Prepared for

Delaware Valley Regional Planning Commission

May 1991

Executive Summary

Public Transportation Renewal as an Investment:

The Economic Impacts of SEPTA on the Regional and State Economy

Prepared by

The Urban Institute

and

Cambridge Systematics, Inc.

with

The Pennsylvania Economy League

Advisory Committee for the Economic Impacts of SEPTA Study

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(Chairman of the Advisory Committee)
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Liaison

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Southeastern Pennsylvania Transportation Authority

John Garrity and Paul Verchinski
Urban Mass Transportation Administration

Lynn Martin Haskin
Greater Philadelphia Economic Development Coalition

Contracting Agency: Delaware Valley Regional Planning Commission

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Chairman

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Executive Summary

Study Overview

This report provides an evaluation of the impacts of SEPTA's services and proposed capital investments on transportation costs and on the overall economy of the Philadelphia metropolitan area, the State of Pennsylvania as a whole, and the rest of Pennsylvania outside the metropolitan area. This study is intended to provide a first evaluation, at a regional and state level, of whether transit rehabilitation programs "pay off" as investments, and thus justify expenditures by state and local governments.

This study was commissioned by the Delaware Valley Regional Planning Commission (DVRPC), and funded through a grant from the Urban Mass Transportation Administration to DVRPC. It was conducted by The Urban Institute and Cambridge Systematics, Inc., with the assistance of the Pennsylvania Economy League.

An important aspect of this study is that it is comprehensive in terms of estimating how alternative levels of investment in SEPTA would affect travel times and travel costs for individual travellers, and how those changes would end up affecting the cost-of-doing-business, individual spending patterns, and the economy of the region and the State of Pennsylvania.

The economic evaluation was conducted for four alternative courses of action:

- rehabilitation of SEPTA, and the continuation SEPTA services;
- a 50 percent reduction of SEPTA services within five years, and rehabilitation of the remainder of the system;
- a gradual shutdown of all SEPTA services within ten years;
- an immediate permanent shutdown of all SEPTA services.

The alternative of rehabilitating SEPTA would be associated with increased funding for capital expenditures on SEPTA to a level of the ten year capital program proposed by SEPTA. That program calls for $4.5 billion in capital expenditures over ten years, including contingencies and inflation or $450 million per year. In terms of constant 1991 dollars, the cost of that program is approximately $350 million per year. The gradual or immediate elimination of SEPTA would involve no capital program expenditures. The partial reduction would involve about half the level of capital expenditures per year as would rehabilitating all of SEPTA.

Currently committed capital funding levels are about midway between the gradual shutdown or the 50 percent reduction alternatives. Thus, these two options must be considered to be very realistic. The alternative of immediate shutdown is included in order to develop information about the maximum impacts of reducing SEPTA. Therefore, this alternative is not considered to be as likely an option as the other (50 percent reduction or gradual shutdown) scenarios.

Each of these alternatives was quantitatively defined in terms of annual SEPTA ridership, revenues, capital costs, and operating costs. The consequent impacts on highway costs, the economy, and other social concerns were then assessed through an integrated set of economic models, augmented by interviews with key leaders of businesses and social service agencies.

Impacts of the three scenarios for reduction or elimination of SEPTA services were then compared to the base case scenario of "adequate" investment to rehabilitate SEPTA.

The analysis process involved six steps: (1) evaluation of future scenarios in terms of transit and road capacity and service levels, (2) a transportation analysis model to forecast impacts on regional transportation costs, (3) an economic analysis model to forecast impacts on metropolitan and state economic growth, (4) a fiscal model to forecast impacts on government finance, (5) energy consumption and air pollution estimation processes, and (6) interviews with businesses, economic development professionals and representatives of affected population groups.

Study Findings

Transportation Cost Impacts

Each scenario examined showed that reducing investment in SEPTA and reducing SEPTA service would cost more than it saved. The analysis showed that there was likely to be no possible scenario of a partial or gradual elimination of SEPTA which would have lower costs than the rehabilitation alternative.

Figure ES.1 shows that the rehabilitation costs plus the excess costs to transportation users are lowest for the rehabilitation alternative, and increase as more SEPTA services are eliminated. The alternative of a 50 percent reduction costs about $1 billion per year more, while the complete elimination costs $3 billion per year more.

The excess transportation user costs associated with not rehabilitating SEPTA fall both on those who do not now use SEPTA and those who do use SEPTA:

- Current auto and truck users in the region would suffer about half the excess travel costs, due to greater congestion costs, higher vehicle operating costs, and higher accident costs without SEPTA.

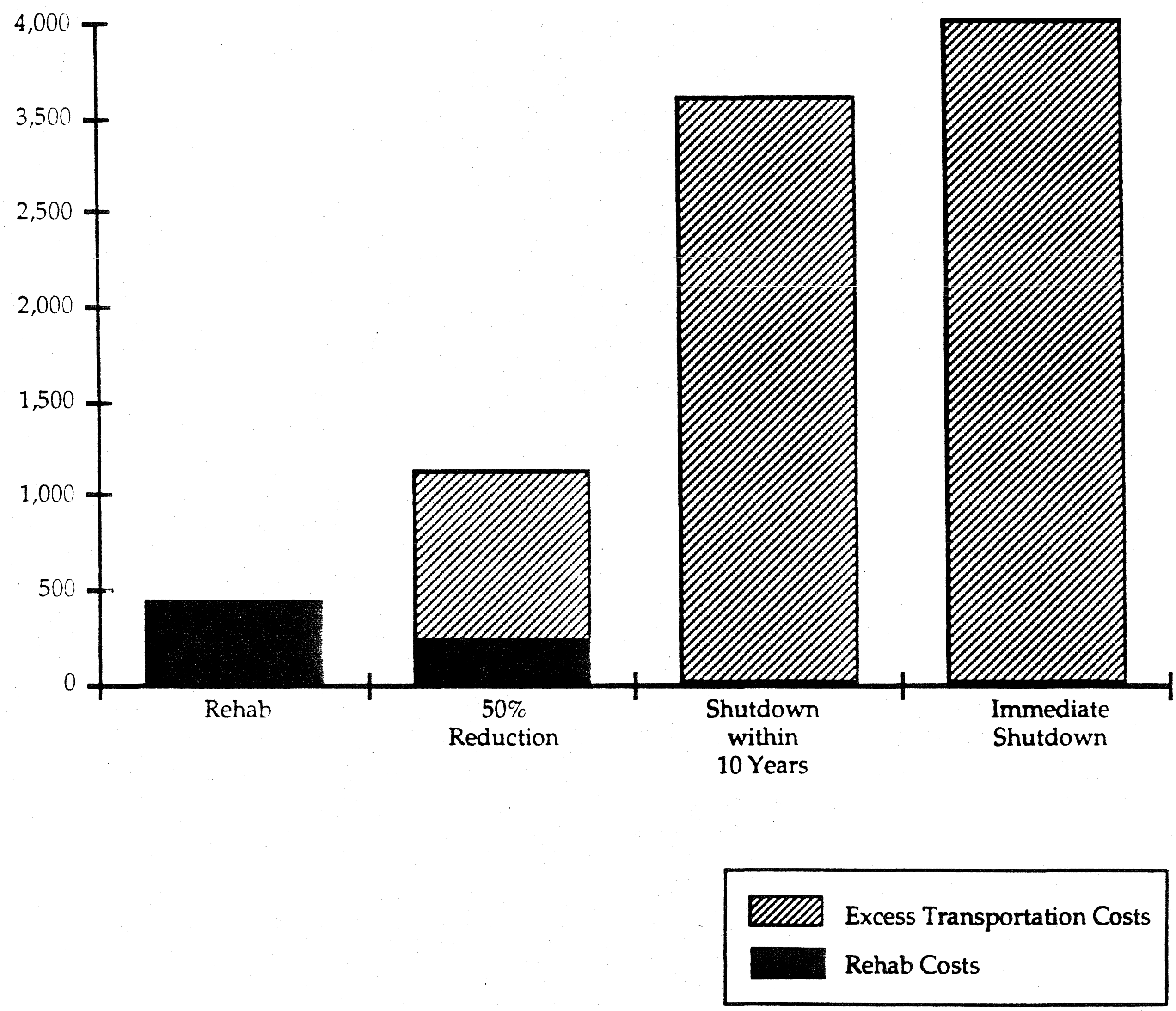
- It would cost SEPTA users themselves more per year in additional costs, for auto travel, which would occur under more congested conditions.

- The energy and environmental impacts of not rehabilitating SEPTA would include an increase of up to 6 percent in gasoline consumption and emissions. In the case of air quality, this would reduce the likelihood that Clean Air Act standards will be met, which could lead to much higher costs for emissions controls.

Also, with a 50 percent reduction or gradual shutdown, the operating cost reductions would not be proportional to service reductions, since many costs of public transportation are fixed costs rather than variable costs. In addition, ridership losses would result in losses of farebox revenues at a faster rate than operating costs could be reduced, thus increasing the subsidy required per passenger.

Figure ES.1 Comparative Annual Transportation Costs of Scenarios

Annual Costs in Current Year 2000 Dollars (Millions)



Traffic Impacts

Traffic impacts of eliminating or reducing SEPTA would be substantial in the short term and in the long term. While traffic impacts are adverse throughout the region, they will be particularly bad in the central business area. If SEPTA services were all eliminated, the number of autos attempting to enter the central area in the morning would be approximately double from the southern direction, triple from the north, and quadruple from the west. Since many of the streets and highways are already congested, eliminating all or a portion of SEPTA's services would have a very severe impact on travel speeds. The peak accumulation of vehicles in the central area would increase by 85,000 autos.

Loss of Mobility

The loss of mobility for the low income population, the elderly, and the handicapped would be significant if SEPTA were eliminated or reduced. Currently, about 22 percent of households in the region do not own automobiles. We estimate that nearly one-third of the current population without cars today could not afford to own cars, and would lose their mobility. The others would suffer a loss of income due to the higher costs of auto transportation.

Senior citizens would lose over 30,000 trips per day: a significant decrease in their ability to get around. Many might lose their jobs, and others might cease going outside of their homes. Students of schools, colleges, and universities would suffer a loss of access, as would users of religious, social, and cultural resources. About 80,000 trips made on SEPTA per day by school children would have to be made by other means.

Economic Impacts

The excess transportation costs and loss of mobility due to eliminating or reducing SEPTA services would affect the regional economy through seven primary means:

- increased cost of doing business;
- reduced business access to labor markets;
- increased cost of living;
- reduced "quality of life";

- loss of SEPTA jobs;
- shifts in personal spending patterns, with more money spent on purchases from outside the region (autos, fuel); and
- reduced attraction of visitors.

The resulting effect of these factors would be to reduce business sales, jobs, disposable personal income and population in the Philadelphia metropolitan area. Additional "spin-off" impacts would result in a loss of business sales, jobs, personal income and population in the rest of Pennsylvania.

Over time, the loss of income and business sales would grow to far exceed the value of direct travel impacts and transportation costs. The greater cost of doing business would make the Philadelphia metropolitan area less competitive for "basic industries" (i.e., businesses that serve regional or national markets, which don't have to locate in the Philadelphia metropolitan area), such as manufacturers. The reduced access to clerical labor would make Philadelphia less attractive for banking and insurance offices. The reduced "amenity level" (quality of life) would make the metropolitan area less attractive as a place to live. Businesses that select locations to expand or to open new branches would be more likely to pass over the Philadelphia area and select sites in competing metropolitan areas.

The distinguishing characteristic of all the economic impacts of all the alternatives except rehabilitation is that all impacts are negative. In every case, the scenarios other than rehabilitation result in negative short term impacts and the impacts become worse over time. It is therefore reasonable to consider the long term results for the purpose of comparing scenarios.

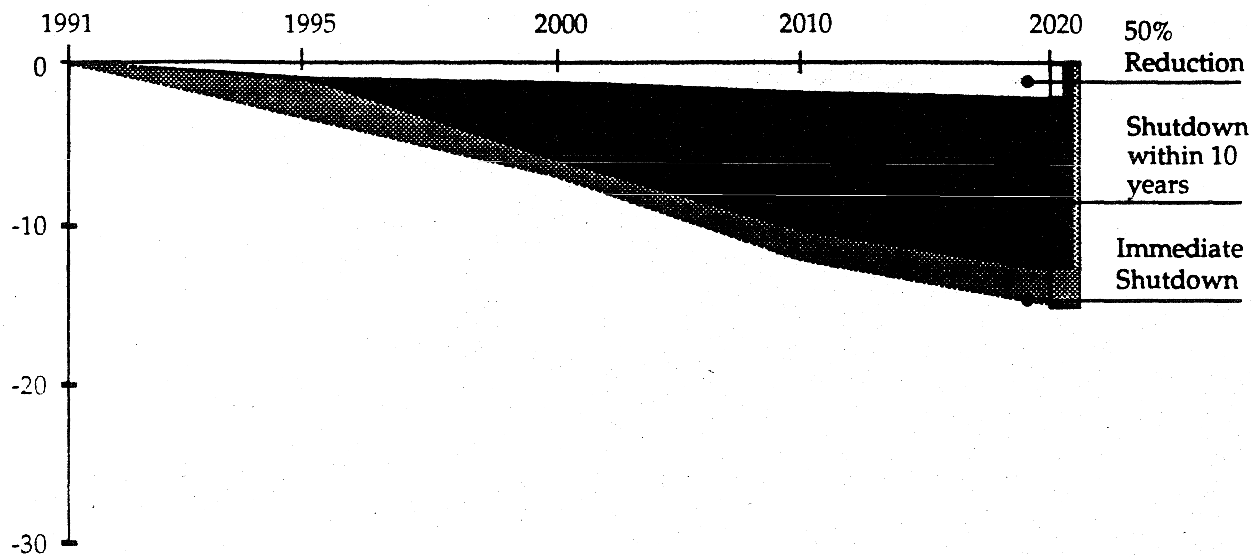
Metropolitan Economic Impacts

The impacts on the metropolitan economy (five counties in Pennsylvania and three counties in New Jersey) associated with not rehabilitating SEPTA would be substantial in the long term. The detrimental impacts would get worse over time as some existing businesses move out and as other outside businesses choose not to locate in the metropolitan area. Figures ES.2 and ES.3 show impacts on business sales within the Delaware Valley Region over time, in both constant 1990 dollars (Figure ES.2) and future year dollars (Figure ES.3). The impacts grow continuously over time in both constant and future year dollars.

The estimated losses in business sales for each alternative other than rehabilitating SEPTA are described in total dollars and in dollars per current resident. By way of comparison, the annual costs of rehabilitating SEPTA are $100 per current resident in the metropolitan area, and $30 per current resident in the State of Pennsylvania as a whole.

Figure ES.2 Impact on Annual Metropolitan Business Sales (Relative to Rehabilitating SEPTA)

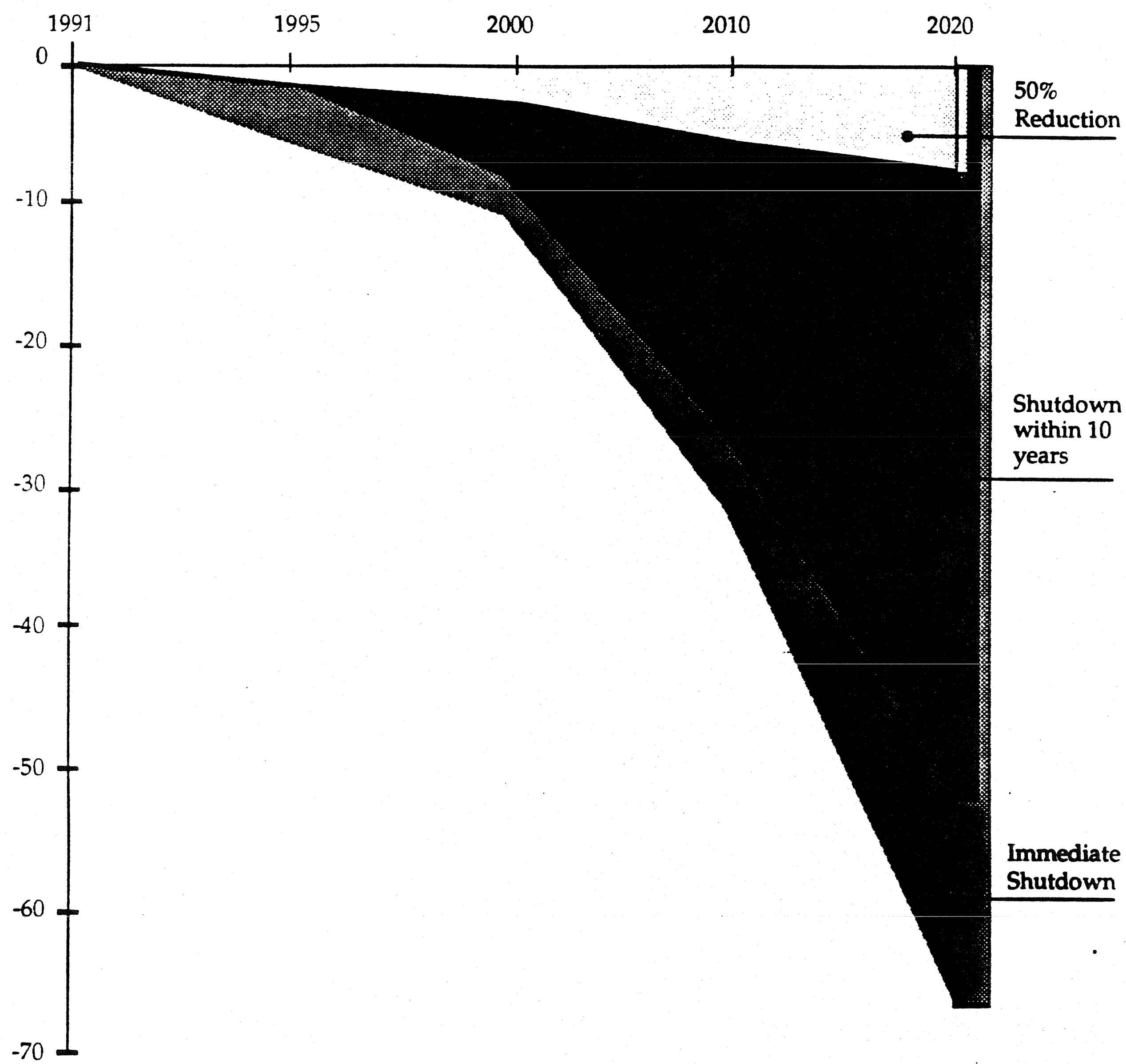
In Constant 1990 Dollars ($ Billions)



Source: Cambridge Systematics, Inc., using the REMI Model

Figure ES.3 Impact on Annual Metropolitan Business Sales (Relative to Rehabilitating SEPTA)

In Inflated Future-Year Dollars ($ Billions)



Source: Cambridge Systematics, Inc., using the REMI Model

Business Sales - Metropolitan Area

In comparison to the alternative of rehabilitating SEPTA, the annual loss of metropolitan area business sales by the year 2020 would be:

- $2 billion less business sales in 1990 dollars if SEPTA services are cut in half: $400 per current resident ($8.5 billion in future year dollars: $1,700 per current resident)
- $13 billion less business sales in 1990 dollars if SEPTA is gradually shutdown: $2,600 per current resident ($56 billion in future year dollars: $11,000 per current resident)
- $15 billion less business sales in 1990 dollars if SEPTA is shutdown immediately: $3,000 per current resident ($64 billion in future year dollars: $13,000 per current resident)

Jobs

In comparison to the alternative of rehabilitating SEPTA, the cumulative loss of metropolitan area employment by the year 2020 would be:

- 26,000 fewer jobs if SEPTA services are cut in half;
- 144,000 fewer jobs if SEPTA is gradually shutdown within ten years;
- 170,000 fewer jobs if SEPTA is immediately shutdown.

Personal Income

In comparison to the alternative of rehabilitating SEPTA, the annual loss of metropolitan area personal income by the year 2020 would be:

- $2 billion less personal income per year in 1990 dollars if SEPTA services are cut in half ($8.5 billion less in future year dollars)
- $8.8 billion less personal income per year in 1990 dollars if SEPTA services are gradually shutdown ($37.6 billion less in future year dollars)
- $9.6 billion less personal income per year in 1990 dollars if SEPTA services are immediately shutdown ($41 billion less in future year dollars)

Population

In comparison to the alternative of rehabilitating SEPTA, the cumulative loss of metropolitan area population by the year 2020 would be:

- 58,000 loss in population if SEPTA services are cut in half;
- 281,000 loss in population if SEPTA services are gradually shutdown;
- 313,000 loss in population if SEPTA services are immediately shutdown.

Statewide Economic Impacts

The impact of business losses for the Philadelphia metropolitan area would bring additional spillover losses for the rest of the State of Pennsylvania. The spillover impacts of SEPTA shutdown alternatives on the rest of the State (outside of the Philadelphia metropolitan area) are very adverse.

Total Pennsylvania statewide impacts were calculated by adding impacts in the Philadelphia metropolitan area and the rest of the state, and deleting impacts on the New Jersey part of the metropolitan area.

Business Sales

In comparison to the alternative of rehabilitating SEPTA, the annual loss of statewide business sales by the year 2020 would be:

- $2 billion less business sales if SEPTA services are cut in half: $200 per current resident ($10 billion in future year dollars: $800 per current resident)
- $14 billion less business sales in 1990 dollars if SEPTA is gradually shutdown within ten years: $1,200 per current resident ($62 billion in future year dollars: $5,000 per current resident)
- $16 billion less business sales in 1990 dollars if SEPTA is shutdown immediately: $1,300 per current resident ($70 billion in future year dollars: $5,700 per current resident)

Jobs

In comparison to the alternative of rehabilitating SEPTA, the loss of statewide jobs by the year 2020 would be:

- 26,000 fewer jobs if SEPTA services are cut in half;
- 150,000 fewer jobs if SEPTA is gradually shutdown;
- 175,000 fewer jobs if SEPTA is shutdown immediately.

Personal Income

In comparison to the alternative of rehabilitating SEPTA, the annual loss of statewide personal income by the year 2020 would be:

- $2.3 billion less personal income per year in 1990 dollars if SEPTA services are cut in half ($9.5 billion less in future year dollars)
- $9.0 billion less personal income per year in 1990 dollars if SEPTA services are gradually shutdown ($38.0 billion less in future year dollars)
- $10.1 billion less personal income per year in 1990 dollars if SEPTA services are immediately shutdown ($44 billion less in future year dollars)

Population

In comparison to the alternative of rehabilitating SEPTA, the cumulative loss of statewide population by the year 2020 would be:

- 59,000 loss in population if SEPTA services are cut in half;
- 291,000 loss in population if SEPTA services are gradually shutdown;
- 325,000 loss in population if SEPTA services are immediately shutdown.

Rest of Pennsylvania Economic Impacts

It is also noteworthy that outside the Philadelphia metropolitan area, in the rest of the State, the economic impacts of eliminating or reducing SEPTA would be adverse compared to the economic impacts of rehabilitating SEPTA.

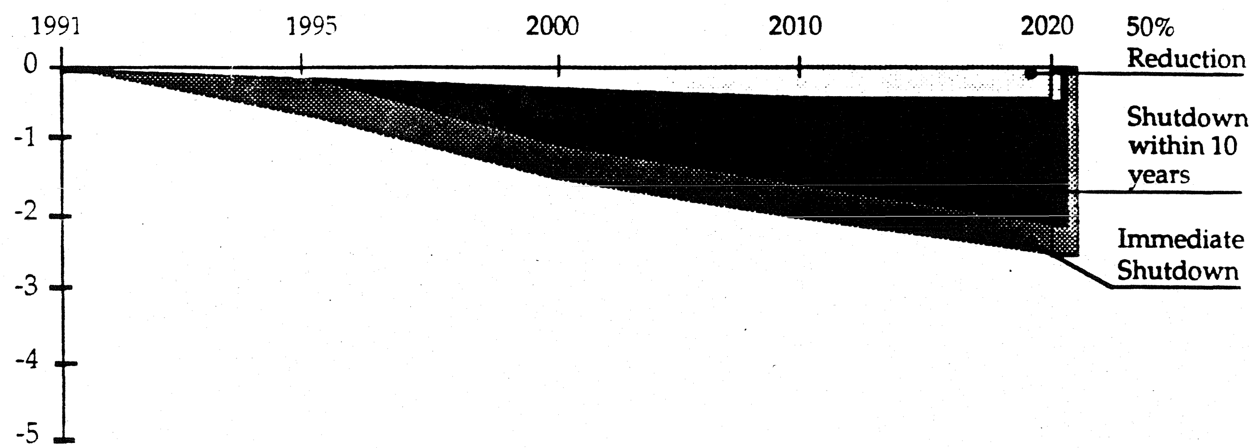
Business Sales

Business sales impacts are shown in Figures ES.4 and ES.5 for the rest of the State of Pennsylvania. In comparison to the alternative of rehabilitating SEPTA, the annual loss of business sales in the rest of Pennsylvania by the year 2020 would be:

- $500 million less business sales in 1990 dollars per year in 2020 if SEPTA services are cut in half: $60 per current resident ($2 billion in future year dollars: $300 per current resident)
- $3 billion less business sales in 1990 dollars per year in 2020 if SEPTA is gradually shutdown within ten years: $400 per current resident ($13 billion in future year dollars: $1,600 per current resident)
- $3 billion less business sales in 1990 dollars per year in 2020 if SEPTA is immediately shutdown: $400 per current resident ($13 billion in future year dollars: $1,600 per current resident)

Figure ES.4 Impact on Business Sales in Pennsylvania Outside of the Delaware Valley Region (Relative to Rehabilitating SEPTA)

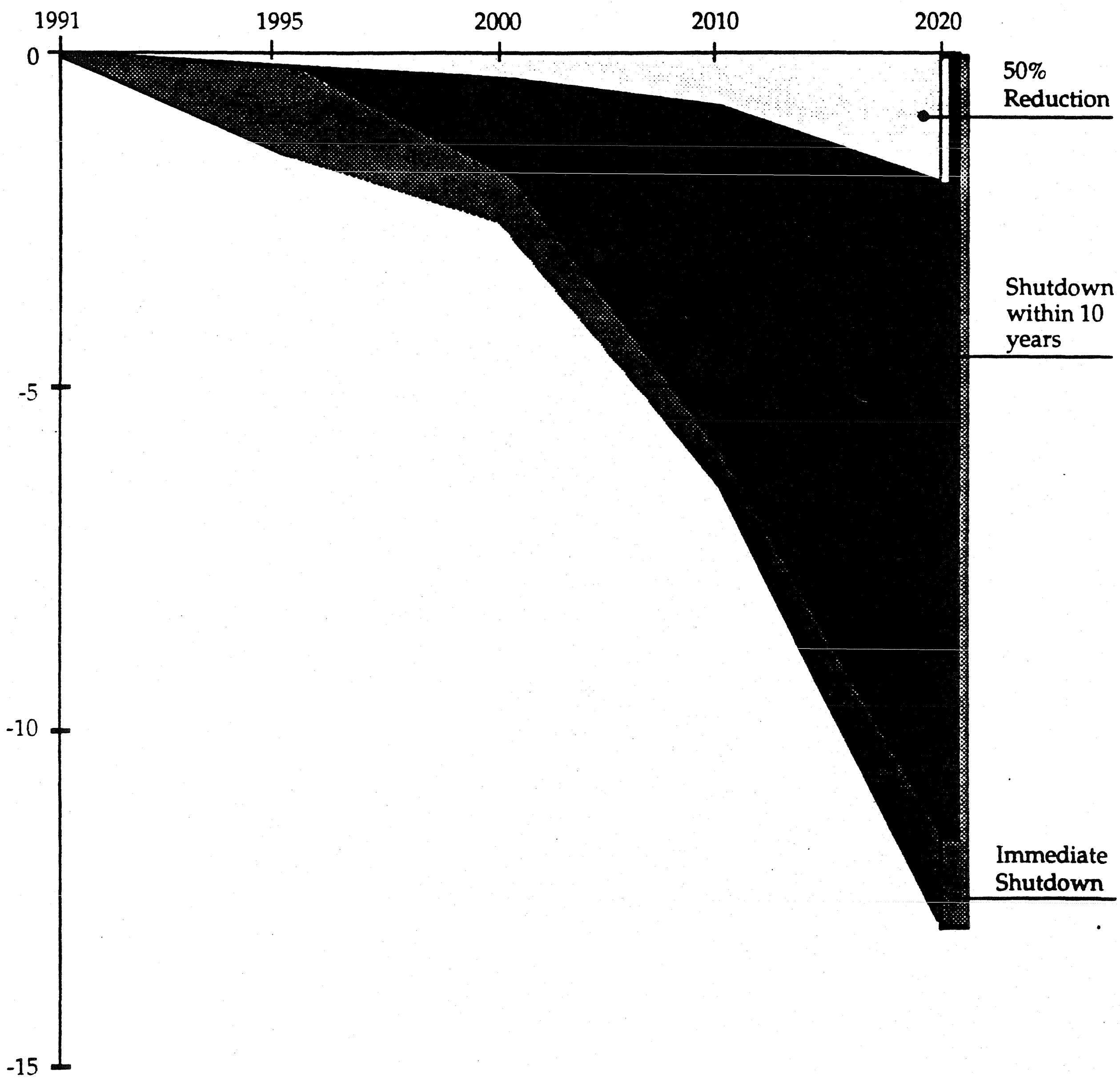
In Constant 1990 Dollars ($ Billions)



Source: Cambridge Systematics, Inc., using the REMI Model

Figure ES.5 Impact on Business Sales in Pennsylvania Outside of the Delaware Valley Region (Relative to Rehabilitating SEPTA)

In Inflated Future-Year Dollars ($ Billions)



Source: Cambridge Systematics, Inc., using the REMI Model

Jobs

In comparison to the alternative of rehabilitating SEPTA, the loss of jobs in the rest of the State of Pennsylvania by the year 2020 would be:

- 4,000 fewer jobs if SEPTA services are cut in half;
- 22,000 fewer jobs if SEPTA is gradually shutdown;
- 24,000 fewer jobs if SEPTA is immediately shutdown.

Personal Income

In comparison to the alternative of rehabilitating SEPTA, the annual loss off personal income in the rest of the State of Pennsylvania by the year 2020 would be:

- $300 million less personal income per year in 1990 dollars in SEPTA services are cut in half ($1.4 billion less in future year dollars)
- $2.8 billion less personal income per year in 1990 dollars if SEPTA services are gradually shutdown ($12.0 billion less in future year dollars)
- $3.1 billion less personal income per year in 1990 dollars in SEPTA services are immediately shutdown ($13 billion less in future year dollars)

Population

In comparison to the alternative of rehabilitating SEPTA, the cumulative loss of statewide population by the year 2020 would be:

- 7,000 loss in population if SEPTA services are cut in half;
- 42,000 loss in population if SEPTA services are gradually shutdown;
- 47,000 loss in population if SEPTA services are immediately shutdown.

Impacts on Government Finances

Although the elimination or reduction of SEPTA services would reduce or eliminate government expenditures for SEPTA, the adverse impacts on the economy would also reduce state and local tax revenues. Combined state and local revenues per year would be reduced by the year 2020 by:

- $88 million in 1990 dollars if SEPTA services are cut in half;
- $555 million in 1990 dollars if SEPTA is gradually shutdown;
- $632 million in 1990 dollars if SEPTA is immediately shutdown.

In addition, government expenditures would be affected in several ways. The reduction in jobs and income would increase government expenditures for welfare assistance programs. Offsetting that effect, the loss of population would decrease government expenditures on education. These two impacts offset each other in the long run, although in the early years welfare cost increases would exceed education cost savings by over $100 million if SEPTA is immediately eliminated.

Conclusion

Benefit/cost analysis was used to assess the net public benefits of the SEPTA reduction alternatives, relative to the base case of rehabilitating and continuing to operate SEPTA. It compared:

- The economic "benefit" of reducing or eliminating SEPTA, which would be the savings in public spending to rehabilitate SEPTA and continue services.
- The economic "cost" of reducing or eliminating SEPTA, which would be the loss of personal income due to contraction of the state economy as a result of the degraded transportation system.

The benefit/cost analysis showed that investment in SEPTA facilities and services at the levels of the proposed ten year capital program would have substantial economic benefits that outweigh the public subsidy costs for residents of Pennsylvania. It specifically showed that rehabilitation and continued operation of SEPTA would return three dollars to the region and the State for every dollar spent on SEPTA, just in transportation benefits alone. In terms of total economic impact, the return to the region and the State would be over 9 dollars for every dollar spent on SEPTA.

The analysis conclusively showed that the economic costs of shutting down or reducing SEPTA services would far outweigh the savings for residents of all areas of Pennsylvania. It showed that all three alternatives for reducing or eliminating services would have negative impacts on both the metropolitan area and the rest of the State of Pennsylvania:

- Considering only the transportation impacts themselves, the "benefits" of shutting down SEPTA would be only one-third of the detrimental transportation system costs that would be incurred.

- Considering all economic impacts, the "benefits" of not rehabilitating SEPTA are only one-ninth of the overall economic costs (income losses) which would be incurred.

- In terms of benefit-cost ratios, all the options of reducing or shutting down SEPTA are highly undesirable public policies.

Fully rehabilitating SEPTA, and continuing to operate SEPTA services, thus has a very high economic payoff for the region and for the State of Pennsylvania as a whole. Rehabilitating SEPTA is a desirable investment even if it cost several times what is now estimated. Investment levels currently available for SEPTA rehabilitation (about $100 million to $120 million annually) are inadequate. Investment levels of at least $450 million per year are strongly justified in terms of returns to the economy.

Many organizations are assisting and promoting economic growth in the Delaware Valley Region and the State of Pennsylvania. These include State, County and local agencies, and many private groups. Their effectiveness in reaching the aims of economic development will depend on maintaining the Philadelphia metropolitan area's reputation for providing good transportation accessibility to residents and good business access to labor.

Current estimated rehabilitation costs for SEPTA include reasonable allowances for inflation and contingencies. Even with such allowances, the rehabilitation expenditures of SEPTA represent a sound investment to strengthen the economy of the metropolitan region and the State of Pennsylvania.