reinvested in economic development opportunities with Corridor municipalities.
- **Real opportunities to work with PA-NY/NJ and the New Jersey Economic Development Commission to redevelop Portfields.**

Besides the direct and indirect economic benefits, noted in this economic assessment, the advantages for businesses locating in a short line served corridor cannot be understated. As Class I railroads' focus are on long haul and large volume customers, short lines have demonstrated their ability to successfully market to smaller and medium size companies. These companies will have options to remain competitive in larger markets since they will have the advantage of the tailored services of a short line railroad linking these businesses to suppliers and customers in the region

The cost/benefit ratios and additional benefits identified in this economic assessment analysis show that the rail freight project has an overall positive benefit to local communities and the region in terms of economic benefit such as employment, salaries and tax revenue and transportation benefits in terms of reduced transportation costs and truck trips. The Rail Freight project also has other salient benefits such as a reduction to roadway maintenance and emissions which benefit both the community and the environment.

V. APPENDICES

APPENDIX A

Data Sources

Appendix A – Data Sources

<u>Source Name</u>	<u>Study Title & Date</u>
American Association of State Highway and Transportation Officials (AASHTO)	Freight Rail- Bottom Line Report 2001
Anne Strauss-Weider, Inc and Edwards & Kelcey, Inc.	“Staten Island/Rahway Valley Corridor Market Assessment and Strategic Actions”; 1998-99
CoStar Realty Information, Inc	Availability and Vacancy Analysis- Union County-2001
County of Union, Dept.of Economic Development	Union County Intermodal Freight System- A position statement for the restructuring, reinstition & revitalization of local rail freight service in Union County-1994
CSX Corporation	Business Survey: Rail Revitalization of Staten Island and Rahway Valley Lines-1999
Institute of Transportation Engineers (ITE)	Trip Generation Manual, 4 th Edition
Manufacturers’News, Inc (MNI)	The New Jersey Manufacturers Register 2007
M&E Railway, Department of Marketing	Proposal for Rail Car Repair Facility- 2005
New Jersey Department of Labor	New Jersey Employment and Wages: 2003 Annual Report Municipalities by Industry 2000 US Demographic and Census Data
New Jersey Department of Transportation	FY2001/2002 Update-Report of the New Jersey State Rail Planning Process-2001

FY2006 Update-Report of the New
Jersey State Rail Planning Process-

North Jersey Transportation Planning Authority

InfoUSA 2001 Business Database
extraction for UC Rail Freight
Corridor

Regional Plan Association

Union County Land Recycling
Inventory-1992

Appendix B
Methodology Used for Assessment

Description of Benefit/Cost Methodology

The economic benefit assessment of restoring rail service in the corridor was based upon an application of the Cost-Benefit methodology used in the New Jersey State Rail Plan (Rail Plan). The State Rail Plan measures economic benefits associated directly with the project and includes employment impacts, personal income effects, changes in transportation costs to local commerce, and changes in the railroads costs and revenues. The rail plan defines costs as "...only those costs necessary to implement the project." Non-capital costs are included as disbenefits, and as noted in the plan, "...are subtracted from the total benefits." Please note: *This Cost/Benefit Methodology appendix section is for descriptive purposes only to provide a general idea of how each step in the Cost/Benefit analysis was conducted. Actual numbers may vary when compared to results provided in the body of the report as input numbers may have changed through refinements or revisions of the analysis.*

The Plan measures the benefits over a five-year life period. As noted in the plan, "with the historic opportunity costs ranging from three to five percent for public investments, all benefits and costs are discounted at an annual rate of four per cent for the life of the project. These parameters were established in consultation with the staff from *Rutgers, the State University of New Jersey, Graduate School of Management, and the College of Engineering.*"

Applying the methodology described, the benefits portion of the Benefit/Cost equation were calculated using the three major impact areas as prescribed in the Plan: (1) Job and Wage Impacts, (2) Transportation Cost Impacts, and (3) Railroad Impacts.

The method used to calculate these three benefit impact areas are also prescribed in the State Rail Plan and were established by the Federal Railroad Administration and published in their Rail Planning Manual.

Jobs and Wage Impacts

The total of new jobs in corridor businesses, both on-line and those served from a transloading facility, resulting from the reactivation of rail service was estimated to be in the range of 3-5%. This is the prescribed economic benefit impact range utilized in the state Rail Plan Model as noted above. The total new jobs were multiplied by the \$36,000 yearly new wage rate to obtain the primary wage gain in each year of the 5 year life of the project period.

The yearly wage rate was based on the average prevailing yearly rate for all production and transportation and warehousing jobs in businesses in the Central Jersey area as arrayed by the Department of Labor. It should be noted that this rate does not include the higher paying management and executive level jobs in corridor businesses. The rate is higher than the prevailing rate for such job categories as food preparation which tends to be lower in salary range.

While the State Rail Plan allows for the calculation of secondary jobs to be added as a benefit input, only primary job and wage impacts were used in the analysis of the corridor reactivation project. Construction jobs also were not added as a benefits input.

Since a rail project would replace truck trips, and thus eliminate trucking jobs, the State Rail Plan assumes there would be this disbenefit in most rail projects. Thus, it is factored into the calculations as a job and wage loss for the region.

However, for the corridor reactivation project, most of the shift to rail would be in the long haul market. Personnel outside the region likely hold most of these trucking assignments. They would be redeployed in other work since trucking is still a growth industry and there is still a driver shortage particularly in the long haul segment.

In fact, there may be a positive impact on local and regional trucking opportunities. Short haul local delivery would increase at expanding corridor businesses and at newly constructed rail to truck transloading facilities. Thus, overall the job and wage impact on trucking was considered neutral, with some gains in local jobs, which were not plugged into the calculations.

Transportation Cost Impacts

Since this is a multi-faceted project, transportation costs and savings had to be developed as an aggregate benefit to a diverse group of shippers in the corridor and used as an input to calculate the overall project benefit. This methodology is typically used to assess the benefits of a rail corridor reactivation project.

Transportation costs would be reduced with the switch to rail in the corridor. Rail costs on the basic commodities that would make up the majority inbound and outbound supplies could vary significantly from truck rates as the ratio of trucks to rail cars varies with volumes moved. Also, as business volumes change, multi-car rates and other incentives would vary transportation costs as well.

Shipper surveys and interviews with rail marketing personal indicate that in tight profit margin industries such as building supplies, transportation savings in the 3-5 percent range may mean the difference in being competitive or non-competitive. Likewise, in the plastics industry, where costs for plastic pellets are measured in mills per pound, large rail car volumes to distributors and manufacturers is significant to business growth since large quantities of material are purchased for mass production runs.

Rail unit trains such as those used to haul ethanol and bulky waste can lower costs significantly. Recently, Union County switched from truck to rail haulage of bulky wastes reducing the disposal fee price from \$84.00 per ton to \$64.00 per ton, a reduction of more than 25%, with significant overall savings.

After considering these factors, and pursuant to discussing various rail freight savings in consultation with rail marketing personnel, reviewing shipper supplied data, and

comparing rail and truck cost data \$200,000 per year in annual direct shipping cost savings per business was used as a benchmark to calculate the transportation cost benefits by switching from truck to rail.

Savings in the higher ranges of \$300,000 per year would be more typical for higher value commodities shipped over a longer distance; lower end savings in the \$100,000 + per year could be used as a savings cost parameter for lower value commodities in shorter haul markets. Since the baseline of shippers in the corridor indicates a heavy reliance on receiving and shipping plastics, food stuffs, and paper, higher value commodities which will be shipped from long and medium haul markets from the mid-west, south, and west, transportation cost savings of \$200,000 per shipper per year is a conservative benefit input.

With \$200,000 per year used a typical cost savings by a business switching to rail in the corridor, initially 10 potential customers identified under the baseline conditions over the 5 year project period would save approximately \$10 million in direct Transportation costs. This was the aggregate input factored into all of the benefits calculations used in the study and should be considered a conservative cost savings benchmark.

Railroad Impacts

The State Rail Plan cost/ benefit analysis includes the gain that would be accrued to the railroad company as a measured benefit. Since this is a start up project and revenues will be built up over a timeframe of several years, Revenue estimates and revenue sharing with the County (see below) are conditioned on several factors in the corridor. Most all information with regard to individual rail company operating and maintenance costs is not public information. Shipper documents containing contractual and multi-car rates are not in the public domain. For deriving the revenue benefit to the railroad an aggregate revenue price per carload was established and used for calculating purposes.

In this assessment study, \$400.00 per carload was used as the aggregate revenue per carload to determine rail revenues and revenue to be shared with the county. The revenue is likely on the conservative side. Higher value commodities such as plastics, a significant part of the estimated traffic base, commands higher revenues, but would be off-set by lower value commodities such as scrap materials. Also, since most of the carloadings are inbound or terminating traffic, the M&E share of the overall long haul rate will likely have to be split with one or more carriers, thus leaving the M&E the least amount of negotiating room.

Traffic is anticipated to build to 4000 carloads a year. Thus, 4000 x \$400 is 1.6 million in revenues in the post start-up years when the project has reached a degree of maturity. The start-up years will see less revenue.

Revenues calculations were made for the post start-up period. The post start-up period for this study is the 5 years after the initial 5-year start-up period. The initial start-up period will only see a portion of the rail line activated and a comprehensive marketing program would only apply to segments of the corridor. The post start up period is when

the full effect of a marketing program can realistically begin to be measured. It coincides with another important benchmark: establishment of businesses' confidence in the railroads' success, viability, and staying power.

Thus, at that point, 4000 carloadings a year over a 5-year period would yield revenues of \$8.0 million. Less than half of that revenue would be accrued to the railroad. The post start-up period is used to be consistent with the post start-up calculations used for the other impact categories.

In summary the three major elements to calculate the overall cost/benefit ratio as prescribed in the State Rail Plan and calculated and applied accordingly are as follows:

- Jobs and Wage Impacts- new jobs created x \$36,000 in annual new wages.
- Transportation Cost Impacts- annual savings cost of \$200,000 per business x 10 potential customers identified in base line conditions scenario.
- Railroad Impacts- annual revenue generation of \$1.6 million dollars based upon 4000 carloads per year x \$400 per carload with car loadings in start-up baseline condition scenario approximately half that amount.

These three elements are added together and multiplied by 5, the duration of the project and discounted 4% a year over the 5-year project life. Other factors such, as the creation of secondary jobs, which the state Plan allows to be counted as an additional benefit, was not included in the analysis.

Stratifying Assessment Outcomes

The study went a step further in quantifying the potential benefits in the corridor. To account for various conditions and changes in the corridor, a range of cost/benefit scenarios was developed to illustrate three ranges of potential benefits impact. Thus, a sensitivity dimension was added to the analysis.

As noted above, the State Rail Plan assumes that public projects benefits are in the 3-5% opportunity cost ranges. For this study, calculations on benefits were arrayed as constrained scenario (3% benefit impact), base case scenario (4% benefit impact) and aggressive scenario (5% benefit impact). In each of the ranges examined, all benefits and costs were discounted at 4% over the 5-year life of the project following State Rail Plan procedures, but assumes that the outcomes would be subject to changing conditions in the corridor.

By illustrating the project impact in this manner, the benefits can be measured and viewed as a range of possibilities depending on changing conditions in the corridor, the effectiveness of an aggressive marketing program, and the ability to take advantage of economic development opportunities. In all scenarios, neither the indirect impact (secondary job creation) or construction job and wage impact was measured.

Summary of Methodology

The opportunities and accrued benefits of offering rail service were based upon assessing previous studies and technical documents noted in the context of the report and in the attached bibliography. An extensive analysis of current conditions in the corridor and in corridor municipalities was undertaken to verify and corroborate these sources. The potential impact on both on line and off line businesses was assessed since transloading to serve off-line businesses is a major growth area in rail freight services.

The data inputs resulting from this extensive analysis were used to calculate the benefit areas identified in the Cost/benefit methodology used in the State Rail Plan.

Other key categorical benefit areas which are outside of the basic NJ State Rail Plan cost/benefit model have been identified and are being assessed as a separate add on component. Environmental and highway impacts are being calculated by the NJDOT using specific formula developed by the Federal Highway Administration and summarized. Calculations for increases in local property tax revenues resulting from filling vacancies and redeveloping properties have been calculated using the average market value ratios and tax rates for the corridor municipalities. However, the local property tax revenues have been calculated and placed in the Additional Benefits and Opportunities section separate from the Cost/Benefit Analysis (CBA) to assure an even further conservative nature of the CBA in this study.