

UNDERSTANDING SEPTA'S STATEWIDE ECONOMIC VALUE

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Economy League of Greater Philadelphia



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EXECUTIVE SUMMARY

THE BOTTOM LINE

The economic value of the Southeastern Pennsylvania Transportation Authority (SEPTA) is significant in terms of job creation, tax revenues, and economic output, but perhaps more importantly, in terms of its catalytic effect on the economy of southeastern Pennsylvania and the Commonwealth as a whole.

By investing in SEPTA, the state will ensure that:

- A region that produces 40 percent of the state's economic output and relies heavily on SEPTA service continues to be economically productive;
- SEPTA expenditures continue to contribute more than \$3 billion in economic output, supporting over 26,000 jobs and generating \$62.5 million in tax revenues to the Commonwealth; and
- SEPTA, which remains significantly underfunded despite recent temporary infusions of funding, has adequate resources to address a growing crisis of capital need.

OVERVIEW OF REPORT

In 2007, the Economy League of Greater Philadelphia (Economy League) and Econsult were commissioned by the William Penn Foundation to evaluate the consequences of underfunding SEPTA on southeastern Pennsylvania and the Commonwealth. Funding solutions were identified and acted upon, but circumstances have changed and once again in 2013, despite achieving its highest ridership levels in twenty-three years, SEPTA is confronted with a serious funding shortfall, especially for capital funding required to maintain and improve its infrastructure and system.

Economy League and Econsult (now Econsult Solutions, or ESI) have again teamed to reexamine SEPTA's role in the Commonwealth's economy and analyze the value of expanded Commonwealth investment in SEPTA. The report, this time commissioned by SEPTA, has three main goals:

- 1) To understand the economic value of SEPTA, in terms of economic and fiscal impacts on the Commonwealth of Pennsylvania;
- 2) To determine how SEPTA compares to other transit agencies in terms of performance, scope, and revenue sources; and
- 3) To provide updated, nonpartisan information to state lawmakers and stakeholders as the decision on how to fund SEPTA is considered.

For the purpose of this report, the Economy League and ESI conducted five sets of analyses to answer the following questions:

- 1) To what extent do the five counties of southeastern Pennsylvania – Bucks, Chester, Delaware, Montgomery, and Philadelphia – contribute to the Commonwealth's transportation-related revenues, and are the beneficiaries of transportation-related expenditures?
- 2) To what extent has SEPTA been a good steward of public funds?
- 3) How does the performance of SEPTA operations compare to Commonwealth agencies and industry peers?
- 4) What are SEPTA's economic and fiscal impacts on southeastern Pennsylvania and the Commonwealth?
- 5) What are the possible long-term consequences of inadequate, status quo funding levels on southeastern Pennsylvania and the Commonwealth?

KEY FINDINGS

First: The five counties of southeastern Pennsylvania generate approximately 40 percent of statewide economic activity and represent 32 percent of statewide population, while occupying five percent of its total land. This density and economic productivity represents SEPTA’s economic leverage, allowing southeastern Pennsylvania to contribute more than its share of economic output and funds into the Commonwealth’s coffers.

Of note:

- Southeastern Pennsylvania generates 24 percent of Motor License Fund revenues and receives 17 percent of state highway and bridge capital and maintenance expenditures in return;
- SEPTA carries 77 percent of statewide transit riders and receives 62 percent of statewide transit operating funding in return. SEPTA’s state operating subsidy is \$1.49 per rider; the statewide average operating subsidy is \$2.66 per rider; and
- In total, 27 percent of state transportation dollars are invested in southeastern Pennsylvania, compared to the region’s 32 percent share of population and 40 percent share of economic output.

SOUTHEAST PA’S SHARE OF TRANSPORTATION INVESTMENT IS WELL BELOW ITS SHARE OF ECONOMIC PRODUCTIVITY						
	FY 2010-11			FY 2011-12		
	SOUTHEAST PA	PA	SOUTHEAST PA SHARE	SOUTHEAST PA	PA	SOUTHEAST PA SHARE
ROADS AND BRIDGES	\$659,309	\$3,758,458	17.5%	\$ 685,094	\$4,014,869	17.1%
PUBLIC TRANSPORTATION	\$667,238	\$1,060,434	62.9%	\$ 687,856	\$1,106,251	62.2%
TRANSPORTATION TOTAL	\$1,326,547	\$4,818,892	27.5%	\$1,372,950	\$5,121,120	26.8%
POPULATION	Source: US Census Bureau (2011)			4,030,926	12,763,536	31.6%
ECONOMIC OUTPUT	Source: Economy League (2011)					40.0%

Second: SEPTA has made significant progress towards several key performance indicators since the Economy League and ESI’s 2007 report. These improvements coincided with two major – but temporary – infusions of capital funding: Pennsylvania Act 44 of 2007 and the American Recovery & Reinvestment Act (ARRA) of 2009. These landmark pieces of legislation resulted in a three year uptick in capital funding, during which time SEPTA demonstrated its ability to effectively invest an influx of new resources.

Of note:

- A more than 10 percent spike in SEPTA’s customer satisfaction was correlated with an uptick in capital investment; the strongest gains were realized on those parts of the system where SEPTA invested capital resources most significantly;
- During the brief period of increased capital funding, SEPTA continued to improve project management efficiency as measured by a decrease in change order rates, a key indicator of unanticipated project cost overruns;
- Under ARRA, SEPTA’s rigid cost controls allowed six extra projects to advance with federal stimulus funding;
- Since the expiration of ARRA, SEPTA has continued to achieve project cost savings by right-sizing allocation of in-house and third-party labor, materials, and supplies; and
- With the expiration of ARRA and the reduction of Act 44 funding, SEPTA’s capital budget is now at a 15-year low (nominally at 1997 levels).

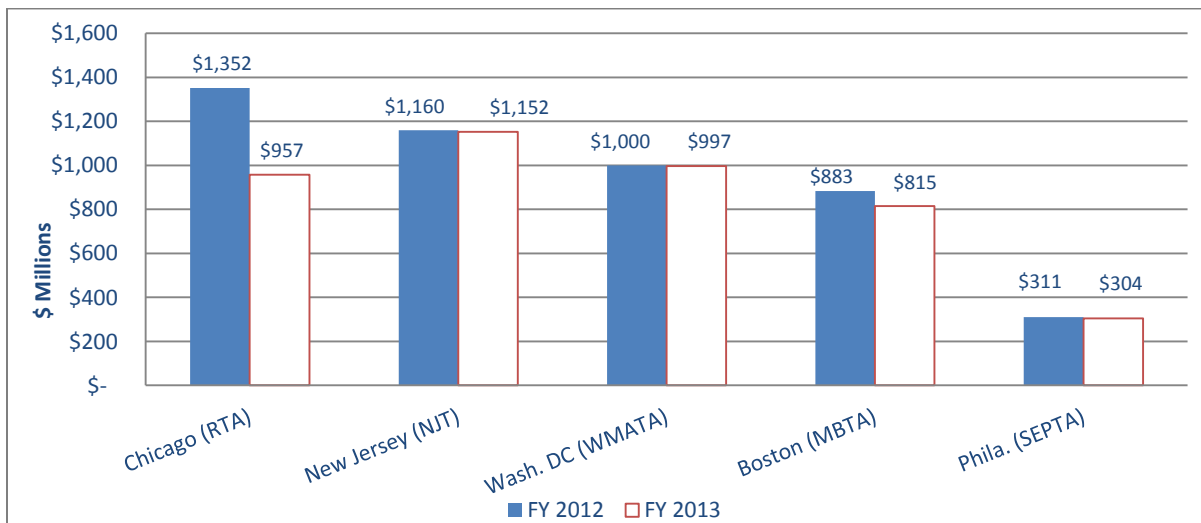
SEPTA'S CHANGE ORDER RATES FOR CONSTRUCTION CONTRACTS CONTINUE TO DECLINE (2005-2012)					
YEAR	NUMBER OF CONTRACTS	ORIGINAL CONTRACT VALUE	CHANGE ORDER AMOUNT	RESULTING CONTRACT VALUE	CHANGE ORDER RATE
2005-2006	29	\$200,500,000	\$20,200,000	\$220,700,000	10.1%
2007-2008	53	\$410,600,000	\$25,800,000	\$436,400,000	6.3%
2010	41	\$192,614,273	\$11,099,147	\$203,713,420	5.8%
2011	43	\$ 99,048,292	\$ 4,625,956	\$103,674,248	4.7%
2012	27	\$ 100,316,630	\$ 4,358,820	\$104,675,450	4.3%
Source: SEPTA (2013)					

Third: While SEPTA’s capital funding is at a 15-year low, ridership is at a 23-year high, in part due to increased customer satisfaction from ARRA-related capital investments. Ridership growth has helped SEPTA to sustain per passenger operating subsidies that are well below other Pennsylvania transit agencies and fare recovery ratios (a measure of operating expenses covered by passenger fares) at levels that are comparable with other large transit operators across the United States.

Of note:

- SEPTA’s average annual ridership growth and fare recovery ratios for commuter rail, heavy rail, light rail, and bus are all within a competitive range of its industry peers;
- At 60 percent, SEPTA’s capital budget is more dependent on federal funding than any agency in its peer group; and
- At \$304 million for Fiscal Year (FY) 2013, SEPTA’s capital budget is much smaller than its peer group, despite a backlog of capital needs that is growing and currently totals \$4.7 billion. MBTA in Boston, an agency comparable to SEPTA in terms of age, size, and modal composition, has a capital budget for FY2013 that exceeds \$800 million and a backlog of capital needs estimated at \$2.7 billion. MBTA’s higher levels of capital funding have consistently kept its state of good repair needs below SEPTA’s level of need. SEPTA, conversely, must continually confront the challenge of maintaining and upgrading assets, many of which are now more than one hundred years old. SEPTA could completely eliminate its state of good repair backlog within twenty years if its capital funding levels were on par with MBTA.

SEPTA'S CAPITAL FUNDING IS CONSISTENTLY BELOW INDUSTRY PEERS (FY2012-2013)



Source: Massachusetts Bay Transportation Authority (MBTA); Regional Transportation Authority (RTA); New Jersey Transit, SEPTA, Washington Metropolitan Area Transportation Authority (2012-2013)

Fourth: SEPTA creates jobs and economic opportunities. Daily transit operations, procurement of goods and services, and capital investments to rebuild the transit system have an economic ripple effect that is concentrated in southeastern Pennsylvania but extends across the entire Commonwealth.

On an annual basis, SEPTA:

- Contributes \$3.21 billion in economic output across the Commonwealth;
- Supports nearly 26,000 jobs across the Commonwealth;
- Supports \$1.45 billion in worker earnings – \$56,389 per job supported; and
- Generates \$62.5 million in tax revenues for the Commonwealth.

SEPTA SUPPORTS NEARLY 26,000 JOBS ACROSS THE COMMONWEALTH						
AREA OF IMPACT	PENNSYLVANIA			SOUTHEAST PA		
	SEPTA CAPITAL	SEPTA OPERATIONS	SEPTA TOTAL	SEPTA CAPITAL	SEPTA OPERATIONS	SEPTA TOTAL
DIRECT OUTPUT(\$M)	\$289	\$920	\$1,209	\$265	\$920	\$1,185
INDIRECT & INDUCED OUTPUT (\$M)	\$384	\$1,613	\$1,997	\$305	\$1,586	\$1,892
TOTAL OUTPUT (\$M)	\$673	\$2,533	\$3,206	\$570	\$2,506	\$3,077
TOTAL EMPLOYMENT (JOBS)	5,065	20,667	25,732	4,079	19,971	24,050
TOTAL EARNINGS (\$M)	\$214	\$1,237	\$1,451	\$170	\$1,201	\$1,371
TOTAL TAX REVENUES	\$11.9	\$50.6	\$62.5	n/a	n/a	n/a

Source: ESI (2013)

Fifth: Over the long-term, SEPTA will not be able to afford its current levels of service at status quo capital funding levels. Without an infusion of additional resources, the system will begin to shrink. SEPTA needs approximately \$452 million in additional annual capital funding to gradually work off its backlog over 20 years.

Without an infusion of additional capital funding:

- Over the long term, SEPTA will be forced to gradually truncate its system and eliminate services to make ends meet;
- The region will gradually experience a dramatic erosion of jobs, tax revenues, and property values as its dense, economically productive urban core becomes unattractive to business and residents; and
- The Commonwealth will suffer from the losses in its most economically productive region, as residents and businesses generate less tax revenue and locate elsewhere.

Long-term economic and fiscal impacts of status quo funding levels are modeled based on SEPTA’s estimate that its backlog of capital need will grow from \$4.7 billion to \$8.5 billion by 2032, or roughly 40 percent of SEPTA’s \$21 billion asset base. If unaddressed, this means that 40 percent of the system would ultimately be eliminated; \$100 million of savings in the short-run will cost \$400 million of investments. Under this scenario, a mass migration from transit oriented communities – the City and inner ring suburbs – would fuel another round of regional decentralization:

- The City of Philadelphia would lose close to 60,000 jobs, \$289 million in annual tax revenues, and more than \$14 billion (14 percent) of its property value;
- Southeastern Pennsylvania would lose close to 25,000 jobs, \$96 million in tax revenue, and more than \$8 billion in property value, as some City businesses and residents would relocate to the suburbs, while many would leave the region entirely; and

- The Commonwealth would lose nearly \$100 million in income and sales tax revenues from a gridlocked and less economically productive region.

LONG-TERM ECONOMIC & FISCAL LOSSES FROM STATUS QUO FUNDING LEVELS ARE SEVERE (40 PERCENT SERVICE REDUCTION SCENARIO)		
CITY OF PHILADELPHIA	ECONOMIC LOSSES	
	JOBS	(59,458)
	EARNINGS	\$(2,355,277,338)
	PROPERTY VALUE	\$(14,295,992,490)
	TAX REVENUE LOSSES	
	WAGE TAX	\$(88,558,428)
	SALES TAX	\$(11,776,387)
	PROPERTY TAX	\$(188,707,101)
	TOTAL TAX	\$(289,041,915)
SUBURBAN/COMMONWEALTH	ECONOMIC LOSSES	
	JOB LOSS (SUBURBAN)	(24,772)
	EARNINGS LOSS (SUBURBAN)	\$(1,631,078,911)
	PROPERTY VALUE (SUBURBAN)	\$(8,443,067,700)
	TAX REVENUE LOSSES	
	PROPERTY TAX (SUBURBAN)	\$(96,250,972)
	INCOME TAX (PA)	\$(50,074,123)
	SALES TAX (PA)	\$(48,932,367)
	TOTAL LOSS (PA)	\$(99,006,490)
<i>Source: ESI (2013)</i>		

It is important to note that SEPTA’s level of funding need presented in this report is associated with the state of good repair alone, and does not take into account additional needs associated with service expansion, such as rail extension projects, nor does it take into account the impact of mandates, such as a bus fleet conversion to natural gas. Costs associated with additional, elective projects would substantially add to SEPTA’s total funding need.

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SECTION 1: SOUTHEASTERN PENNSYLVANIA'S SHARE OF STATE TRANSPORTATION REVENUES & EXPENDITURES

The five counties of southeastern Pennsylvania – Bucks, Chester, Delaware, Montgomery, and Philadelphia – play a major role in Pennsylvania's economy. The region is responsible for 40 percent of Pennsylvania's economic output and represents 32 percent of its population, while being situated on just five percent of its total land. The economic productivity of southeastern Pennsylvania is largely a function of its density, which is supported by a comprehensive network of transportation assets that keep the region moving.

Southeastern Pennsylvania's density and economic productivity benefits the entire Commonwealth. The purpose of this section is to evaluate the extent to which southeastern Pennsylvania is a net contributor to the Commonwealth's transportation related revenue and expenditures.

1.1 OVERVIEW OF TRANSPORTATION FUNDING IN PENNSYLVANIA

The Pennsylvania Department of Transportation (PennDOT) manages the programs and policies affecting highways, public transportation, airports, railroads, ports and waterways. The department also oversees vehicle registration, operator licensing, and provides funding for State Police. In Fiscal Year (FY) 2012-2013, the agency oversaw more than \$6 billion in state and federal funds.

The majority of the state funding provided for highways, roads, and bridges is based on formulas established by the Pennsylvania State Legislature. These formulas are based on a varying combination of metrics, including: linear road miles, population, daily vehicle miles traveled (DVMT), bridge "deck" area, and state of repair. The state is divided into eleven engineering districts that provide engineering, maintenance, construction, traffic, and related services. The five counties of southeastern Pennsylvania are conterminous with PennDOT District 6.

In southeastern Pennsylvania (PennDOT District 6), transportation capital investment is guided by the Delaware Valley Regional Planning Commission (DVRPC), the federally-mandated metropolitan planning organization (MPO) for the region.¹ DVRPC works with PennDOT and local governments to develop the Transportation Improvement Plan (TIP), which guides the allocation of formula-based and discretionary federal and state funds for multimodal transportation – roads, transit, bicycle, pedestrian, and freight.

1.1-1 FUNDING FOR HIGHWAYS, ROADS, & BRIDGES

The primary source of funding for roads and bridges in the Commonwealth of Pennsylvania is the Motor License Fund (MLF). The MLF funds capital investment in and maintenance of state-owned roads and bridges, purchase of rights-of-way, as well as aviation, licensing, and safety activities. It also funds State Police highway patrol operations and subsidizes construction and maintenance of locally-owned roads.

The MLF is capitalized primarily through state-levied taxes, fees, and the pass through of federal funds. The Pennsylvania State Constitution prohibits the use of MLF funds for anything other than capital investment in and maintenance of roads and bridges. The state has more discretion in allocation of federal funds for roads and bridges, including flexing a portion of those funds to public transit. Formulas also guide the majority of transit funding at both the state and federal level. By in large, state funds are used for maintenance expenditures, while federal funds are used for capital investment.

PennDOT budget documents identify four categories of funding: state, federal, restricted, and augmentation.

¹ DVRPC is a bi-state agency that also includes Burlington, Camden, Gloucester, and Mercer counties in New Jersey.

- **State:** revenues from taxes and fees levied by the state;
- **Federal:** pass-through funds received by the state to support all modes of transportation;
- **Restricted:** revenues raised through state-levied taxes and fees but allocated for a specific purpose; and
- **Augmentation:** revenues such as institutional billings or fees credited to a specific appropriation of state revenues.

Table 1 summarizes MLF revenue sources by each of these categories:

TABLE 1: PENNSYLVANIA MOTOR LICENSE FUND (MLF) SUMMARY (FY2010-2011)

SOURCES	REVENUE (\$000)
SUB-TOTAL STATE FUNDS	\$2,521,275
LIQUID FUEL TAXES (INCLUDES OIL COMPANY FRANCHISE TAX)	\$ 1,218,635
OPERATORS' LICENSES	\$61,477
VEHICLE REGISTRATION AND TITLING	\$692,351
OTHER REGISTRATION FEES	\$137,724
PA TURNPIKE ANNUAL PAYMENTS	\$200,000
OTHER REVENUE	\$211,088
SUB-TOTAL FEDERAL FUNDS	\$1,402,877
SUB-TOTAL RESTRICTED REVENUES	\$883,409
LIQUID FUELS TAX (OIL COMPANY FRANCHISE TAX)	\$862,047
REGISTRATION FEES	\$11,461
OTHER REVENUES (AVIATION FEES, HAULING PERMIT FEES)	\$9,901
SUB-TOTAL AUGMENTATIONS	\$224,176
TOTAL MLF REVENUES	\$5,031,737
<i>Source: Pennsylvania State Budget (FY2010-2011)</i>	

1.1-2 FUNDING FOR PUBLIC TRANSIT

The Pennsylvania Public Transportation Trust Fund is the primary source of state funding for public transit operating and capital investment. Revenue sources include:

- Dedicated 4.4 percent of sales tax revenue;
- State Lottery, providing funding for free or discounted transportation for senior citizens;
- Public Transportation Assistance Fund, capitalized by a tire fee (\$1 per tire), car rental fee (\$2 per day fee), car lease tax (3 percent), and sales tax revenues (0.947 percent); and
- Capital facilities fund bond proceeds.

These sources provided \$1.06 billion in statewide transit funding in FY2010-2011 and \$1.1 billion in FY2011-2012. State funds are also augmented by federal funds, local funds, and passenger fares.

1.2 SOUTHEASTERN PENNSYLVANIA’S CONTRIBUTION TO STATE TRANSPORTATION FUNDS

Analysis finds that 89 percent of state-generated MLF revenues can be attributed to a specific geographic area.² A variety of data limitations make it impossible to attribute the remaining 11 percent of MLF funds and all public transit revenues by geography (i.e., county or region).³

² This analysis does not include federal pass-through funds.

³ While sales tax revenues are available at the county level, the figures represent collections by county of remittance rather than by county of sale, so county remittances are not representative of where revenues are raised.

1.2-1 LIQUID FUEL (“GAS”) TAX REVENUE

To determine gas tax revenue generated in southeastern Pennsylvania, this analysis examined daily vehicle miles traveled (DVMT) data in PennDOT’s District 6, which encompasses the five-county area of southeastern Pennsylvania. The most recent DVMT data from 2010 shows that 24 percent of statewide vehicle miles traveled occurred in District 6. Table 2 shows that using this as an approximation of gas tax receipts in the region, southeastern Pennsylvania contributed 24 percent (nearly \$300 million) of statewide gas tax revenue in FY2010-2011.

TABLE 2: SOUTHEAST PA SHARE OF GAS TAX REVENUE (FY2010-2011)

(\$000)	DVMT (000)	GAS TAX REVENUE	SOUTHEAST PA SHARE
SOUTHEAST PA	67,496	\$296,628	24.3%
PENNSYLVANIA	277,293	\$1,218,635	

Source: PennDOT, Economy League

Because Oil Company Franchise Tax revenues are reported as part of liquid fuel taxes, this analysis requires two assumptions: first, that both revenue streams are driven by DVMT; and second, that vehicle fuel economy is consistent between southeastern Pennsylvania and the rest of the state. It should also be noted that this analysis does not take into account vehicles that travel in southeastern Pennsylvania but fuel outside of the five counties, nor does it take into account the proportionate share of DVMT by vehicles that do not pay liquid fuels tax, including SEPTA. These vehicles are assumed to represent a negligible share of total vehicle miles across the region and state.

1.2-2 OPERATORS’ LICENSES

Driver license fees in Pennsylvania vary based on vehicle type. Of all licenses issued, 96 percent were to non-commercial automobile or motorcycle owners. Revenues from these licenses were allocated by examining county-by-county data of licensed drivers. This analysis then aggregated the five counties of southeastern Pennsylvania to determine the regional share. Table 3 shows that based on this methodology, southeastern Pennsylvania contributed 29 percent (\$61 million) of statewide operator license revenue.

TABLE 3: SOUTHEAST PA SHARE OF OPERATOR LICENSE FEES (FY2010-2011)

(\$000)	REVENUE	SOUTHEAST PA SHARE
SOUTHEAST PA	\$ 17,821	29.0%
PENNSYLVANIA	\$ 61,477	

Source: PennDOT, Economy League

1.2-3 VEHICLE REGISTRATION & TITLING FEES

Vehicle registration fees in Pennsylvania vary based on vehicle type and size, with costs ranging from \$9 to \$1,500 per registration. Revenues were allocated by collecting data on vehicle registrations by county and by applying fee schedules to each vehicle type and weight. The analysis then aggregated results from the five counties of southeastern Pennsylvania to determine the regional share. Table 4 shows that based on this methodology, southeastern Pennsylvania contributed 21 percent (\$145 million) of statewide registration fee revenue.

TABLE 4: SOUTHEAST PA SHARE OF VEHICLE REGISTRATION FEES (FY2010-2011)

(\$000)	REVENUE	SOUTHEAST PA SHARE
SOUTHEAST PA	\$145,507	21.0%
PENNSYLVANIA	\$692,351	
<i>Source: PennDOT, Economy League</i>		

This analysis requires two assumptions: first, fees for buses and limousines are weight-based, but available data does not include weight, and therefore these vehicles are all assessed at the lowest rate of \$54. Second, the analysis assesses vehicles listed as “other” at the passenger vehicle rate of \$36.

1.2-4 PENNSYLVANIA TURNPIKE PAYMENTS

Turnpike tolls are collected at interchanges across the state. The regional share of toll revenue is assessed by aggregating gross toll revenue for each of the exits in southeastern Pennsylvania. In 2012, tolls collected at exits in the five counties accounted for 35 percent (\$277 million) of the approximately \$800 million in annual Turnpike revenues. Approximately one-quarter (\$200 million) of Turnpike revenues were transferred to the MLF in FY2010-2011; applying the same percentage of total Turnpike revenues, the region’s approximate share of MLF-designated Turnpike revenue was \$69.8 million.

1.2-5 RESTRICTED REVENUES

Restricted revenues are designated by law or administrative decision for specific purposes. In the case of transportation, these funds are deposited in the MLF but reported separately. Ninety-eight percent of these revenues are raised through the Oil Company Franchise Tax, 1 percent from registration fees, and 1 percent from aviation and hauling permit fees. Restricted revenues total more than \$883 million, and an estimated \$209 million of that total is generated by this region, based on proportionate share of DVMT.

1.2-6 TOTAL ESTIMATED REGIONAL MOTOR LICENSE FUND REVENUES

Table 5 provides a summary of MLF revenue streams analyzed geographically, which represent 89 percent of MLF state-generated revenue, as well as the remaining 11 percent that cannot be attributed to a particular part of the state due to data limitations. Of those funding sources that can be estimated on a geographic basis, southeastern Pennsylvania accounts for 24 percent of revenues.

TABLE 5: SOUTHEAST PA SHARE OF MOTOR LICENSE FUND REVENUES (FY2010-2011)

	(\$000)	STATE REVENUE	SOUTHEAST PA CONTRIBUTION	SOUTHEAST PA SHARE
GEOGRAPHICALLY BASED MLF REVENUES	LIQUID FUEL TAXES	\$1,218,635	\$296,628	24%
	OPERATORS' LICENSES	\$61,477	\$17,821	29%
	VEHICLE REGISTRATION & TITLING	\$692,351	\$145,507	21%
	PA TURNPIKE ANNUAL PAYMENTS	\$200,000	\$69,800	35%
	MLF RESTRICTED REVENUES	\$873,508	\$209,298	24%
	SUB-TOTAL	\$3,045,971	\$739,054	24%
NON-GEOGRAPHICALLY BASED MLF REVENUES	SUB-TOTAL	\$358,713	N/A	N/A
TOTAL	MLF REVENUES (STATE-GENERATED)	\$3,404,684	N/A	N/A

Note: An "n/a" refers to components of the MLF that cannot be geographically attributed
Source: PennDOT, Economy League

1.3 SOUTHEASTERN PENNSYLVANIA’S SHARE OF STATE TRANSPORTATION INVESTMENT

Southeastern Pennsylvania’s share of Commonwealth transportation investment was estimated by analyzing PennDOT’s capital, maintenance, and operating expenditures for highways, roads, bridges, and mass transit. This analysis does not include rail freight, intercity bus service, aviation, state police, or categories related to general operations, which cannot be assigned to geography due to data limitations.

1.3-1 MOTOR LICENSE FUND (HIGHWAYS, ROADS, & BRIDGES)

In FY2010-2011, the MLF provided approximately \$4 billion for state and locally-owned highways, roads and bridges. (Note: this total includes both state and passed-through federal funding). MLF revenues also support approximately \$880 million for support activities, including state police and debt service.

CAPITAL

Southeastern Pennsylvania’s share of state highway, road, and bridge investment for capital was determined by examining Delaware Valley Regional Planning Commission (DVRPC) data on “actual” capital funding provided by PennDOT to District 6.⁴ Federal funding is included because the federal government pass-through funds present a substantial share for highway and bridge capital investment. Table 6 shows southeastern Pennsylvania’s total capital expenditures by state, federal, and mixed funds⁵ for FY2010-2011 and FY2011-2012 and the representative share of total state highway and bridge investment (exception: federal pass-through funding for interstate highways, which cannot be allocated by county or region due to data limitations). Over these two fiscal years, southeastern Pennsylvania’s share of state highway, road, and bridge capital investment was between 18-20 percent.⁶

⁴ Alternatively, this analysis could use “allocated” funding figures. As the names indicate, the difference between these figures is that “actual” represent funds that have been obligated or encumbered, while “allocated” have been approved, but not yet used. Because it is possible for funds to be allocated but not used, we have chosen to rely on “actual” funds for this analysis.

⁵ Mixed funds include a combination of federal and state dollars.

⁶ Although not displayed above, figures for FY2008-2009 and FY2010-2011 were also collected for this analysis. American Recovery and Reinvestment Act (ARRA) federal funding made for higher funding levels in those years, but total shares were similar – 18.6 percent and 18.3 percent, respectively.

TABLE 6: SOUTHEAST PA SHARE OF STATE HIGHWAY, ROAD, & BRIDGE CAPITAL EXPENDITURES BY SOURCE (FY2010-2012)

(\$000)	FY 2010-11			FY 2011-12		
	SOUTHEAST PA	PENNSYLVANIA	SOUTHEAST PA SHARE	SOUTHEAST PA	PENNSYLVANIA	SOUTHEAST PA SHARE
STATE	\$121,750	\$606,945	20.1%	\$127,394	\$631,118	20.2%
FEDERAL	\$289,165	\$1,414,370	20.4%	\$286,278	\$1,510,164	19.0%
MIXED	\$0	\$65,171	0%	\$978	\$80,829	1.2%
TOTAL	\$410,915	\$2,086,486	19.7%	\$414,650	\$2,222,111	18.7%

Source: DVRPC
*Federal FY (October 1 – September 30)

OPERATIONS & MAINTENANCE

Data for expenditures on highway, road, and bridge operations and maintenance (O&M) was provided by PennDOT. This represents funding provided for maintenance and repairs and funding provided to municipalities to assist with locally-owned infrastructure. It includes base funding from the MLF as well as funding from several restricted revenue streams that have been carved out specifically for counties and municipalities. This funding is allocated using formulas based on linear road mileage, population, bridge “deck” area, and DVMT. Table 7 shows total O&M and southeastern Pennsylvania’s share for FY2010-2011 and FY2011-2012. Over these two fiscal years, southeastern Pennsylvania’s share of state highway, road, and bridge O&M was approximately 15 percent.

TABLE 7: SOUTHEAST PA SHARE OF STATE HIGHWAY & BRIDGE MAINTENANCE EXPENDITURES (FY2010-2012)

(\$000)	FY 2010-11	FY 2011-12
SOUTHEAST PA	\$248,395	\$270,444
PENNSYLVANIA	\$1,671,972	\$1,792,758
SOUTHEAST PA SHARE	14.9%	15.1%

Source: PennDOT

SUMMARY

By combining the capital investment and O&M, Table 8 provides an estimate of southeastern Pennsylvania’s share of statewide investment in highways, roads, and bridges for FY2010-2011 and 2011-2012: approximately 17 percent. This share is considerably lower than the region’s 24 percent share of transportation-related revenues.

TABLE 8: SOUTHEAST PA SHARE OF TOTAL STATE ROAD & BRIDGE EXPENDITURES (FY2010-2012)

(\$000)	FY 2010-11	FY 2011-12
SOUTHEAST PA	\$659,309	\$685,094
PENNSYLVANIA	\$3,758,458	\$4,014,869
SOUTHEAST PA SHARE	17.5%	17.1%

Source: Economy League

1.3-2 PUBLIC TRANSIT

The Pennsylvania Public Transportation Trust fund provides funding through five separate accounts.

- Transit Operating Account;
- Asset Improvement Program;
- Capital Improvement Program;
- New Initiatives (Unfunded as of 2011); and
- Programs of Statewide Significance (Technical assistance and demonstration projects; rural transportation for persons with disabilities; match on New Freedom, JARC, and Keystone Rail Service).

These funds support Pennsylvania’s 36 fixed route transit agencies and 26 community transit agencies. Fixed route agencies provide regularly scheduled transportation on designated routes while community transit provides door-to-door service on request. State funds subsidize 85 percent of the cost of rides for senior citizens (Shared Ride program) and persons with disabilities.

To determine southeastern Pennsylvania’s share of statewide transit funding, this analysis aggregated funding for SEPTA and community transportation operators within the five-county area.

SEPTA

SEPTA is by far the largest transit agency in the Commonwealth, without peer based on the geographic size and density of the region it serves. Southeastern Pennsylvania accounts for just 5 percent of the state’s land and yet accounts for 32 percent of its population. SEPTA carries 77 percent of statewide mass transit riders (333 million of 434 million unlinked passenger trips statewide in FY2012).

To estimate the share of total state transit funding that SEPTA receives, this analysis uses figures provided by PennDOT’s Bureau of Public Transportation. Figures are grouped into the following categories: operating, capital, shared ride, and other (programs of statewide significance from the accounts listed above). SEPTA’s 61 percent share of state transit funding is well below its 77 percent share of mass transit riders, in part because SEPTA is able to provide transit services at a lower cost than other agencies in the Commonwealth. SEPTA receives a smaller share of its operating budget from the state than the statewide average (45.4 percent vs. 50.1 percent statewide), while at the same time it returns a higher share of its expenses through passenger fares (42.3 percent vs. 25.0 percent statewide). As a result, SEPTA’s operating subsidy per passenger is \$1.49, compared to the statewide average of \$2.66.⁷ (More information on comparative metrics in Section 3.3 of this report).

COMMUNITY TRANSPORTATION

Community transportation companies operate in the four suburban counties in the region: Bucks County Transport, Inc., Rover in Chester County, Community Transit of Delaware County, and Suburban Transit Network, Inc. in Montgomery County. In Philadelphia, SEPTA provides community transportation services (funded under the “Shared Ride” category).

SUMMARY

Table 9 shows aggregate state funding for mass transit and community transport. In FY2010-2011 and FY 2011-2012, southeastern Pennsylvania received 62 to 63 percent of total statewide public transportation funding.

TABLE 9: SOUTHEAST PA SHARE OF TOTAL STATE PUBLIC TRANSPORTATION EXPENDITURES (FY2010-2012)

(\$000)	FY 2010-2011				FY 2011-2012			
	SEPTA	COMMUNITY TRANSPORT	PA	SOUTHEAST PA SHARE	SEPTA	COMMUNITY TRANSPORT	PA	SOUTHEAST PA SHARE
OPERATING	\$497,867	\$121	\$766,562	65.0%	\$513,309*	\$112	\$790,236	65.0%
CAPITAL	\$133,462	\$0	\$184,000	70.5%	\$138,090	\$0	\$190,504	71.0%
OTHER	\$21,421	\$14,367	\$109,872	32.6%	\$20,971	\$15,374	\$125,511	29.0%
TOTAL	\$652,750	\$14,488	\$1,060,434	62.9%	\$672,370	\$15,486	\$1,106,251	62.2%

Source: PennDOT, Bureau of Public Transportation
 * Includes \$112 thousand in “Free Transit” program

⁷ Note that ridership counts, expenses and revenues presented in this section are calculated based on data provided by the PennDOT Bureau of Public Transportation and differ slightly from figures presented in other parts of the report, which are based on data from the National Transit Database and were generated by different reporting methodologies.

1.4 TOTAL TRANSPORTATION EXPENDITURES (GEOGRAPHICALLY BASED)

Table 10 shows combined geographically based highway, road, bridge, and transit funding to estimate southeastern Pennsylvania’s share of total state transportation funding. Based on the methodologies described in this report, in FY2010-2011 and FY2011-2012, southeastern Pennsylvania received approximately 27 percent of total state transportation funding. The estimates are based on approximately 80 percent of actual transportation investment; the remaining 20 percent funds highway, road, and bridge expenditures that cannot be allocated geographically as well as rail freight and aviation, state police, debt service, and general DOT operations.

TABLE 10: SOUTHEAST PA SHARE OF ALLOCATED STATE TRANSPORTATION EXPENDITURES (FY2010-2012)

(\$000)	FY 2010-2011			FY 2011-2012		
	SOUTHEAST PA	PENNSYLVANIA	SOUTHEAST PA SHARE	SOUTHEAST PA	PENNSYLVANIA	SOUTHEAST PA SHARE
HIGHWAYS, ROADS & BRIDGES	\$659,309	\$3,758,458	17.5%	\$ 685,094	\$4,014,869	17.1%
PUBLIC TRANSPORTATION	\$667,238	\$1,060,434	62.9%	\$ 687,856	\$1,106,251	62.2%
TOTAL	\$1,326,547	\$4,818,892	27.5%	\$1,372,950	\$5,121,120	26.8%

Source: Economy League

SECTION 2: SEPTA'S STEWARDSHIP OF PUBLIC FUNDS

Although SEPTA has made significant progress in improving its aging infrastructure, throughout most of its history severe capital constraints have prevented SEPTA from bringing the existing system into a state of good repair, let alone meeting the expansion needs of a growing region. For a brief period, between FY2008 and 2010, SEPTA received a significant increase in its capital budget, with the expectation that at least part of the increase would be permanent. This experience provides a unique window to evaluate the performance of SEPTA in a less constrained fiscal environment.

During this three-year period, SEPTA's capital investments were nearly 32 percent higher on average than in the previous three years.⁸ Since 2010, SEPTA's capital investments have been gradually declining annually, and in 2012 they were at nearly the same nominal level that prevailed in 2005. Adjusting for inflation, SEPTA's FY2012's infrastructure investments are 37 percent lower than in FY2009.⁹ Infrastructure investments are expected to decline further in FY2013.

SEPTA's ability to invest more in its infrastructure in FY 2008-2010 was the result of two pieces of legislation, one state and one federal. In 2007, the Pennsylvania State Legislature adopted Act 44, which created the Public Transportation Trust Fund and provided significant additional revenue for both capital investment and operations. The increase in capital funding through Act 44 was formula-based, intended to be permanent, and to grow over time. A large portion of capital funding provided by Act 44 was to be derived from revenue generated by the anticipated imposition of tolls on I-80, which never materialized. In FY2009, SEPTA also received a one-time, temporary infusion of capital funding from the federal government through the American Recovery and Reinvestment Act (ARRA). ARRA funds were primarily invested in FY2009 and FY2010, with a small amount in FY2011. In contrast to the funding increase provided by Act 44, ARRA funds were limited to capital investment, also allocated on a formula basis for "shovel ready" projects.

This section examines SEPTA's stewardship of these two temporary infusions of capital funds. Specifically this analysis presents findings on:

- The extent to which the increase in investment in SEPTA associated with Act 44 translated into improved market performance;
- The impacts of increased funding from Act 44 on service levels, quality, and the state of good repair of SEPTA's transit infrastructure; and
- SEPTA's ability to invest ARRA funds in "shovel-ready" projects, its performance in executing those contracts and completing the projects in a timely manner, and their impact on the state of repair of the regional transit system.

2.1 FUNDING & MARKET PERFORMANCE

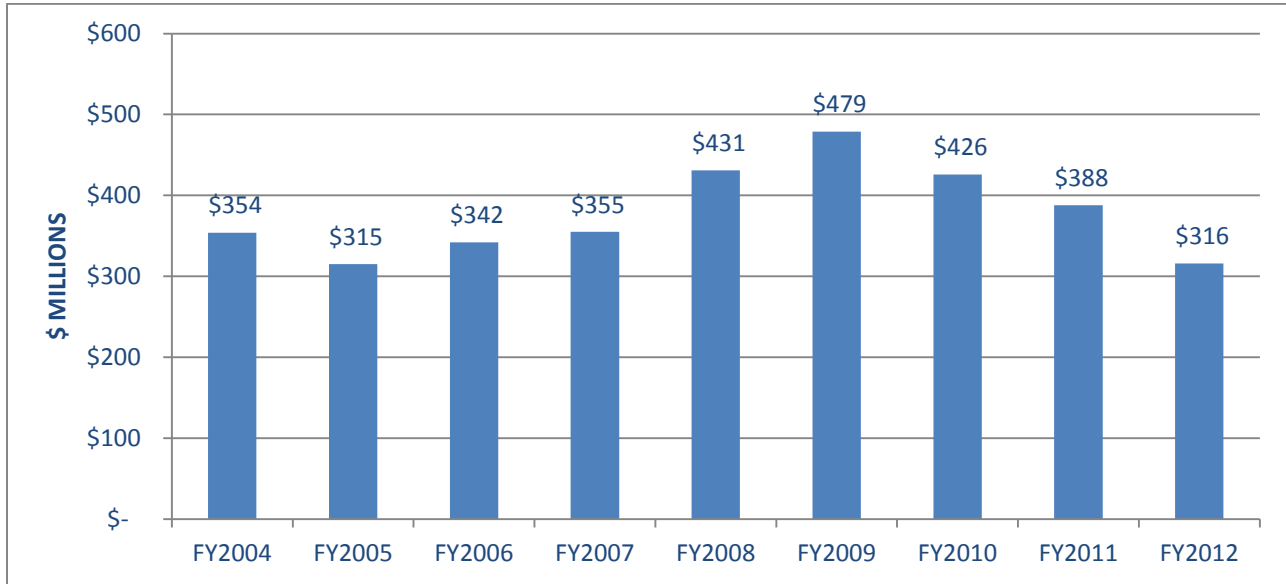
From a big picture perspective, did the increases in SEPTA funding actually translate into improved market performance of the Authority? To examine this question, our analysis examines customer satisfaction, ridership, and capital expenditures over the last nine years.

⁸ Analysis focuses on actual disbursements for capital investments rather than SEPTA's budgeted amounts since disbursements differ considerably from budgeted amounts from year to year.

⁹ Uses a GDP Deflator to adjust for inflation.

Figure 1 shows the level of SEPTA capital investments since FY2004. SEPTA’s capital funding increased more than \$75 million between FY2007 and FY2008 following the adoption of Act 44. SEPTA’s capital investment was further augmented in FY2009 by ARRA funds, when its capital expenditures were more than \$124 million greater than they were in FY2007. Infrastructure expenditures fell somewhat in FY2010 as ARRA-funded projects were completed, and again in FY2011 as a result of the Turnpike Commission’s failure to win approval to toll I-80, which cut SEPTA’s capital funding from Act 44 by \$110 million.¹⁰ FY2012 expenditures fell significantly as a result of the decrease in Act 44 funds and the exhaustion of ARRA funding, falling 34 percent below their FY2010 peak. No growth is anticipated for FY2013 and beyond based on current capital funding streams from the federal and state government.

FIGURE 1: SEPTA CAPITAL EXPENDITURES (FY2004-2012)



Source: SEPTA CPMS Reports (2004-2012)

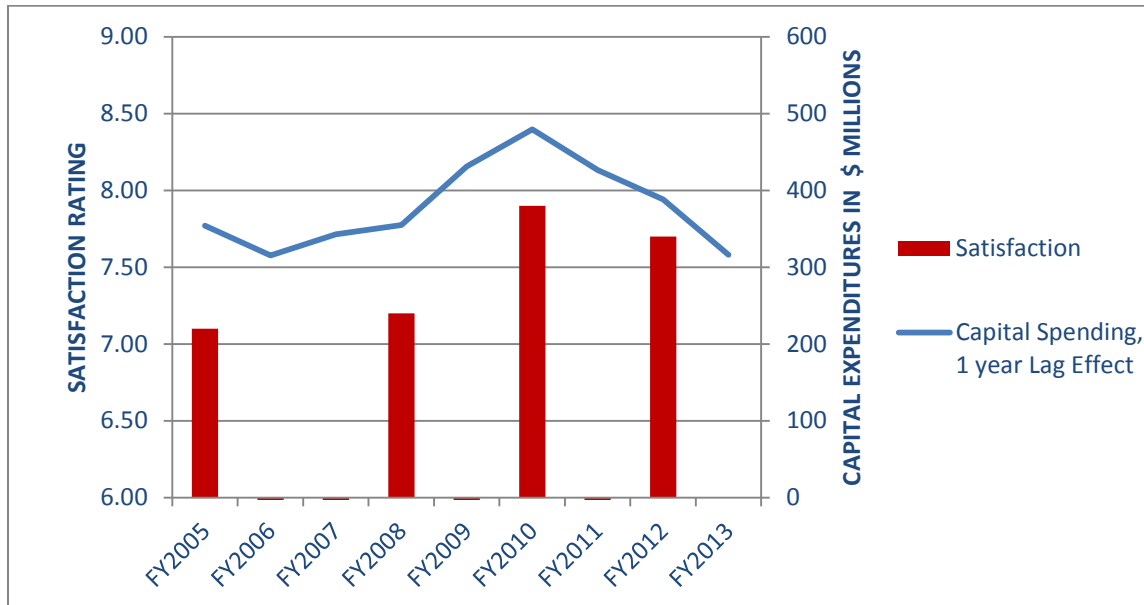
During the years in which SEPTA had a boost in funds for capital investment, it made significant investments in the basic infrastructure of the system and, importantly, to make meaningful improvements for public transit riders. Despite the inherent difficulty of successfully managing a sudden increase in expenditures, SEPTA’s increased capital investment paid off, as reflected in the level of SEPTA rider satisfaction measured by its annual Customer Satisfaction Surveys of the period of FY2010 to FY2012.

SEPTA periodically undertakes a rigorous survey of its riders (and a smaller sample of non-riders) to gauge its performance as perceived by current and potential customers. Figure 2 displays the results of this survey on a scale of 0 to 10 starting in FY2005. Customer satisfaction is plotted against capital investments, moved up one year to reflect the anticipated lag between infrastructure improvements and customer perception (in other words, FY2009 expenditures are shown in FY2010 to match when their impact on customers would occur).

Figure 2 clearly shows that customer satisfaction improved significantly during the period of increased capital investment between FY2009 and FY2011. Customer satisfaction rose from 7.1 in FY2005, before Act 44 was adopted, to 7.2 in 2008 and 7.9 in FY2010, two years after the beginning of significant infrastructure investment. Following declining rates of investment between FY2011-2013, the most recent customer satisfaction survey administered in late FY2012 is now showing a slight decline.

¹⁰ The failure to toll I-80 reduced capital funding for public transportation by \$150 annually statewide, and by roughly \$110 million for SEPTA.

FIGURE 2: CUSTOMER SATISFACTION & CAPITAL INVESTMENT (FY2005-2012)



Source: SEPTA Customer Satisfaction Surveys (2008, 2010, 2012 (draft)), CPMS Reports

One conclusion drawn from this trend is that customer satisfaction is correlated with capital investment, and that when SEPTA had the funds to improve the environment within which passengers travel, customers responded favorably. These investments enabled SEPTA to deliver a service that was more reliable, and reliability is highly valued by SEPTA customers as reflected by its consumer satisfaction survey.¹¹ Infrastructure investments were also coupled with selective service enhancements, leveraging the increased reliability afforded by the capital investments.

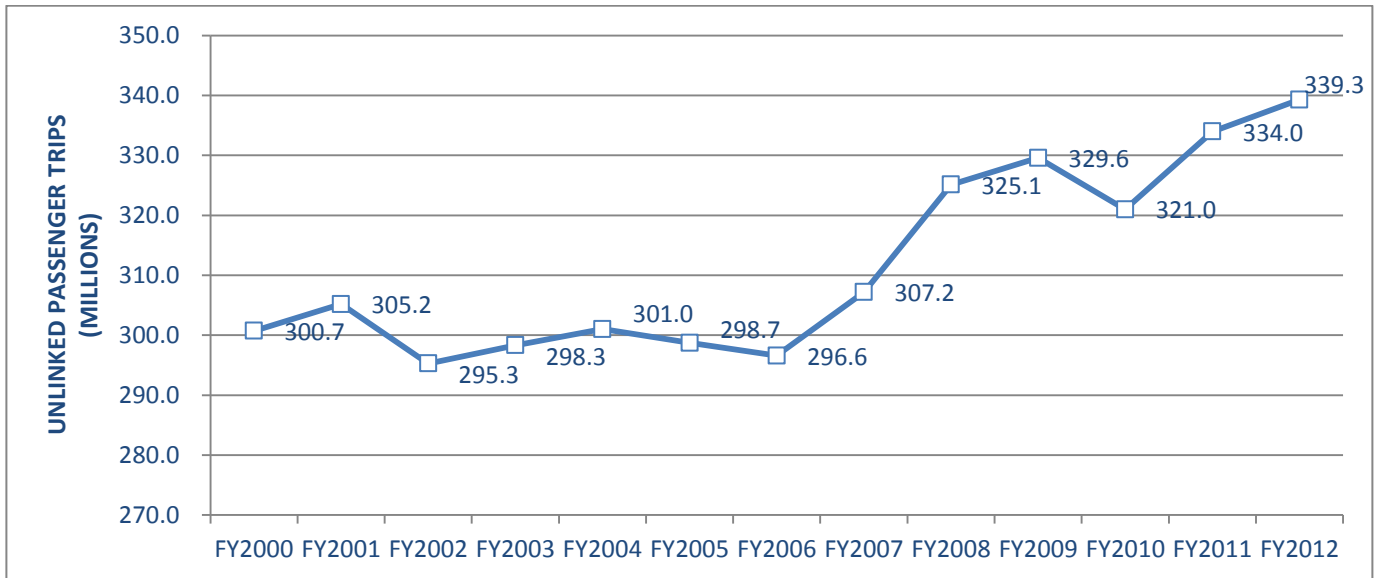
Increased capital (and operating) funding may also improve customer satisfaction in a less obvious way. Prior to Act 44, there was a perception among riders that SEPTA was always on the brink of financial crisis—this uncertainty meant that riders and potential riders could not depend on SEPTA in the long run, which breeds a culture of dissatisfaction. Indeed, a customer’s options for commuting to work are an important factor in where they choose to live and what private transportation investments he or she makes. Funding continuity therefore indirectly improves rider satisfaction. For a few years, SEPTA benefitted from a shift in perception brought on by more adequate and stable funding, helping to change the extent to which the region values its transit assets.¹²

The upshot: SEPTA’s ridership is at a twenty-three-year high. Figure 3 shows SEPTA annual ridership since 2000.

¹¹ On-time performance statistics show that customers value reliability higher than any other service characteristic, and almost as high as safety. National Center for Transit Research Center for Urban Transportation Research and FDOT, Transit Ridership, Reliability, and Retention, October 2008.

¹² One can see this in the changing nature of SEPTA’s press coverage and on local transportation blogs and reviews such as Yelp.

FIGURE 3: SEPTA RIDERSHIP (FY2000-2012)



Source: SEPTA (2013)

In the eight years prior to Act 44 (FY2000-2007) total SEPTA ridership averaged less than 300 million riders per year, while in the six years following Act 44 ridership averaged over 300 million riders per year. Fares paid by riders increased from \$344 million in FY2007 to \$446 million in FY2013 as a result of the increased ridership and periodic inflationary fare increases. The operating and capital investments that SEPTA made to improve its system during this time made its service more attractive to riders when gas prices spiked in FY2008 and FY2009. As Figure 3 clearly illustrates, SEPTA has sustained those ridership gains in subsequent fiscal years.¹³ This is particularly significant given the historic relationship between transit ridership and economic activity. The fact that SEPTA’s ridership increased during the most severe economic downturn since the Great Depression strengthens the conclusion that these investments were a driving force behind increased use of the system.

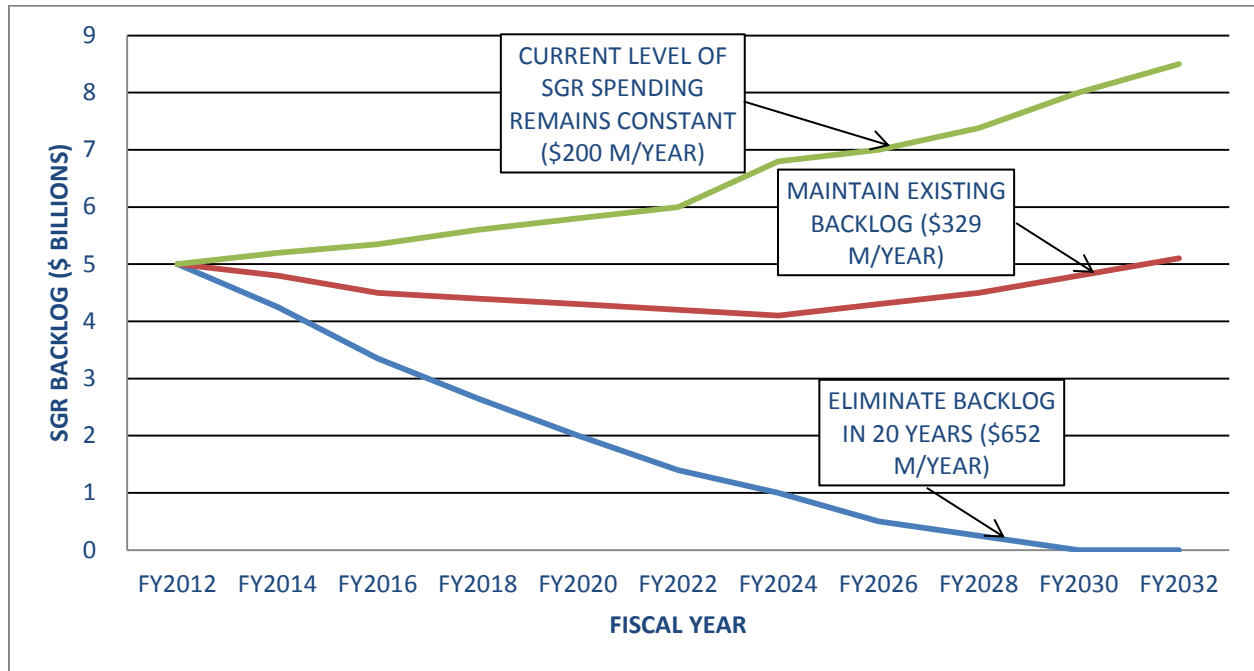
In sum, SEPTA has used its increased capital and operating funding to increase its share of regional travel. It significantly improved its product in the eyes of the region’s residents, both riders and non-riders, and generated significantly higher operating revenue as a result.¹⁴

With funding levels now reset at a 15-year low, it will not be possible for SEPTA to sustain and grow transit ridership. Without sufficient capital investment to continue to bring the system into a state of good repair, it will not even have enough funds to sufficiently operate the system. As shown in Figure 4, SEPTA forecasts that at current “State of Good Repair” investment levels, the backlog of unfunded needs will expand. SEPTA estimates that it needs to invest an additional \$129 million annually to maintain the system in its current state of repair, and an additional \$452 million annually to eliminate its backlog of needs within the next 20 years.

¹³ The exception to SEPTA’s otherwise unabated upward trend in ridership growth was FY2010, during which a six-day service interruption had a downward effect in SEPTA’s overall ridership for the fiscal year.

¹⁴ During the period following the adoption of Act 44, SEPTA managed to improve its public perception among area residents who did not use SEPTA’s services as well as those that did use the service.

FIGURE 4: SEPTA PROJECTED STATE OF GOOD REPAIR NEEDS (FY2012-2030)



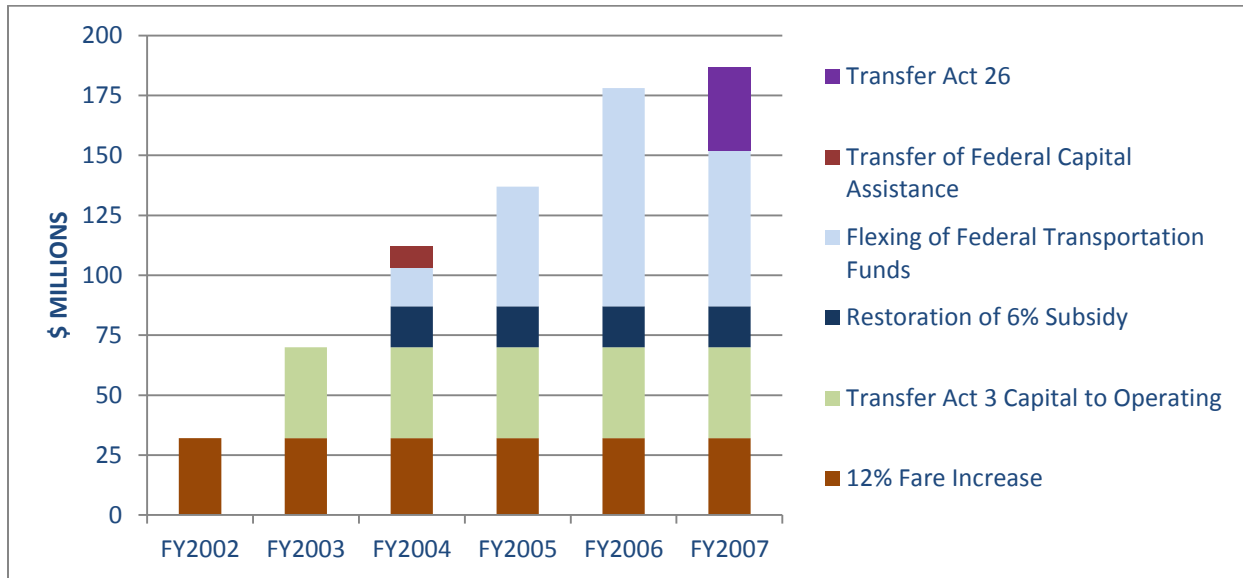
Source: SEPTA (2013)

2.2 IMPROVEMENTS FROM ADOPTION OF ACT 44 OF 2007

2.2-1 THE PROBLEM

Prior to the adoption of Act 44 in 2007, SEPTA suffered from chronic underfunding of both its operations and its capital program. Operating funding relied primarily on annual appropriations from the Commonwealth’s general fund while capital investment was supported primarily by a combination of Federal funds and dedicated state funding through Act 26 and Act 3. From FY2001 through FY2007, static state appropriations for operations had led to chronic operating funding shortfalls. In addition to fare increases, these shortfalls were often overcome by transferring transit and highway capital funding to fund transit operating budgets. Figure 5 summarizes these funds transfers that took place prior to Act 44 to fill SEPTA operating budget gaps.

FIGURE 5: PUBLIC FUNDS TRANSFERRED TO SEPTA PRIOR TO ACT 44



Source: *The Price of Inaction, Economy League (2007)*

While the flexing of highway funds and shifting of capital funds to operations prevented dramatic service cuts and fare increases at SEPTA, diverting funds from capital accelerated the erosion of core infrastructure that was already in desperate need for investment. SEPTA was effectively forced to “steal” from the future to pay for current operations. SEPTA noted in its 2007 Capital Budget:

Despite the progress SEPTA has made in bringing the transit system in this region to a state of good repair, capital projects have been phased or delayed due to financial constraints. In addition, projects to serve new markets and major new starts have been unable to advance. Projects such as the renovation of Broad Street Subway stations at Girard and Spring Garden, modernization of the Authority’s fare collection system, restoration of rail service between Elwyn and Wawa, replacement of regional rail substations, and improvements to bus and rail shops have not been advanced in as timely a manner as conditions and needs warranted.¹⁵

2.2-2 A PARTIAL SOLUTION – ACT 44

In 2007, the state legislature addressed the public transit funding problem in a comprehensive way with the adoption of Act 44. Act 44 created the Public Transportation Trust Fund (PTTF), which for the first time in Pennsylvania created a unified, dedicated source of funding for public transportation that is not dependent on annual legislative appropriations. The PTTF is funded by dedicating a portion of state sales tax revenues, funds from the Pennsylvania Lottery, state bond funds, taxes supporting the prior Public Transportation Assistance Fund (PTAF), and toll revenue from the Pennsylvania Turnpike Commission.¹⁶

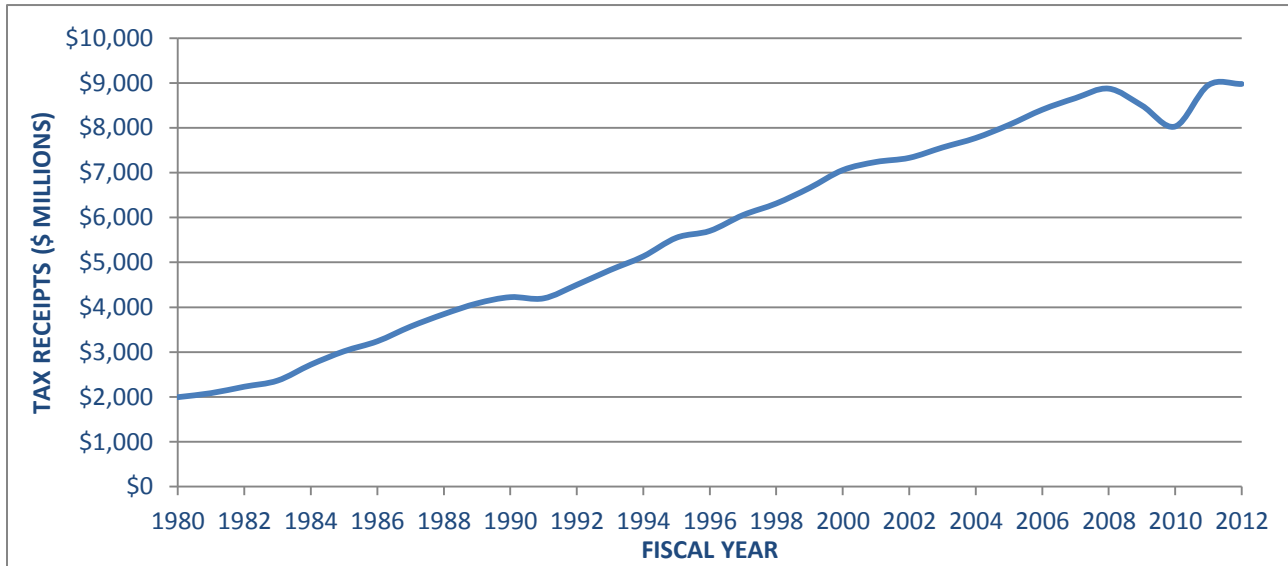
In contrast to prior years, Act 44 was intended to provide funding sources that are predictable, dedicated, and inflation-sensitive. A key source of funds for the PTTF is the dedication of a 4.4 percent of the State’s sales tax for transit. This normally reliable source of funding tends to grow over time, making it ideal to offset the effects of inflation on the value of transit funding. The sales tax, for example, more than doubled from FY1990 through

¹⁵ SEPTA 2007 Capital Budget, p.19

¹⁶ Act 44 Public Transportation Program Factsheet, Pennsylvania Department of Transportation, 2011

FY2010, but because of the recession, sales tax revenues dipped significantly in FY2009 and FY2010, exacerbating the funding problem for public transit across the state and affecting SEPTA in particular.¹⁷

FIGURE 6: PA SALES TAX REVENUE (1980-2012-Q3)



Source: Commonwealth of Pennsylvania (2013)

Another key element of Act 44 is the funding of transit, for both operating and capital needs, from the Pennsylvania Turnpike Commission revenue. Under Act 44, the Turnpike Commission was to increase its payments to PTF by 2.5 percent per year, provided that it was given permission to toll I-80 across the northern tier of Pennsylvania. Ultimately, when the tolling plan was rejected by the Federal Highway Administration (FHWA) in April 2010, Act 44 funding levels were rolled back and flat-lined. When that happened, SEPTA lost \$110 million in annual capital funding and its source of inflation-indexed funding for operations.

2.2-3 SEPTA’S USE OF ACT 44 FUNDS

For the nearly three years that Act 44 was solvent, the new operating and capital funds allowed SEPTA to selectively increase service and to begin to address its backlog of needed infrastructure investments. In terms of operations, SEPTA increased frequency of service on many routes and even created new routes, such as the Route 72. (See Table 11 for more details on selected service improvements)

TABLE 11: POST ACT 44 SELECTED SEPTA SERVICE IMPROVEMENTS

SEPTA ROUTE	NATURE OF SERVICE IMPROVEMENT	RESULT
14	SWITCHED TO ARTICULATED BUSES	INCREASED SEATING CAPACITY
26	INCREASED PEAK HOUR FREQUENCY	IMPROVED FROM 10 TO 8 MINUTES
70	INCREASED PEAK HOUR FREQUENCY	IMPROVED FROM 4 TO 3 MINUTES
108	INCREASED PEAK HOUR FREQUENCY	IMPROVED FROM 15 TO 12 MINUTES
31	INCREASED PEAK HOUR FREQUENCY	IMPROVED FROM 30 TO 20 MINUTES
24	NEW SERVICE ADDED	15-MINUTE SERVICE AT MIDDAY
PAOLI-THORNDALE	LINE EXTENDED	EXTEND TRAIN #514 FROM MALVERN TO THORNDALE
108	SERVICE EXTENDED	ALL TRIPS EXTENDED FROM 67 TH & ELMWOOD TO AIRPORT

Source: SEPTA (2009)

¹⁷ Federal funding (other than ARRA funds) was flat during this period as well.

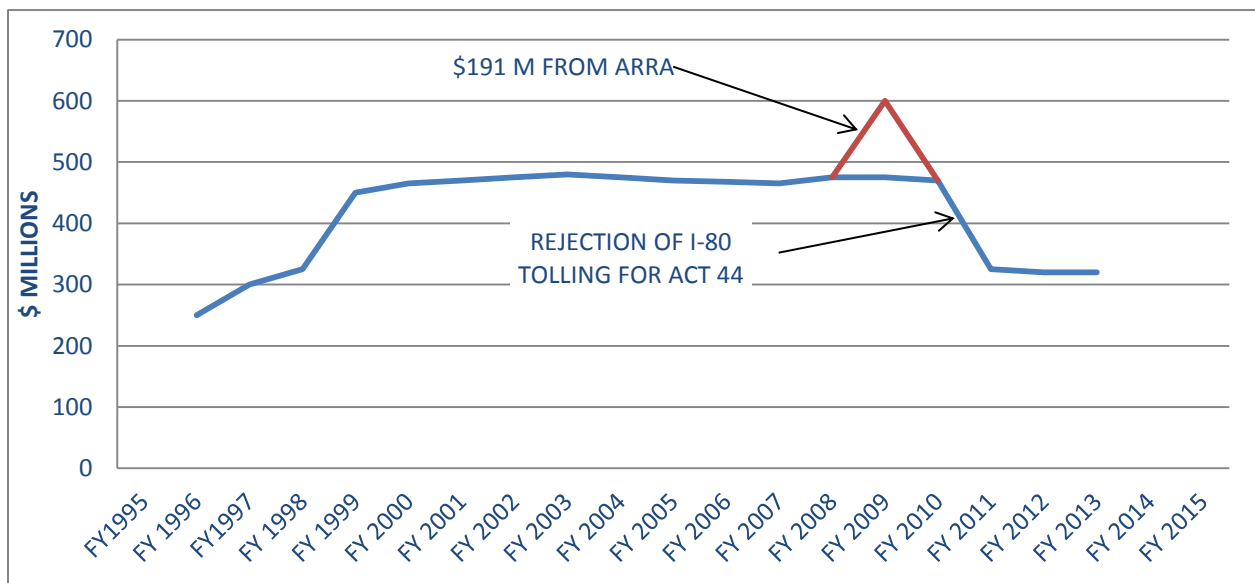
At the same time that SEPTA increased service on some routes, it also carefully monitored the performance of all others. Even with the increased funding from Act 44, the Authority adjusted or cut services that were underperforming and that could not be improved. It continues to do so each year through its Annual Service Plan.

It bears noting that the increased capital funding only allowed SEPTA to *begin* to address several long term infrastructure needs. The capital funding provided by Act 44, even with the tolling of I-80, was insufficient to bring SEPTA infrastructure to a state of good repair. Still, the anticipated levels of capital funding in Act 44 were an important step in the right direction and allowed SEPTA to make progress in addressing pressing infrastructure needs. Most significant among these needs were:

- Systematic bus replacement acquisition program (necessary for the viability of ongoing bus services);
- Safety initiatives, including automatic train control;¹⁸
- Station renewals; and
- Service improvements.

As shown in Figure 7, the increase in capital funds from Act 44 has disappeared, and monetary capital investment is now at 1997 levels. After accounting for the loss in the value of the dollar, SEPTA’s capital funds have declined by 43 percent from the level in 1997.¹⁹ Also, despite the fact that SEPTA’s level of indebtedness is modest compared to peer agencies, it should also be noted that a portion (17 percent in 2013) of each year’s capital budget is allocated to pay for bonds supporting earlier capital investment.²⁰ Thus, the amount of capital available for new investment is less than the total yearly capital funding.

FIGURE 7: SEPTA CAPITAL FUNDING TRENDLINE (FY1997-2012)



Source: SEPTA (2013)

¹⁸ This system is now being overlaid with Positive Train Control, at a cost of \$150M

¹⁹ [http:// research.stlouisfed.org/ /fred2/](http://research.stlouisfed.org/fred2/)

²⁰ http://articles.philly.com/1999-06-25/news/25500747_1_septa-board-louis-j-gambaccini-regional-rail

2.3 SEPTA’S SUCCESS IN INVESTING ARRA FUNDS

2.3-1 A NATIONAL PERSPECTIVE

In 2008, the Obama Administration announced the implementation of The American Recovery and Reinvestment Act (ARRA), which included a program intended to stimulate infrastructure investment by allocating capital funds to transit agencies, states, and local governments. For SEPTA, ARRA funds represented a new opportunity to strategically repair its aging infrastructure.

The ARRA funds were awarded on a formula basis and set up to encourage applicants to invest a majority of those funds on hard costs (actual construction expenditures) in an effort to maximize the impact on economic activity. To that end, projects were required to be “shovel-ready” – construction had to be able to commence within 120 days of notice to proceed. The ARRA legislation included various “use-it-or-lose-it” provisions, and transit agencies had to find ways to invest their funds in a timely fashion.²¹

SEPTA prepared diligently for the awards. Like very few other transit agencies, for the months prior to ARRA signing, SEPTA worked to get projects as close to shovel ready as technically possible.²² For that period, SEPTA improved and fast-tracked its internal processes by accelerating the design process, eliminating formal reviews and presentations, and replacing them with bi-weekly tabletop-type reviews.²³ At the time of signing, SEPTA’s “shovel ready” projects had either completed design phase or design was fast-tracked under SEPTA’s General Engineering Consultant contracts.

Despite the disappointing amount of shovel ready awards which led President Obama to state in an interview that “*there’s no such thing as shovel ready projects*”,²⁴ SEPTA received \$190 million of ARRA funds, 100 percent of which were for shovel ready projects and were awarded within one year of the President’s signature.

Nationally, the ARRA funds allowed the Federal Transit Administration (FTA) to award 1,072 grants totaling \$8.78 billion. SEPTA received \$191 million (2.1 percent) of this total to be used on capital projects to stimulate the economy by creating jobs.

Table 12 shows a summary of the recipients of the largest ARRA awards in gross dollars and as a proportion of total capital budget (FY2010). SEPTA’s capital budget was more significantly impacted by the infusion from ARRA funding than any of its peer agencies, receiving an equivalent of more than 50 percent of its capital budget as of 2009. Because ARRA funds were distributed proportionately by formula, this suggests that SEPTA’s ongoing capital funding, outside of the temporary ARRA infusion, is proportionately lower than any peer agency.²⁵

²¹ For most of its design and engineering work, SEPTA usually has General Engineering Consultant (GEC) contract agreements in place. SEPTA increased the two 2007 GECs in Fall 2008 to provide additional funding to fast-track Stimulus design with Act 3 funds. Additionally, SEPTA had two older GECs (since 2005) under contract and utilized their services for Stimulus design with Act 3 funds.

²² SEPTA had prepared shovel-ready projects for an estimated contract value of up to \$400 million in anticipation of ARRA.

²³ Ibid

²⁴ http://www.nytimes.com/2010/10/17/magazine/17obama-t.html?_r=3&ref=magazine&pagewanted=all%22

²⁵ Federal Transit Administration, 2013

TABLE 12: ARRA FUNDS ALLOCATED IN PROPORTION TO AGENCY CAPITAL BUDGETS (2010) ²⁶

AGENCY	AMOUNT	CAPITAL BUDGET	ARRA/ CAPITAL BUDGET
NEW YORK METROPOLITAN TRANSPORTATION AUTHORITY (NY MTA)	\$1,366,308,883	\$9,142,000,000	15%
NEW JERSEY TRANSIT CORPORATION (NJT)	\$422,796,279	\$1,400,000,000	30%
CHICAGO TRANSIT AUTHORITY (CTA)	\$241,731,915	\$682,000,000	35%
WASHINGTON METROPOLITAN AREA TRANSPORTATION AUTHORITY (WMATA)	\$201,833,222	\$527,000,000	38%
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (MBTA)	\$273,699,786	\$619,000,000	44%
SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY (SEPTA)	\$190,891,217	\$367,000,000	52%

Source: Federal Transit Administration (2013); ESI (2013)

As evidenced by the list of SEPTA projects shown in Appendix A, SEPTA’s ARRA funding was focused on basic infrastructure projects. Many of these projects addressed needs that had been deferred for many years due to inadequate funding. Moreover, many of the projects directly improved the quality of service to SEPTA’s customers.

These projects included the following:

- 16 projects related to Transit and Railroad Stations: \$71.2 Million
- 6 projects related to Right of Way, Track and Bridges: \$61.1 Million
- 4 projects related to Traction Power Systems: \$14.4 Million
- 5 projects related to Communications and Signal Systems: \$23.7 Million
- 1 project for new Hybrid Buses: \$20.5 Million

The fact that SEPTA was able to execute so many projects over such a short period of time was a function of foresight by the SEPTA Board to allocate several million dollars to complete the design of projects already in the pipeline during the run-up to the enactment of ARRA. That fact allowed SEPTA to invest its money wisely and quickly.

2.3-2 OVERVIEW OF ARRA FUNDS INVESTED BY SEPTA

Transit agencies were encouraged to invest ARRA funds on “hard costs” in order to create more jobs and have a larger effect on the economy, ideally through construction projects.

The US Department of Transportation Federal Transit Administration reports that a large portion of the funds obligated under ARRA were meant for construction projects, and used for direct construction expenditures under the agencies’ capital budgets. Table 13 shows SEPTA’s use of ARRA funds by type of expenditure. Data presented in the table illustrates that SEPTA spent the vast majority of its ARRA funds (84 percent) on direct construction expenditures. Design, engineering, and other “soft costs” amounted to only 16 percent of its ARRA expenditures.

²⁶ 2009 or 2010 numbers as available

TABLE 13: BREAKDOWN OF SEPTA ARRA EXPENDITURES (2010) ²⁷

EXPENDITURE	ARRA PROJECT COST AREA	PERCENT OF TOTAL ARRA FUNDING
3 RD PARTY CONSTRUCTION	\$160.3M	84.0%
3 RD PARTY ARCHITECTURE & ENGINEERING DESIGN	\$1.9M	1.0%
3 RD PARTY ARCHITECTURE & ENGINEERING CRS	\$1.9M	1.0%
AMTRAK	\$1.0M	0.5%
SEPTA PROJECT MANAGEMENT	\$6.1M	3.2%
SEPTA FORCE ACCOUNT/BUSING	\$8.8M	4.6%
DIRECT SUPPORT	\$10.9M	5.7%
TOTAL	\$190.9M	100.0%

Source: SEPTA (2013)

SEPTA was able to bid out its projects extremely competitively, which allowed it to advance six additional projects by aggregating the savings from below-budget bids and reinvesting the remaining funds.

2.3-3 IMPROVED CONSTRUCTION MANAGEMENT LED TO SIGNIFICANT COST SAVINGS

SEPTA’s ability to efficiently invest its resources can also be measured by traditional construction performance indicators. One such indicator is change order rates, a way of assessing project management efficiency by measuring dollars above original contract value required to finish a project. Table 14 provides change-order rates for completed construction projects from 2005 through 2012. SEPTA has slashed its change order rate from more than 10 percent in 2005-2006 to less than five percent in 2012, a more than 50 percent reduction.

TABLE 14: CHANGE ORDER RATES FOR CONSTRUCTION CONTRACTS (2010-2012)

YEAR	NUMBER OF CONTRACTS	ORIGINAL CONTRACT VALUE	CHANGE ORDER AMOUNT	RESULTING CONTRACT VALUE	CHANGE ORDER RATE
2005-2006	29	\$200,500,000	\$20,200,000	\$220,700,000	10.1%
2007-2008	53	\$410,600,000	\$25,800,000	\$436,400,000	6.3%
2010	41	\$192,614,273	\$11,099,147	\$203,713,420	5.8%
2011	43	\$ 99,048,292	\$ 4,625,956	\$103,674,248	4.7%
2012	27	\$ 100,316,630	\$ 4,358,820	\$104,675,450	4.3%

Source: SEPTA (2013)

SEPTA has also realized significant cost savings from innovations in project delivery. Most notably, SEPTA has worked to fine-tune its approach to construction projects to squeeze savings out of projected costs. Innovations have included:

- Hybrid project delivery - Matching of SEPTA's in-house labor forces with third-party prefabricated elements and select third party contracts. (Railroad Stations)
- Plug and play project delivery - Matching of SEPTA's in-house labor work with prefabricated elements made by third party signal manufacturers while also using third party suppliers and contractors where appropriate. (Railroad Automatic Train Control)
- Force account project delivery - SEPTA in-house labor with third party material purchases. (Railroad/City/Suburban Track)

Table 15 shows cost savings on select capital projects that have featured one of these project delivery approaches. Savings include labor, material, contract, property, unused contingency and support savings. SEPTA was able to save more than \$8.6 million for work done with federal funds. For example, SEPTA saved \$2.1 million

²⁷ Removing purchase of buses of \$19.6 million, “hard costs” would go down to 83%.

on its Primos Station Reconstruction Project (23 percent below the approved \$9.0 million budget); \$2.0 million on its Ryers Station Reconstruction Project (20 percent below the approved \$9.5 million budget); \$3.8 million on its Chestnut Hill East Automatic Train Control Project (41 percent below the approved \$9.3 million budget); and \$0.8 million on its Airport Line Tie & Surfacing Project (32 percent below the approved \$2.6 million budget).

TABLE 15: SEPTA COST SAVINGS ON SAMPLE OF FEDERALLY FUNDED PROJECTS

PROJECT	PRIMOS STATION	RYERS STATION	CHESTNUT HILL EAST ATC	AIRPORT LINE TIE & SURFACING
INITIAL PROJECT BUDGET	\$9,040,199	\$9,552,633	\$9,284,839	\$2,617,000
LABOR SAVINGS	\$1,070,973	\$352,803	\$1,747,462	\$434,108
MATERIAL SAVINGS	\$404,744	\$760,654	\$803,437	\$325,159
CONTRACT SAVINGS		\$210,914	\$350,793	
PROPERTY SAVINGS	\$ 95,987	\$10,531		
UNUSED CONTINGENCY	\$364,935	\$526,855	\$645,790	\$25,767
SUPPORT SAVINGS	\$133,317	\$92,799	\$239,868	\$55,542
TOTAL PROJECT SAVINGS	\$2,069,956	\$1,954,556	\$3,787,350	\$840,576
% SAVINGS	23%	20%	41%	32%
ESTIMATED ACTUAL COST	\$6,970,243	\$7,598,077	\$5,497,489	\$1,776,424

Source: SEPTA (2013)

Additionally, SEPTA continually seeks to reduce project soft costs by right-sizing project management manpower. As shown in Table 16, since FY2009, SEPTA has reduced its capital manpower by 31 percent, augmenting staffing needs with third-party technical consultants on a project-by-project basis. Estimated FY2013 cost savings from these headcount reductions are approximately \$1.5M for reassigned staff and \$1.9M for attrited staff.

TABLE 16: PROJECT MANAGEMENT MANPOWER SAVINGS (FY2008-2013)

CAPITAL MANPOWER	FY2008-2009 MANPOWER	FY2011-2012 MANPOWER	FEB. 2013 ACTUAL	PERCENT REDUCTION
CAPITAL CONSTRUCTION-ADMINISTRATION	10	6	5	50%
PROJECT CONTROL	15	14	13	13%
QA/QC	2	2	2	-
TOTAL ADMIN/SUPPORT	27	22	20	26%
RAIL FACILITIES	15	11	10	33%
TRANSIT FACILITIES	18	14	13	28%
POWER/COMMUNICATIONS & SIGNALS	-	8	7	-
ELECTRICAL FACILITIES (1)	17	-	-	-
BLUE LINE STRUCTURES	9	-	-	-
NEW PAYMENT TECHNOLOGY (2)	-	11	11	-
TOTAL PROJECT MGMT. STAFF	59	44	41	31%
TOTAL CAPITAL (3)	86	66	61	29%

Source: SEPTA (2013)

2.4 SUMMARY

Despite funding shortfalls over the last decade, SEPTA has worked diligently to improve its infrastructure and services. While more funding is needed to bring its infrastructure to a state of good repair, the agency has benefitted from infusions of funds in recent years. Strategic utilization of Act 44 and ARRA funds allowed the agency to make significant infrastructure improvements and increase overall customer satisfaction since 2008. Additionally, the agency was successful at streamlining its services and making good use of public funds, leading to significant cost savings.

This analysis finds that SEPTA has effectively spent federal and state funds, in particular temporary infusions from Act 44 and ARRA, and has instituted processes to assure efficient delivery of capital projects for the past seven years.

SECTION 3: COMPARISON OF SEPTA BUDGETS & SERVICES WITH OTHER AGENCIES

This section compares SEPTA’s funding and operating efficiency levels to other large transit agencies in the United States as well as other transit agencies in the Commonwealth of Pennsylvania. Analysis features trends and comparisons in operating and capital budgets, ridership, fares, and customer satisfaction.

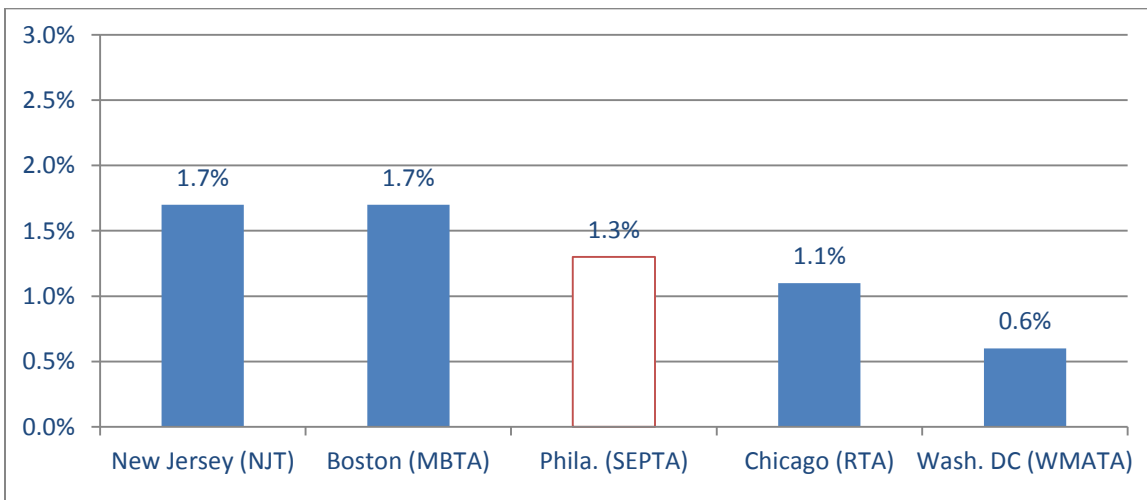
3.1 PEER AGENCY COMPARISONS

This section presents a comparison of several key budget and service figures for SEPTA and other large transit agencies. For the purposes of this report, SEPTA’s industry peer group was selected based on size of service region, total ridership, and modal composition. Peer agencies include: Boston (MBTA), Chicago (RTA region, including CTA, Metra, and Pace), New Jersey (NJT), and Washington, D.C. (WMATA). Data is drawn from the National Transit Database (NTD) for reporting year 2011, the most recent year available.

3.1-1 RIDERSHIP TRENDS

Ridership has increased across the nation’s largest transit systems In the last ten years, and SEPTA has kept pace, posting average annual increases similar to those of its industry peers.

FIGURE 8: PEER GROUP AVERAGE ANNUAL CHANGE IN RIDERSHIP (FY2002-2012)



Source: National Transit Database

Between FY2002 and FY2012, SEPTA experienced 1.3 percent average annual growth in ridership, a rate similar to systems in New Jersey (1.7 percent), Boston (1.7 percent), and Chicago (1.1 percent), and more than double the rate of growth in Washington DC (0.6 percent).

3.1-2 FARE RECOVERY

Farebox recovery is an important measure of operating efficiency, reflecting the percentage of operating expenses covered by passenger fares. However, inter-agency comparisons should be made with care for two reasons:

- **Financial reporting practices differ across agencies:** of note, NTD classifies SEPTA’s fare revenue associated with free and discounted senior citizen travel as an operating subsidy and not fare revenue because SEPTA receives reimbursement for the program from the Pennsylvania State Lottery. In FY2011,

SEPTA’s reimbursement for senior travel totaled \$53,061,653. If NTD accounted for this reimbursement as fare revenue, SEPTA’s overall fare recovery ratio would increase by approximately four percentage points.

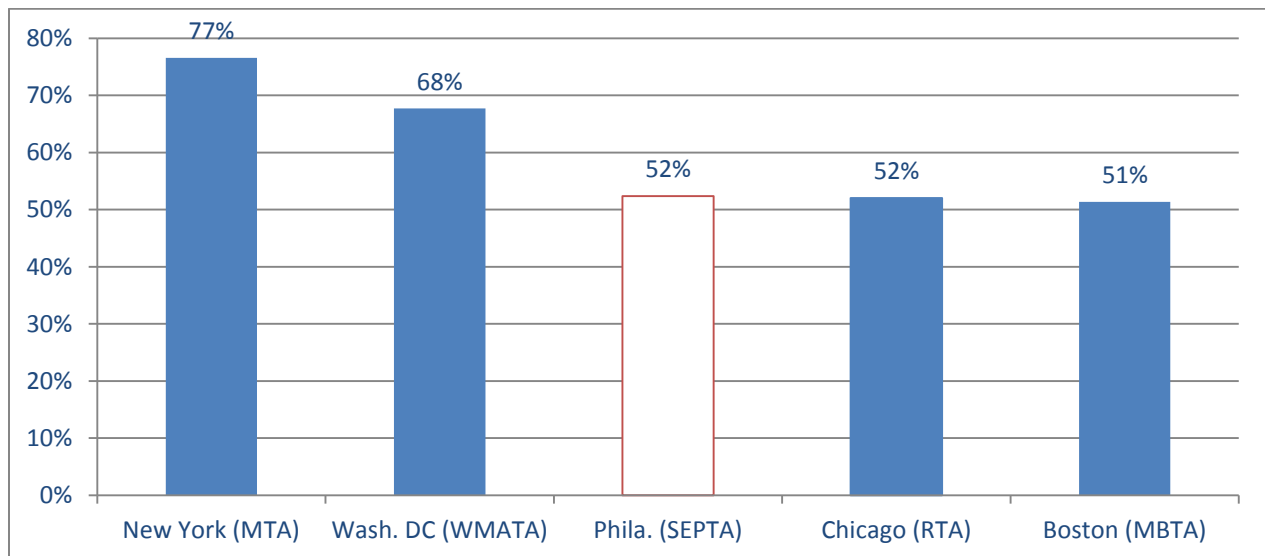
- **Recovery rates are largely a function of the mode of service (bus, light rail, heavy rail, commuter rail):** For this reason, this analysis presents fare recovery at a modal level to account for operational differences that exist between agencies.

HEAVY RAIL

“Heavy rail” is a catch-all term for large rail systems with separated right-of-way (i.e. excluding all non-rail traffic), frequent service, and high-volume capacity. For SEPTA, this refers to the Market-Frankford, Broad Street, and Norristown High Speed Lines.

New York’s MTA paces heavy rail systems in fare recovery, largely because of the extreme density of population that exists in its service territory. Washington D.C. also has a high fare recovery ratio for its MetroRail system, largely because it charges zonal fares that account for distance traveled (much like SEPTA’s commuter rail system). SEPTA’s fare recovery is comparable to its closest heavy rail peers, Boston’s MBTA and Chicago’s CTA (part of the RTA region). At all five agencies, more than half of expenses for the operation of heavy rail systems are recovered through ticket fares.

FIGURE 9: PEER GROUP HEAVY RAIL FARE RECOVERY (FY2011)



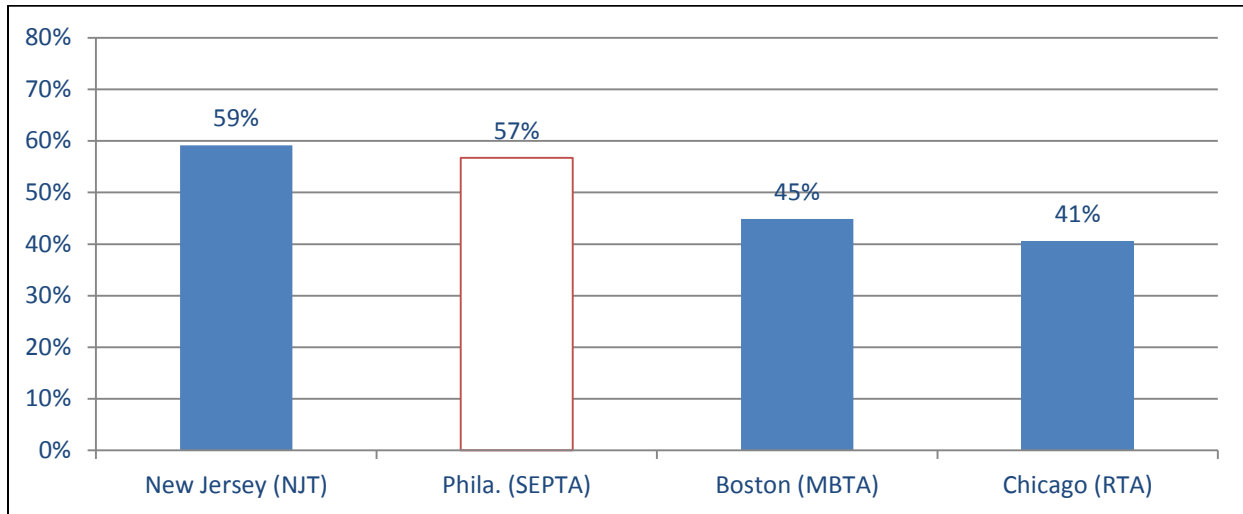
Source: National Transit Database (2011)

COMMUTER RAIL

Like heavy rail, commuter rail refers to durable, fixed systems with separated rights-of-way. The key difference is service area and frequency; commuter rail services typically operate less frequent service than heavy rail and cover a larger geographic area, charging fares based on distance traveled and often assigning a “peak” fare for travel during rush hours.

SEPTA’s fare recovery on its commuter rail (“Regional Rail”) is among the highest in the industry, on par with New Jersey and significantly higher than peers, Boston’s MBTA and Chicago’s Metra (part of the RTA region).

FIGURE 10: PEER GROUP COMMUTER RAIL FARE RECOVERY (FY2011)



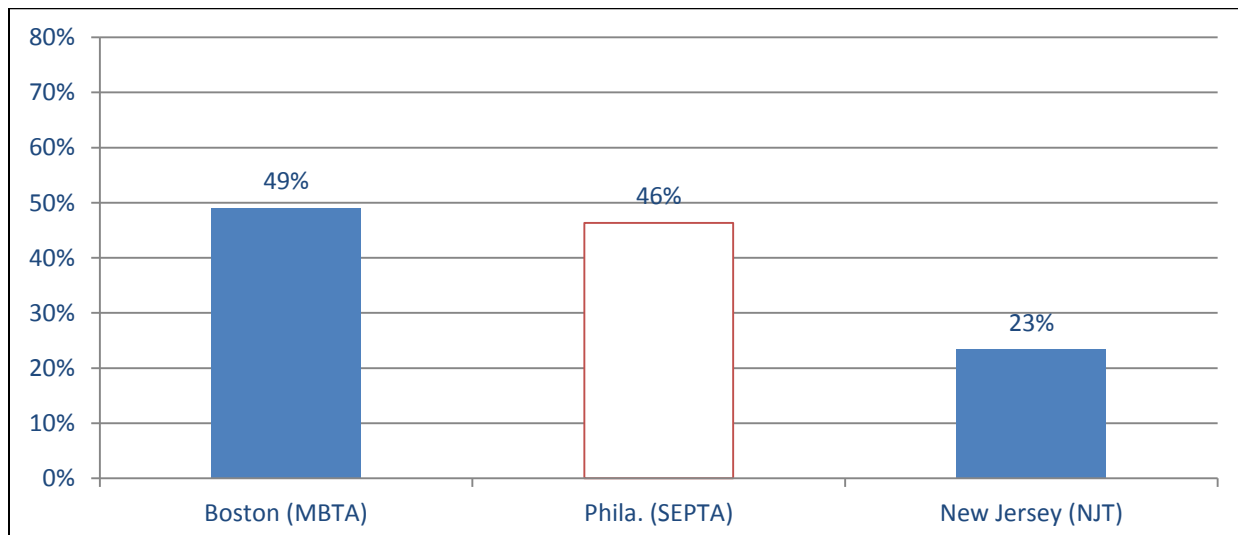
Source: National Transit Database (2011)

LIGHT RAIL

Light (or surface) rail refers to services that can operate either on a shared (in-road) or dedicated right-of-way, and generally at lower capacities and frequencies than heavy rail. Because of their lower passenger capacities, light rail services typically have lower fare recovery ratios than heavy or commuter rail services. Most of SEPTA’s trolleys, which operate both in shared and dedicated right-of-way, fall into this category.

Interestingly, despite the capacity limitations of light rail, SEPTA’s light rail fare recovery is close to that of its heavy rail system and on par with Boston for the highest in its peer group. Both SEPTA and MBTA have fare recovery ratios that are well above New Jersey Transit, which operates light rail in Southern New Jersey (the River Line) and Northern New Jersey (the Hudson-Bergen Line).

FIGURE 11: PEER GROUP LIGHT RAIL FARE RECOVERY (FY2011)



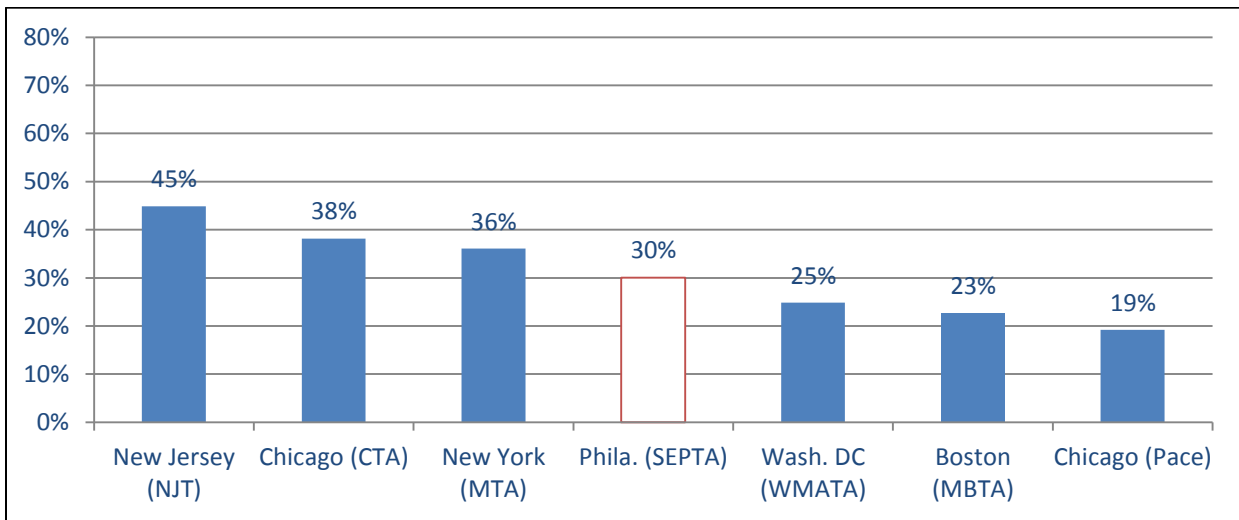
Source: National Transit Database (2011)

BUS

Buses operate primarily in shared rights-of-way in mixed traffic with private automobiles. As a mode, bus farebox recovery ratios often vary based on the geographic scope of the service provided. For instance, New Jersey Transit, which has the highest bus farebox recovery ratio in SEPTA’s peer group, operates many long-haul bus routes with limited stops, higher speeds and generally high passenger loads. Urban bus routes also have generally high passenger loads but operate with many stops and often in heavily congested areas with slower speeds and lower operating efficiencies. Suburban-oriented bus routes often are the least efficient from a farebox perspective, with many of the same characteristics as an urban system but generally lower passenger loads.

These generalities bear out in comparative fare recovery ratios for a peer group of bus operators. New Jersey Transit has the highest recovery ratio at 45 percent, while Pace in Chicago (part of the RTA region) has the lowest at 19 percent. SEPTA’s fare recovery ratio for its comprehensive system of urban and suburban bus services is in the middle of the pack at 30 percent.

FIGURE 12: PEER GROUP BUS FARE RECOVERY (FY2011)



Source: National Transit Database (2011)

3.1-3 CUSTOMER SATISFACTION

SEPTA conducts bi-annual surveys of customer satisfaction. Its most recent surveys were completed in 2008, 2010, and 2012. SEPTA’s rate of customer satisfaction reached a high of 7.9 (on an index scale of 10) in 2010, up from 7.2 in 2008. The level of satisfaction fell just slightly in 2012 to 7.7.

Of note, those surveyed were slightly more likely to recommend SEPTA in 2012 (8.4) than 2010 (8.3). Nearly half of respondents also expressed that they had higher expectations of SEPTA in 2012 than in 2010, suggesting that relatively flat satisfaction levels between 2010 and 2012 could be a function of higher expectations. Now that the bar has been raised, SEPTA will have to find new ways to improve services and increase satisfaction.

Each agency in SEPTA’s peer group uses a different method of surveying customers and quantifying satisfaction, making it impossible to precisely compare satisfaction levels. However, most of the systems ask questions about overall satisfaction and likelihood of recommending the service to others. These results are presented in Table 17, showing that SEPTA received marks similar to those in its peer group.

TABLE 17: PEER AGENCY CUSTOMER SATISFACTION SURVEY RESULTS (2012)

AGENCY	OVERALL CUSTOMER SATISFACTION	LIKELY TO RECOMMEND SERVICE
BOSTON (MBTA)	N/A	N/A
CHICAGO (RTA)	79% SATISFIED OR HIGHLY SATISFIED	91%
NEW JERSEY (NJT)	RANGE FROM 6.7 TO 6.9 ON INDEX SCALE OF 10 IN QUARTERLY SURVEYS	RANGE FROM 83%-87% IN QUARTERLY SURVEYS
PHILADELPHIA (SEPTA)	7.7 ON AN INDEX SCALE OF 10	8.4 ON AN INDEX SCALE OF 10
WASHINGTON DC (WMATA)	BY MODE: RAIL - 77 BUS – 79 ON INDEX SCALE OF 100	BY MODE: 79% FOR RAIL AND BUS

Source: Regional Transportation Authority; NJ Transit; SEPTA; Washington Metro Area Transportation Authority

3.1-4 OPERATING & CAPITAL BUDGETS

OPERATING

Table 18 shows total operating funds expended, ridership, and operated funds expended per rider for SEPTA and agencies in its peer group. The table shows that in FY2011, SEPTA’s operating funds expended per rider (\$3.24) was the lowest of any agency in its peer group.

TABLE 18: PEER AGENCY OPERATING FUNDS EXPENDED & RIDERSHIP (FY2011)

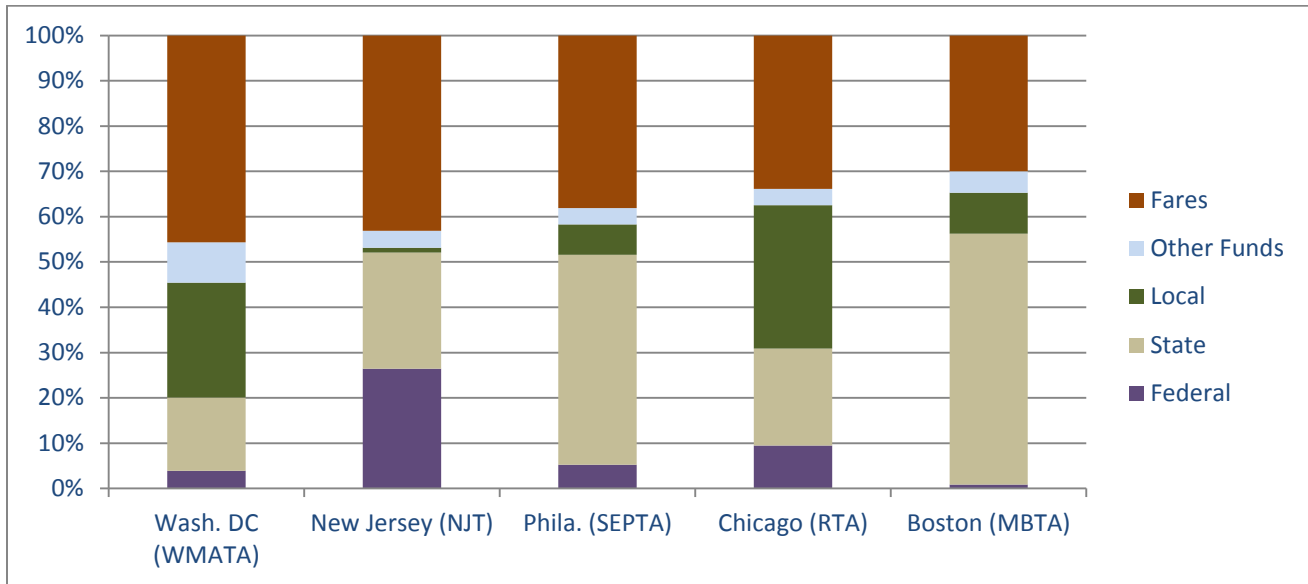
(000)	OPERATING FUNDS EXPENDED	RIDERSHIP	OPERATING FUNDS EXPENDED PER RIDER
BOSTON (MBTA)	\$1,518,609	380,694	\$3.99
CHICAGO (RTA)	\$2,099,035	639,971	\$3.28
NEW JERSEY (NJT)	\$2,025,778	257,831	\$7.86
PHILADELPHIA (SEPTA)	\$1,164,277	358,843	\$3.24
WASHINGTON, D.C. (WMATA)	\$1,557,286	419,689	\$3.71

Source: National Transit Database

Transit agency operating budgets are made up of a combination of federal, state, and local funding and fare revenues. While these public supports are necessary to keep a system functioning, it is important that agencies try to maximize passenger revenues and the share of operating funds that they represent.

SEPTA’s overall fare recovery ratio, not including senior citizen free transit reimbursements, is approximately 38 percent, within a competitive range of peer agencies. Figure 13 shows the breakdown of each agency’s operating budget by funding source. If the senior program reimbursement is included, SEPTA’s fare recovery ratio would be approximately 42 percent.

FIGURE 13: PEER AGENCY SHARE OF OPERATING FUNDS BY SOURCE (FY2011)



Source: National Transit Database (2011)

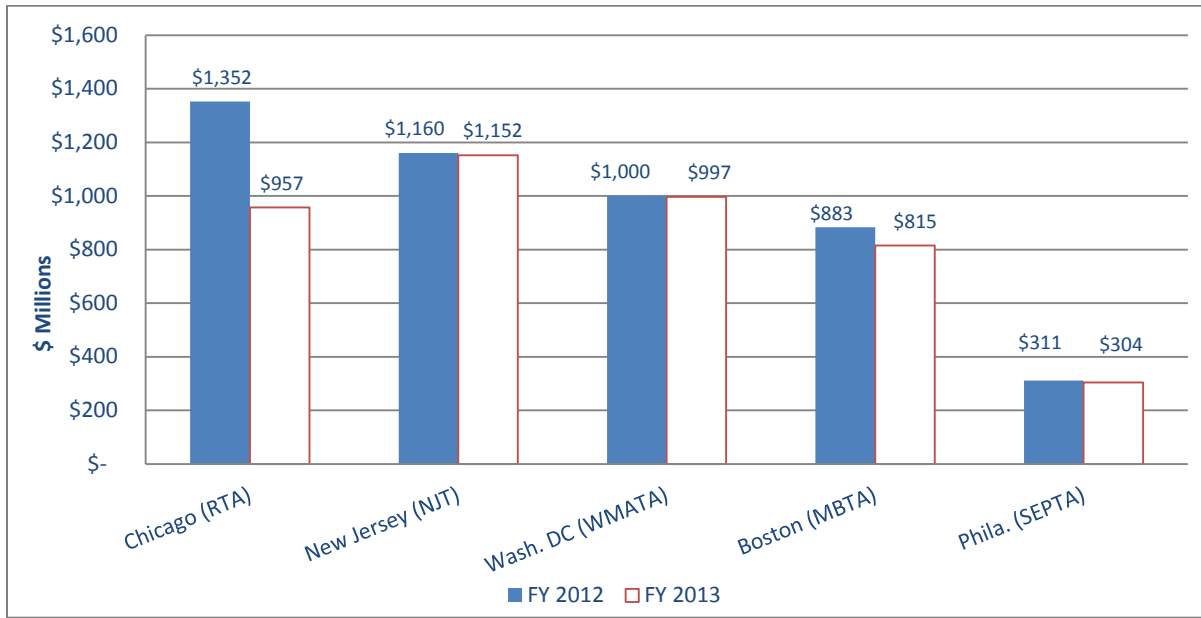
New Jersey Transit and Washington DC’s system have higher shares of revenue-funded operating expenses, 43 percent and 46 percent respectively. Boston’s is lowest at 30 percent. SEPTA’s revenue share compared to Boston’s is worth noting because in terms of modal composition (share of ridership by mode), Boston and Philadelphia are the most similar of the peer agencies. As previously explained, modal composition has a significant impact on fare recovery due to the greater efficiencies of rail versus bus transit.

Local funds make a sizable share of both Washington, D.C.’s and Chicago’s systems. Only New Jersey Transit, a statewide system, has a lower share of local funding than SEPTA.

CAPITAL

SEPTA’s level of capital funding is well below its peer agencies. Figure 14 shows that at \$304 million, SEPTA’s FY2013 capital budget is far below peer agencies – approximately one-fourth of New Jersey Transit (\$1.15 billion), and one-third of WMATA in Washington DC (\$997 million), RTA agencies (CTA, Metra, and Pace) in Chicago (\$957 million), and MBTA in Boston (\$815 million). MBTA, an agency closely comparable to SEPTA in terms of age, modal composition and ridership, is a particularly noteworthy reference point. MBTA’s state of good repair (SGR) backlog is estimated at \$2.7 billion, roughly half of SEPTA’s estimated backlog of \$4.7 billion. Both are responsible for “legacy systems,” a term that refers to agencies responsible for taking over the assets of bankrupted private transit operators in the mid-20th century. MBTA’s consistently higher levels of capital funding have shrunk its backlog of SGR needs, while SEPTA continues to confront the challenge of maintaining and upgrading assets, many of which are now more than 100 years old. As detailed in Section 5 of this report, SEPTA could completely eliminate its state of good repair backlog within 20 years if its capital funding levels were on par with MBTA.

FIGURE 14: PEER AGENCY CAPITAL BUDGETS (FY2012-2013)



Source: Massachusetts Bay Transportation Authority (MBTA); Regional Transportation Authority (RTA); New Jersey Transit, SEPTA, Washington Metropolitan Area Transportation Authority (2012-2013)

Table 19 shows capital funding levels normalized by measures of system usage (passenger trips and miles) and service (vehicle revenue miles) from the National Transit Database. Based on each of these metrics, SEPTA’s capital funding levels are clearly below its peer agencies.

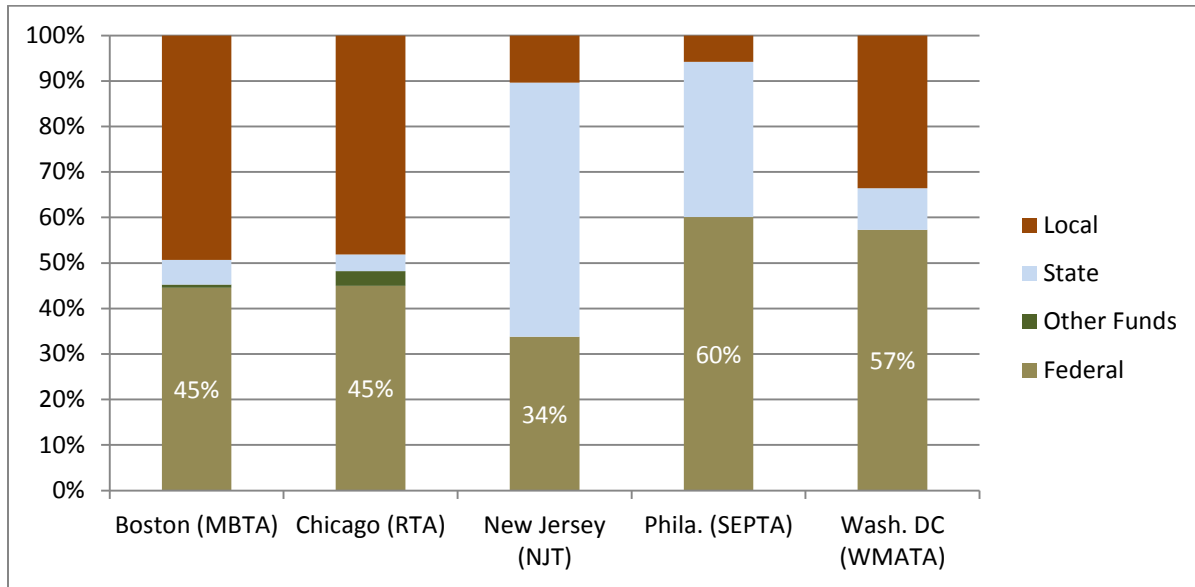
TABLE 19: PEER AGENCY CAPITAL BUDGETS NORMALIZED BY UNITS OF SERVICE

AGENCY	PER PASSENGER TRIP	PER PASSENGER MILE	PER VEHICLE REVENUE MILE
CHICAGO (RTA)	\$2.07	\$0.34	\$6.96
NEW JERSEY (NJT)	\$4.36	\$0.36	\$7.27
WASH. DC (WMATA)	\$2.40	\$0.49	\$7.75
BOSTON (MBTA)	\$2.21	\$0.49	\$9.16
PHILA. (SEPTA)	\$0.92	\$0.19	\$3.47

Source: Massachusetts Bay Transportation Authority (MBTA); Regional Transportation Authority (RTA); New Jersey Transit, SEPTA, Washington Metropolitan Area Transportation Authority (2012); National Transit Database (2011)

Figure 15 shows the share of funding sources that comprise the capital budgets of SEPTA and other peer agencies. SEPTA relies on federal sources for 60 percent of capital funding. This high share relative to other agencies is not due to SEPTA getting additional or high levels of funding from the federal government. In fact, federal transit funding is largely formula-based. Rather, the difference is due to the smaller amount of state and local funding available to SEPTA for capital needs. It is also important to note that most of SEPTA’s peer agencies operate in states that have developed dedicated, regionally-based funding sources for their transit systems. Chicago has a regional sales tax and a portion of the real estate transfer tax dedicated to transit funding. In Boston, MBTA receives 20 percent of all state sales tax from its service region. Pennsylvania has not made these types of tools available to southeastern Pennsylvania.

FIGURE 15: PEER AGENCY SHARE OF CAPITAL FUNDS BY SOURCE (FY2007-2011 AVERAGE)



Source: National Transit Database

3.2 SEPTA & OTHER COMMONWEALTH TRANSIT AGENCIES

SEPTA has no peer among transit agencies in the Commonwealth due to the population size and density of the region it serves. The five southeastern counties account for just 5 percent of the state’s land and are home to 4 million residents, which is nearly 32 percent of the population of Pennsylvania. This density means that the region relies on public transit to an extent that no other part of the state does. More than 75 percent of the entire state’s passenger trips – 333 million of 434 million in 2011 – are taken on SEPTA each year.

Because of this, SEPTA receives the majority of public transit funding in the state, although as Table 20 illustrates, the share of funding – approximately 61 percent – is well below its share of passengers.

TABLE 20: SEPTA SHARE OF STATE TRANSIT FUNDING & PASSENGERS (FY2010-2012)

(000)	FY 2010-11		FY 2011-12	
	PASSENGERS	TOTAL STATE FUNDING	PASSENGERS	TOTAL STATE FUNDING
SEPTA	333,966	\$652,750	339,288	\$ 672,370
ALL PA TRANSIT AGENCIES	434,250	\$1,060,434	NOT AVAILABLE	\$1,106,251
SEPTA SHARE	76.7%	61.6%	76%*	60.8%

Source: PennDOT Bureau of Public Transportation
 *FY11-12 totals unavailable. This share is estimated based on numbers from FY2008-2009 through FY2010-2011

One reason for this large disparity between state agencies in terms of funding received and service provided is that SEPTA serves the densest region in Pennsylvania with highly efficient, high-capacity, and heavily utilized systems. SEPTA is able to maximize productivity due to relatively high passenger loads. On a per-passenger basis, SEPTA received \$1.49 in state operating subsidy for each passenger in FY2010-2011, more than 40 percent more efficient than the average of all other Pennsylvania transit agencies of \$2.66 per passenger. Table 21 provides a series of metrics that, together, show the relative efficiency of SEPTA’s system compared to others across the state.

(Note that the shares of operating budget provided by the state and by revenues in this table are based on figures from PennDOT’s Bureau of Public Transportation and differ slightly from figures used earlier in this section that are from the National Transit Database due to different reporting methodologies.)

TABLE 21: OPERATING METRICS FOR SEPTA VS. OTHER PA TRANSIT AGENCIES (FY2010-2011)

	SEPTA	ALL OTHER PA TRANSIT SYSTEMS
SHARE OF OPERATING BUDGET PROVIDED BY STATE	45.4%	50.1%
SHARE OF OPERATING BUDGET PROVIDED BY REVENUES	42.3%	25.0%
STATE OPERATING FUNDS PER PASSENGER	\$1.49	\$2.66*
<i>Source: PennDOT, Bureau of Public Transportation Annual Report</i> *Calculated by dividing total number of passengers served by all systems by total state operating funds provided to transit systems excluding SEPTA		

SECTION 4: ECONOMIC IMPACT OF SEPTA CAPITAL INVESTMENTS & OPERATIONS

The purpose of this section is to analyze the breadth of SEPTA’s investments and operations on overall economic activity within southeastern Pennsylvania and on the Commonwealth as a whole. The report estimates SEPTA’s overall economic and fiscal impacts, including the employment, earnings, and tax revenues associated with its annual activity.

Section 4.1 covers the economic impacts of SEPTA’s capital investments; Section 4.2, the economic impact of SEPTA operations; Sections 4.3, the fiscal impacts of SEPTA’s capital investment and operations, including the amount of state tax revenue generated by SEPTA investment; and Section 4.4, a summary of the three analyses.

It should be noted that the economic and fiscal impact estimates provided below represent only those related to SEPTA direct expenditures and do not capture the catalytic effects of transit on overall economic activity. Catalytic effects are not taken into account in standard economic impact modeling, but are addressed in this report in Section 5.

4.1 ECONOMIC IMPACT OF SEPTA CAPITAL INVESTMENTS

4.1-1 METHODOLOGY

With the recent economic recession and the availability of Act 44 and ARRA funds, SEPTA’s capital budget has fluctuated greatly over the past five years. This analysis levels out the large rises and declines in capital investment by using a five-year average of SEPTA capital investment to determine its economic impacts across the Commonwealth and within southeastern Pennsylvania.

Table 22 summarizes the treatment of SEPTA's expenditures, noting exclusions and assumptions where appropriate. Sorting project spending allocations into industries requires detailed contract information on the percentages of expenditures that go to geographies of interest (i.e.: southeastern Pennsylvania and statewide), as well as the types of services being performed. Where available, large projects are used to model how departments allocated their investment based on industry and geography. For example, Positive Train Control is a large project being carried out by the Communications and Signals Department and supported by several engineering departments. The spending pattern for this project, which is known in detail, was used as a proxy to estimate the investment allocation for all projects in these departments. Other large projects, such as station reconstructions and large equipment acquisitions, were also considered for the purposes of allocating departmental budgets. Where project contract information or proxies were not available, conservative assumptions were made to place other non-allocated project costs within geographies and industry categories.²⁸

²⁸ This analysis apportions investment for the New Vehicles, Transit police, Vehicle Engineering & Maintenance, and the Information Technology Departments, for example. While the budgets of the latter three departments are low, there was considerable investment in new vehicles and therefore could be a noticeable amount of variance between estimated Commonwealth and regional activity and the actual activity.

TABLE 22: SEPTA COMPOSITION OF DEPARTMENTAL CAPITAL INVESTMENT (FY2008-2012, AVERAGE)

SEPTA DEPARTMENT	AVERAGE ANNUAL INVESTMENT	PA SHARE	SOUTHEAST PA SHARE	INVESTMENT OUTSIDE OF PA
CAPITAL BUDGETS	\$50,290,975	\$50,290,975	\$50,290,975	\$0
CAPITAL CONSTRUCTION- BLUE LINE STRUCTURES	\$97,360,256	\$83,402,690	\$75,576,872	\$13,957,566
CAPITAL CONSTRUCTION - RAIL FACILITIES	\$27,986,835	\$23,974,642	\$21,725,060	\$4,012,193
CAPITAL CONSTRUCTION - SPECIAL PROJECTS	\$117,353	\$100,529	\$91,096	\$16,824
CAPITAL CONSTRUCTION - TRANSIT FACILITIES	\$17,527,956	\$15,015,148	\$13,606,251	\$2,512,808
COMMUNICATIONS	\$60,333	\$57,678	\$483	\$2,655
ENGINEERING & MAINTENANCE - ADMIN/FINANCE	\$39,197,946	\$33,578,529	\$30,427,798	\$5,619,418
ENGINEERING & MAINTENANCE - BRIDGES/ BUILDINGS	\$9,875,720	\$8,459,937	\$7,666,127	\$1,415,783
ENGINEERING & MAINTENANCE – COMMUNICATIONS & SIGNALS	\$36,057,810	\$30,888,562	\$27,990,236	\$5,169,248
ENGINEERING & MAINTENANCE – POWER	\$10,105,017	\$8,656,362	\$7,844,120	\$1,448,655
ENGINEERING & MAINTENANCE – TRACK	\$2,724,163	\$2,333,627	\$2,114,658	\$390,536
ELECTRICAL FACILITIES	\$806,586	\$690,954	\$626,120	\$115,632
INFORMATION TECHNOLOGY	\$2,140,775	\$214,078	\$214,078	\$1,926,698
NEW PAYMENT TECHNOLOGIES	\$4,944,806	\$906,877	\$906,877	\$4,037,929
NEW VEHICLES	\$97,843,267	\$23,689,472	\$19,340,882	\$74,153,795
REAL ESTATE	\$491,317	\$491,317	\$491,317	\$0
REVENUE & MARKET DEVELOPMENT	\$600,529	\$600,529	\$600,529	\$0
SAFETY AND RISK MANAGEMENT	\$1,690,343	\$1,690,343	\$1,690,343	\$0
SERVICE PLANNING	\$35,163	\$35,163	\$35,163	\$0
STRATEGIC PLANNING AND ANALYSIS	\$8,146	\$8,146	\$8,146	\$0
SUPPLY CHAIN MANAGEMENT	\$14,687	\$1,756	\$1,756	\$12,931
TRANSIT POLICE	\$3,532,203	\$430,430	\$430,430	\$3,101,773
VEHICLE ENGINEERING & MAINTENANCE	\$4,084,921	\$3,267,937	\$3,267,937	\$816,984
TOTAL	\$407,497,106	\$288,785,680	\$264,947,254	\$118,711,426

Source: SEPTA (2013), ESI (2013)

Table 23 shows that a majority of SEPTA’s capital investment within the Commonwealth during this time period was associated with the construction category, including renovations of stations and facilities. Other categories include repair and general maintenance largely associated with the vehicle fleet.

TABLE 23: SEPTA CAPITAL EXPENDITURES BY INDUSTRY (FY2008-2012, AVERAGE)

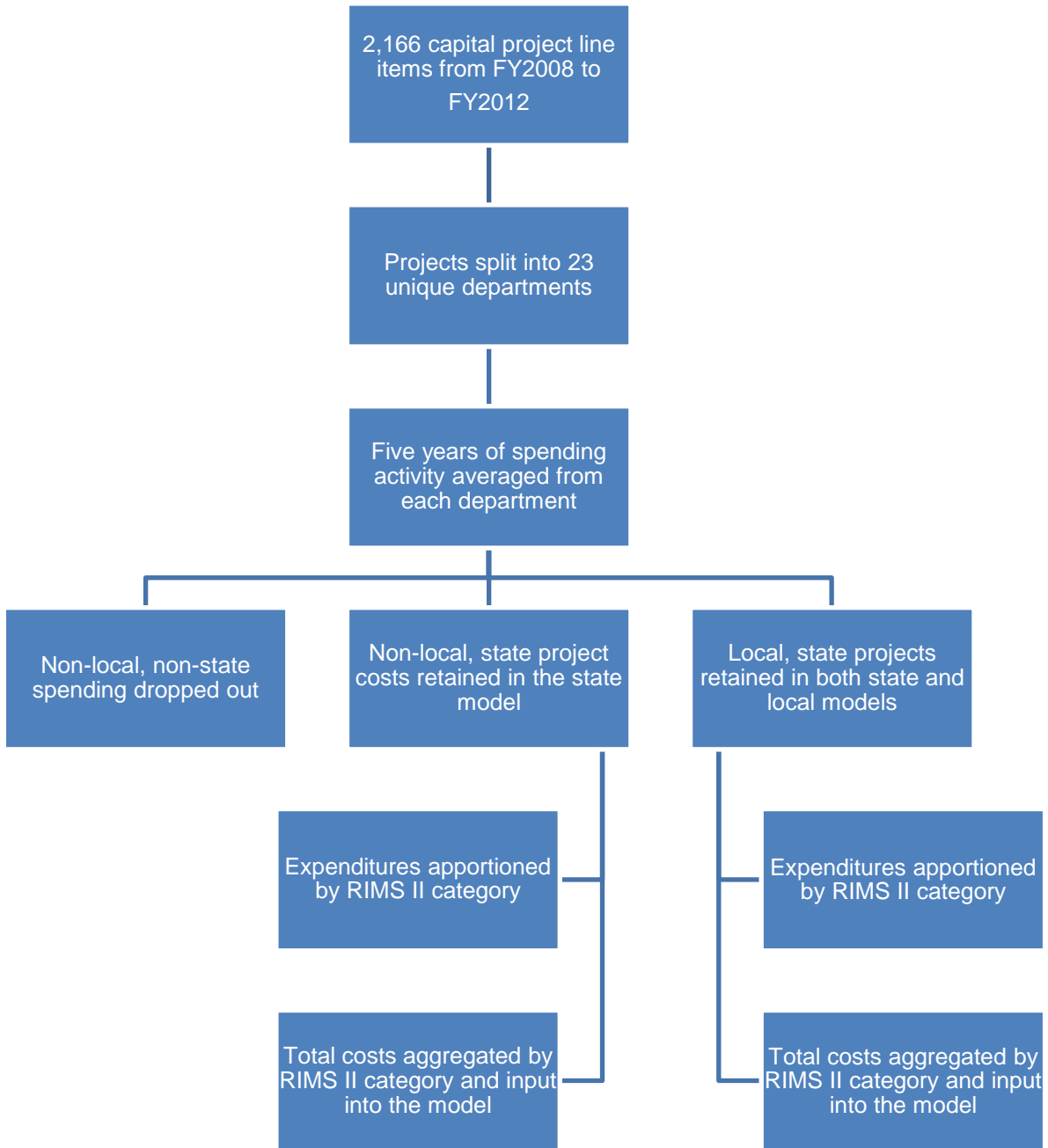
INDUSTRY	PENNSYLVANIA		SOUTHEAST PA	
	INDUSTRY SPENDING (\$M)	INDUSTRY PERCENTAGE	INDUSTRY SPENDING (\$M)	INDUSTRY PERCENTAGE
REAL ESTATE	\$0.49	0.2%	\$0.49	0%
PROFESSIONAL, SCIENTIFIC, AND TECHNICAL SERV.	\$18.67	6.5%	\$17.90	7%
WASTE MANAGEMENT AND REMEDIATION	\$1.69	0.6%	\$1.69	1%
OTHER SERVICES	\$50.29	17.4%	\$50.29	19%
CONSTRUCTION	\$190.04	65.8%	\$171.32	65%
MOTOR VEHICLE, BODY, TRAILER, AND PARTS MFG.	\$9.56	3.3%	\$9.56	3%
OTHER TRANSPORTATION EQUIPMENT MFG.	\$17.39	6.0%	\$13.04	5%
PUBLISHING INDUSTRIES, EXCEPT INTERNET	\$0.21	0.1%	\$0.21	0%
WHOLESALE TRADE	\$0.43	0.1%	\$0.43	0%
TOTAL (\$M)	\$288.78	100.0%	\$264.94	100.0%

Source: SEPTA (2013), ESI (2013)

Capital investment data provided by SEPTA was categorized and input into ESI’s economic impact model. The more than 2,000 discrete capital expenditure line items between FY2008 and FY2012 were sorted into different

groups based on the similarity of cost outlays. The five-year average capital expenditures for each of the 23 departments in the analysis excluded out-of-state and out-of-region investment.

FIGURE 16: METHODOLOGY TO CALCULATE ECONOMIC IMPACTS OF SEPTA’S CAPITAL INVESTMENTS



Source: ESI (2013)

4.1-2 ECONOMIC IMPACT ESTIMATES

To obtain the five-year direct capital investment (shown in Table 30 as “Direct Output”), average expenditures from each of the capital budget’s 23 departments were aggregated and sorted by RIMS II category. From this, it is estimated that 71 percent of SEPTA’s direct capital investment occurs in Pennsylvania, and 65 percent occurs within southeastern Pennsylvania.²⁹ Excluding vehicle purchases, SEPTA capital investments in the Commonwealth reach close to 85 percent.

Table 24 shows that based on these proportions, \$289 million of direct capital investment (Direct Output) in the Commonwealth of Pennsylvania yielded \$673 million in total expenditures annually, supporting 5,065 jobs and \$214 million in earnings. Within southeastern Pennsylvania, \$265 million in direct expenditures produced \$570 million in total expenditures annually, supporting 4,079 jobs and \$170 million in earnings. It should be noted that the southeastern Pennsylvania’s proximity to out-of-state neighboring counties in New Jersey, Delaware, and Maryland likely reduces the in-state impact of this investment from even greater levels.³⁰

TABLE 24: ANNUAL ECONOMIC IMPACT OF SEPTA’S CAPITAL INVESTMENT³¹

	PENNSYLVANIA	SOUTHEAST PA
FIVE-YEAR AVERAGE INVESTMENT	\$407	\$407
PERCENT SPENT IN GEOGRAPHY	71%	65%
DIRECT OUTPUT (\$M)	\$289	\$265
INDIRECT & INDUCED OUTPUT (\$M)	\$384	\$305
TOTAL OUTPUT (\$M)	\$673	\$570
TOTAL EMPLOYMENT (JOBS)	5,065	4,079
TOTAL EARNINGS (\$M)	\$214	\$170

Source: ESI (2013)

²⁹ Much of SEPTA’s capital investment is site-specific, and therefore falls in southeastern Pennsylvania.

³⁰ For more detail on the breakdown of Capital Spending See Appendix B.

³¹ Figures for both the economic and fiscal impact tables are shown in 2010 dollars.

4.2 ECONOMIC IMPACT OF SEPTA OPERATIONS

4.2-1 METHODOLOGY

Compared to its capital budget, SEPTA's operating budget has been relatively stable over recent years, rising by less than three percent (inflation-adjusted) each year since 2007 (See Section 3.1).

To estimate the economic impact of SEPTA's operations, this analysis employed the more data-intensive "bill-of-goods" approach, which accounts for the specific outlays of dollars reflected in SEPTA's operating budget. This approach is also warranted because the percentage of SEPTA's budget devoted to labor is much higher than anticipated by the aggregate multipliers, which means that relying on those multipliers would yield inaccurate results.

The preponderance of SEPTA's \$1.23 billion operating expenditure is allocated to labor – an amount of approximately \$856 million.³² The remaining \$345 million is distributed across fuel, materials, insurance, purchased services, and financing expenses. For the purpose of the economic impact model, some of these expenses are excluded because they are both out-of-state and out-of-region, or they are not economically productive (i.e., do not have a multiplier effect), such as certain financing and accounting costs. After these adjustments, it is estimated that the *direct* economic impact (actual operating expenditures) of SEPTA's operations is \$1.06 billion, with \$166 million 'leaking' out of the study area through expenditures on goods and services produced and payroll taxes paid to the Federal Government. Table 25 summarizes the analysis' treatment of SEPTA's expenditures, noting exclusions and assumptions where appropriate.

³² Inclusive of post-employment benefits.

TABLE 25: SEPTA OPERATING EXPENSES WITH ADJUSTMENTS (FY2013)

EXPENSE CATEGORY	OPERATING EXPENSES & EXCLUSIONS	NOTES
TOTAL LABOR COST	\$855,790,117	EXCLUDED EXPENSES ARE PRIMARILY SOCIAL INSURANCE COSTS. ALL WORKERS ASSUMED TO LIVE IN REGION. POST-EMPLOYMENT PROGRAM PAYOUTS ASSUMED TO BE EQUAL TO CONTRIBUTIONS.
SALARIES & BENEFITS TO CURRENT EMPLOYEES	\$643,637,245	
POST EMPLOYMENT COMPENSATION (EXCLUDED EXPENSES)	\$145,812,729 (\$66,340,143)	
FUEL (GASOLINE & DIESEL)	\$42,025,110	FUEL COSTS ASSUMES GASOLINE AND DIESEL COMES FROM LOCAL REFINERIES.
LOCAL PRODUCTION	\$32,870,998	
TRUCK TRANSPORTATION COST	\$799,373	
WHOLESALE MARGIN	\$7,419,988	
RETAIL MARGIN	\$580,190	
(EXCLUDED EXPENSES)	(\$354,561)	
PURCHASED SERVICES	\$56,436,269	PURCHASED SERVICES EXCLUDES CONTINGENCIES
LOCAL SERVICES	\$56,174,485	
(EXCLUDED EXPENSES)	(\$261,784)	
MATERIALS AND SUPPLIES	\$46,962,233	MATERIALS ASSUMES TRUCK TRANSPORTATION, WHOLESALER, AND RETAILER (WHERE APPLICABLE) ARE LOCAL, BUT MATERIALS ARE PRODUCED OUT OF STATE.
TRUCK TRANSPORTATION COST	\$1,173,176	
WHOLESALE MARGIN	\$4,079,935	
RETAIL MARGIN	\$7,509	
(EXCLUDED EXPENSES)	(\$41,701,612)	
UTILITIES (INCLUDING PROPULSION POWER)	\$52,995,470	UTILITIES ASSUMES FUEL OIL COMES FROM LOCAL REFINERIES, ALL OTHER UTILITIES THROUGH LOCAL UTILITY PROVIDERS.
PROPULSION POWER	\$35,518,542	
OTHER ELECTRIC	\$9,088,836	
HEATING OIL	\$1,058,154	
OTHER UTILITIES	\$7,329,937	
(EXCLUDED EXPENSES)	\$0	
INSURANCE AND CLAIMS	\$66,266,579	INSURANCE NET OF RESERVES.
INSURANCE SERVICES	\$48,840,061	
(EXCLUDED EXPENSES)	(\$17,426,518)	
PURCHASED TRANSPORTATION SERVICES	\$67,152,931	INCLUDES PARATRANSIT AND SERVICES PURCHASED FROM AMTRAK.
TRANSPORTATION SERVICES	\$67,152,931	
(EXCLUDED EXPENSES)	\$0	
MISCELLANEOUS OPERATING EXPENSES	\$3,559,611	MISCELLANEOUS EXCLUDES FINANCING COSTS.
MISCELLANEOUS LOCAL SERVICES	\$2,128,613	
(EXCLUDED EXPENSES)	(\$1,430,998)	
LEASE AND RENTAL EXPENSES	\$2,624,670	LEASE EXCLUDES RENTAL OF TRENTON STATION.
ITEMS LEASED IN REGION	\$2,402,670	
(EXCLUDED EXPENSES)	(\$222,000)	
INTEREST, DEPRECIATION, AMORTIZATION	\$38,449,336	FINANCING AND ACCOUNTING COSTS ARE NOT CONSIDERED OUTPUT IN THE MODEL.
(EXCLUDED EXPENSES)	(\$38,449,336)	
TOTAL SEPTA OPERATION BUDGET	\$1,232,262,326	
(TOTAL EXCLUDED EXPENSES)	(\$166,195,881)	
TOTAL SEPTA ADJUSTED BUDGET	\$1,066,066,445	

Table 26 shows that SEPTA's operating budget for FY2012 reports a total headcount of 8,645 operating jobs. There were also 792 capital jobs, which are included in the analysis of capital investment (Section 4.1) and therefore are excluded here to avoid double counting.

TABLE 26: OPERATING EMPLOYEE HEADCOUNT BY DEPARTMENT (FY2013)

HEADCOUNT	OPERATING EMPLOYEES
ADMINISTRATION	12
SURFACE TRANSPORTATION	2,967
CONTROL CENTER	103
CUSTOMIZED COMMUNITY TRANSPORTATION	39
LABOR RELATIONS	14
TRANSIT POLICE	268
RAIL TRANSPORTATION	1,443
VEHICLE ENGINEERING & MAINTENANCE (BUS)	891
VEHICLE ENGINEERING & MAINTENANCE (RAIL)	890
CORPORATE STAFF	17
AUDIT, SAFETY, AND INVESTIGATIVE SERVICES	17
BUSINESS SERVICES	210
CUSTOMER SERVICE AND ADVOCACY	94
ENGINEERING, MAINTENANCE & CONSTRUCTION	1,183
FINANCE AND PLANNING	187
HUMAN RESOURCE	153
LEGAL, REAL ESTATE, AND CLAIMS	53
PUBLIC AND GOVERNMENT AFFAIRS	21
PUBLIC AND OPERATIONAL SAFETY	83
TOTAL DIRECT JOBS*	8,645
<i>Source: SEPTA (2013), ESI (2013)</i>	
<i>*Does not include Capital Employees</i>	

4.2.2 ECONOMIC IMPACT ESTIMATES

SEPTA's annual operations directly support 8,645 jobs earning an aggregate \$643.6 million in salaries and benefits, plus an additional \$145.8 million in pension and other post-employment benefits.³³ Purchases of services from local firms (including insurance, professional services, and utilities) and materials from local vendors (including fuel, parts, and supplies) constitute an additional \$276.6 million in local direct investment, for an annual total of \$1.06 billion in direct operational investment.

Table 27 shows that in addition to the 8,645 jobs directly supported by SEPTA's annual operations, the indirect and induced economic activity is estimated to support an additional 12,022 jobs in the Commonwealth (11,326 in southeastern Pennsylvania). In total, SEPTA's operations support a total of 20,667 jobs in the Commonwealth (19,971 in southeastern Pennsylvania).

TABLE 27: ANNUAL EMPLOYMENT IMPACTS OF SEPTA OPERATIONS

EMPLOYMENT IMPACTS	PENNSYLVANIA	SOUTHEAST PA
DIRECT OPERATING JOBS	8,645	8,645
INDIRECT & INDUCED JOBS	12,022	11,326
TOTAL JOBS	20,667	19,971
<i>Source: ESI (2013)</i>		

Table 28 shows that workers that directly benefit from SEPTA operations earn \$789 million per year. These direct worker earnings are associated with a multiplier effect that ripples through the economy. The indirect and induced earnings impacts stemming from worker re-spending as well as SEPTA's purchases of local goods and services generate an additional \$448 million in earnings for workers in the Commonwealth (\$412 million in

³³ For modeling purposes, this analysis assumes the payments out of the post-employment system are equal to current contributions to it.

southeastern Pennsylvania). Combined, SEPTA’s operations support a total of \$1.237 billion in earnings for workers in Pennsylvania (\$1.201 billion in southeastern Pennsylvania).

TABLE 28: ANNUAL EARNINGS IMPACTS OF SEPTA OPERATIONS

EARNINGS IMPACTS (\$ MILLIONS)	PENNSYLVANIA	SOUTHEAST PA
DIRECT EARNINGS TO EMPLOYEES	\$644	\$644
POST-EMPLOYMENT EARNINGS	\$146	\$146
TOTAL DIRECT EARNINGS	\$789	\$789
INDIRECT AND INDUCED EARNINGS	\$448	\$412
TOTAL EARNINGS	\$1,237	\$1,201

Source: ESI (2013)

Table 29 shows that operational expenditures (Direct Output) of \$920.2 million (\$1.06 billion net of the \$145.8 million in post-employment benefits) also has an economic ripple effect, resulting in an additional \$1.61 billion in indirect and induced investment for a total of \$2.53 billion in economic output in the Commonwealth (\$2.51 billion in southeastern Pennsylvania).

TABLE 29: ANNUAL ECONOMIC IMPACT OF SEPTA OPERATIONS

ECONOMIC IMPACTS (\$ MILLIONS)	PENNSYLVANIA	SOUTHEAST PA
TOTAL MODELED EXPENDITURE (\$M)	\$1,066	\$1,066
DIRECT OUTPUT(\$M)³⁴	\$920	\$920
INDIRECT & INDUCED OUTPUT (\$M)	\$1,613	\$1,586
TOTAL OUTPUT (\$M)	\$2,533	\$2,506
TOTAL EMPLOYMENT (JOBS)	20,667	19,971
TOTAL EARNINGS (\$M)	\$1,237	\$1,201

Source: ESI (2013)

SEPTA annual operations represent an output to the economy of \$2.53 billion, which contributes \$1.23 billion in earnings to the region, supporting 20,667 jobs.

4.3 FISCAL IMPACTS ON THE COMMONWEALTH

4.3-1 CAPITAL INVESTMENTS

The total economic activity related to SEPTA's annual in-state direct capital expenditures is estimated to generate significant tax revenue to the Commonwealth of Pennsylvania. Since SEPTA itself is exempt from sales and business taxes, indirect and induced spending is only considered for SEPTA’s capital investments. Table 30 shows that the Commonwealth is estimated to receive approximately \$11.9 million in annual tax revenue from economic activity resulting from capital investment, comprised of \$5.2 million in state income tax, \$6.0 million in indirect and induced sales tax, and \$0.7 million in indirect and induced business tax.

³⁴ Direct Output is the total adjusted operational expenditure less post-employment benefits, as there is no direct economic production associated with those expenditures. Household spending by retirees does contribute to induced jobs and earnings.

TABLE 30: ANNUAL FISCAL IMPACT OF SEPTA’S CAPITAL INVESTMENTS ON THE COMMONWEALTH

REVENUE SOURCE	PENNSYLVANIA TAX REVENUES (MILLIONS)
INCOME TAX	\$5.16
SALES TAX	\$6.03
BUSINESS TAX	\$0.71
TOTAL TAX	\$11.90
<i>Source: ESI (2013)</i>	

4.3-2 OPERATIONS

Table 31 shows that SEPTA's annual operation and the indirect and induced economic activity that result from them is estimated to generate approximately \$50.6 million in tax revenue to the Commonwealth of Pennsylvania. As with capital investment, only indirect and induced effects are considered when estimating sales and business tax revenues, since SEPTA itself is tax-exempt.

TABLE 31: ANNUAL FISCAL IMPACT OF SEPTA’S OPERATIONS ON THE COMMONWEALTH

REVENUE SOURCE	PENNSYLVANIA TAX REVENUES (MILLIONS)
INCOME TAX	\$31.8
SALES TAX	\$16.8
BUSINESS TAX	\$2.0
TOTAL TAX	\$50.6
<i>Source: ESI (2013)</i>	

4.4 SUMMARY OF ECONOMIC & FISCAL IMPACTS

Tables 32 and 33 provide a summary of SEPTA’s economic and fiscal impacts as described in Section 4.1, 4.2, and 4.3.

TABLE 32: SUMMARY OF SEPTA’S ECONOMIC & FISCAL IMPACTS ON THE COMMONWEALTH

(\$ MILLIONS)	CAPITAL INVESTMENT	OPERATIONS	TOTAL
DIRECT OUTPUT	\$289	\$920	\$1,209
INDIRECT & INDUCED OUTPUT	\$384	\$1,613	\$1,997
TOTAL OUTPUT	\$673	\$2,533	\$3,206
TOTAL EMPLOYMENT	5,065	20,667	25,732
TOTAL EARNINGS	\$214	\$1,237	\$1,451
TOTAL TAX REVENUES	\$12	\$51	\$62
<i>Source: ESI (2013)</i>			

TABLE 33: SUMMARY OF SEPTA’S ECONOMIC & FISCAL IMPACTS ON SOUTHEASTERN PENNSYLVANIA

(\$ MILLIONS)	CAPITAL INVESTMENT	OPERATIONS	TOTAL
DIRECT OUTPUT	\$265	\$920	\$1,185
INDIRECT & INDUCED OUTPUT	\$305	\$1,586	\$1,892
TOTAL OUTPUT	\$570	\$2,506	\$3,077
TOTAL EMPLOYMENT	4,079	19,971	24,050
TOTAL EARNINGS	\$170	\$1,201	\$1,371
<i>Source: ESI (2013)</i>			

SECTION 5 – LONG-TERM IMPACTS OF SEPTA’S CAPITAL & OPERATING FUNDING SHORTFALLS

5.1 OVERVIEW

Despite the fact that reducing transit operations and investment would cause considerable job losses in many communities in the Commonwealth, some argue that reductions in funding for transit would increase the Commonwealth’s ability to invest in other areas (which, they argue, may have similar economic impacts) or allow the Commonwealth to lower taxes. This argument is flawed, however, because it fails to recognize the crucial role that transit plays in sustaining and improving the economic competitiveness and quality of life in many of the Commonwealth’s metropolitan areas and counties. Specifically, transit is necessary for economic growth, job creation, income generation, and property value in southeastern Pennsylvania, public transit enhances the competitiveness of the region and the Commonwealth directly because of its impacts on travel costs, safety, and environmental quality, and indirectly through transit’s role in supporting efficient spatial structures of regional economies:

- Transit reduces overall costs of travel by lowering congestion, which in turn, saves valuable resources (most importantly travelers’ time);
- Transit use lowers costs associated with auto travel fatalities and injuries;
- Transit lowers travel-related pollution and reduces negative externalities of automobile travel;
- Transit service supports higher residential and commercial densities that are increasingly valued in the marketplace - it is well established that productivity is enhanced in dense environments; and
- Transit investment allows the region and Commonwealth to provide a variety of location choices for its residents—urban, suburban, and ex-urban. Additionally, transit increases travel options for households.

This section will document and quantify the role that transit plays in the competitiveness of the southeastern Pennsylvania economy and provide estimates of the impact of SEPTA’s service on travel costs and the implications of reductions of SEPTA services for jobs, and property values. The following analysis updates and adapts a joint Economy League and Econsult Corporation 2007 report entitled “*The Price of Inaction*” that specifically examined a proposal to increase SEPTA transit fares by 30 percent and reduce transit service by 20 percent. The current analysis focuses on the longer run consequences of underfunding transit capital investment which will over time increase the cost of providing transit service, and ultimately undermine the viability of a significant part of the SEPTA system.

5.2 A LOOK BACK: IMPACT ANALYSIS OF SEPTA’S PROPOSED FARE INCREASES & SERVICE CUTS (2007)

In southeastern Pennsylvania, SEPTA’s transit services, along with highways, are the lifeblood of the economy. SEPTA service provides significant benefits to riders but also to drivers through congestion reduction. The 2007 joint report, which examined a proposed 30 percent fare increase coupled with a 20 percent service cut, found that transportation and time costs for transit users and motorists increased significantly and had large adverse effects on jobs, real estate value, and tax revenue in southeastern Pennsylvania and the Commonwealth.³⁵ Specifically, the analysis found that with the proposed fare increases and service cuts:³⁶

³⁵ See the *The Price of Inaction: An Analysis of Economic Impacts Associated With SEPTA’s FY 2008 Operating Budget “Plan B” Alternative*, Economy League of Greater Philadelphia in conjunction with Econsult Corporation, April 2007. Reported dollar figures are in 2007 dollars.

³⁶ To estimate impacts, the team worked with the DVRPC transportation model to evaluate the travel impacts of the fare increase and service cuts, and it used published research to assess the implications of the reduction in transit services for the regional economy.

- Transit users would shoulder an additional \$182 million annually in extra wait times, additional fares and new travel costs for those who opt for automobiles;
- Drivers would incur extra costs of \$38.9 million annually in additional travel time and higher parking costs;
- The City of Philadelphia would lose 43,800 jobs and \$1.67 billion in net earnings while the region would lose 14,500 jobs and \$868.5 million in net earnings;
- Property values in the city would depreciate by 6.5 percent (net value reduction: \$2.89 billion) and suburban property would depreciate by 6.6 percent (net value reduction: \$4.45 billion);
- State Income taxes would fall by \$27 million and City wage tax revenues would fall by \$60 million; and
- Suburban counties would be less able to provide core services as higher transit fares and lower availability encourage sprawling growth patterns. Such sprawl, along with fallen property tax revenue (tied to depreciated home values), would stretch suburban municipalities fiscally and logistically.

5.3 A LOOK AHEAD: WHAT IF THERE WAS NO SEPTA?

The inadequacy of capital funds to maintain the SEPTA system poses a credible threat to transit services, the ability of transit to serve the needs of the region and Commonwealth, and to the economic competitiveness of the region. In the extreme, failure to reinvest in transit infrastructure could undermine the viability of all transit services.

While no actual proposal to completely disinvest in transit infrastructure has been suggested, nor is it even feasible that the present-day mobility patterns of southeastern Pennsylvania could continue without SEPTA operating a comprehensive network of public transportation services, the reality is that status quo underfunding of the system will lead to the erosion of SEPTA’s system over time, gradually resulting in the sort of elimination of service that *would* fundamentally change the region’s mobility if not addressed in a meaningful way.

Given the magnitude of risk associated with status quo funding levels, an exercise to illustrate the importance of transit to southeastern Pennsylvania was performed to examine the specific economic consequences of a scenario in which public transportation is no longer available in the region.

5.3-1 TRANSPORTATION IMPACTS

Estimates of the economic consequences of a lack of public transportation in southeastern Pennsylvania were generated by removing SEPTA from DVRPC’s regional travel simulation, which models regional mobility patterns. Based on this simulation exercise, it is estimated that a region without SEPTA would experience **an increase of transportation and time costs for drivers and former transit users totaling \$2.08 billion annually.**

Specifically, the elimination of SEPTA would have the following outcomes:

- **Net costs for people who currently use transit but are forced to shift to other means of travel would total \$581 million.** This estimate is derived from the difference between cost of currently using SEPTA and the cost of shifting to other means of travel. Former transit users who choose to drive would incur additional costs of \$336 million plus an additional \$182 million in parking costs for a total of \$518 million.³⁷ Note that the increase in demand for parking spaces would lead to a much higher average daily

³⁷ There were 247 million linked trips on SEPTA in 2011. If SEPTA were eliminated, this travel must be accommodated by other modes; analysis shows that 66 percent of those transit trips are made by car if SEPTA is eliminated. The total number of car trips needed to replace the transit trips may be substantially lower than 66 percent of transit trips, however, because analysis assumes substantial ridesharing amongst former transit riders. This analysis assumes that there are 2.25 people per car trip among this group which is 50 percent higher than the typical 1.5 passengers per car. This is a very conservative assumption, and costs would be substantially higher if significant ridesharing does not occur.

parking rate, estimated at \$25 for the Central Business District. Former transit users who choose to commute through private transit services will face higher unsubsidized fares, leading to additional costs for private use totaling \$502.3 million. These added costs are partially offset by savings of \$439 million that otherwise would have been spent on SEPTA fares.

- **Regional drivers will incur an additional cost of \$1.37 billion.** These costs include \$1.19 billion in the value of time loss due to an increase in general congestion and \$176 million from the impact of higher parking rates.
- **Additional auto travel results in an additional \$134 million associated with accidents.** As driving increases, the number of accidents resulting in fatalities and injuries increases.³⁸

5.3-2 EMPLOYMENT & REAL ESTATE IMPACTS

The increases in transportation costs associated with the complete elimination of transit would result in dramatic and undesirable changes in the region and Commonwealth economy. Increased transportation costs affects economic competitiveness just as a tax would, except with worse results. The difference between higher costs from inefficient transportation systems and a tax is that the costs of inefficient transportation are simply lost—resources discarded. Taxes, on the other hand, generate revenue that can achieve productive objectives. To put the transportation costs of SEPTA’s elimination in perspective, they are significantly worse than doubling the City of Philadelphia’s onerous wage tax.

To determine the impacts of higher transportation costs on the regional economy, this analysis evaluated the impacts of the transportation cost increases associated with the elimination of SEPTA services as if it were an increase in the City Wage Tax.³⁹ The analysis employed recently updated proprietary econometric models of the impacts of City of Philadelphia taxes on the City economy as the basis for the estimates.⁴⁰

The implications for the elimination of SEPTA for the City and regional economy are extreme:

- **Eliminating SEPTA would result in a loss of approximately 246,000 jobs in the City.**⁴¹ Since the city is far more dependent on SEPTA than neighboring suburbs, it is expected that roughly two thirds of the job loss would shift to the suburbs or elsewhere in the Commonwealth. Conservatively, the region and Commonwealth will lose more than 102,000 jobs. Based on median incomes for the city and region, these employment impacts represent an aggregate loss of \$9.7 billion in city earnings and \$6.7 billion in regional earnings.
- **Eliminating SEPTA would reduce taxable property value in the City by \$59 billion (59 percent).** Based on ESI’s tax simulation model, an increase in costs of the magnitude associated with the elimination of SEPTA would destroy well over half of the city’s property value, adversely affecting the wealth of individual homeowners and commercial property owners alike. The property value is harmed because City locations become relatively more isolated as it becomes more difficult to move around and access jobs and other desired destinations.

³⁸ See “Crashes Versus Congestion: What’s the Cost for Society,” prepared for AAA by Cambridge Systematics, November 2011. AAA estimates a cost of \$6 million in cost per accident with a fatality and \$126,000 per accident with personal injury.

³⁹ This is an appropriate, if conservative approach. It is appropriate because the bulk of SEPTA’s customers, whether city or suburban residents are subject to the City Wage Tax. It is conservative because, unlike the wage tax which funds important city services such as police, fire, and sanitation, increases in travel costs are purely wasted resources and hence should have greater adverse impacts than the wage tax.

⁴⁰ Econsult Corporation first developed these models based on the research of Robert Inman in support of the first Philadelphia Tax Reform Commission in 2003. This year, ESI has updated and improved these econometric models.

⁴¹ This assumes that 80 percent of the impacts of the costs affect the city directly, and 20 percent affect the suburbs. This basically reflects the distribution of SEPTA riders.

- **Eliminating SEPTA would reduce suburban property value by \$34.9 billion (17 percent).** Published research shows that suburban property values relatively near the City are strongly affected by the growth or decline of city employment.⁴² While the City’s impact on the urban fringe is minimal, there is a huge amount of suburban property value that is dependent on people choosing those locations because the city is a significant employment center. Without SEPTA, decline in city employment opportunities dramatically and negatively affects suburban property values in communities relatively near the city. On average, suburban house values would decline by over \$50,000. Note, however, that there likely would be an influx of construction in the outer suburbs as employment shifts from the City and inner suburbs.

5.3-3 FISCAL IMPACTS

Eliminating SEPTA would have correspondingly severe fiscal impacts on the City, suburban communities and the Commonwealth. The decline in earnings and property value would negatively affect wage and income taxes, sales taxes, and property taxes:

- **Commonwealth income and sales tax revenues would decline by \$409 million annually.** Income tax revenue would decline by \$207 million and sales tax revenue would decline by \$202 million.
- **City income, sales and property tax revenue decline by \$1.2 billion.** Wage tax revenue would decline by \$366 million, sales tax would decline by \$49 million, and property tax collections would decline by \$779 million. The large decline in property tax collections is not surprising since the City would no longer be an attractive location for either households or businesses. Revenue declines of this magnitude would bankrupt the City.
- **Suburban property tax collections on existing residential properties would decline by \$398 million.** This estimate is based on the property value loss and a 1.5 percent effective property tax rate, offset in part by increased property value associated with new development in exurban communities.

5.3-4 OTHER IMPACTS

The curtailment or elimination of SEPTA would lead to significant indirect effects on the region, which would impact all residents regardless of whether they are SEPTA riders. These impacts include land-use changes, a decrease in regional competitiveness, and changes in quality of life, and would also increase the need for significant investment in the region’s highway network and infrastructure, coupled with an increase in roadway maintenance costs.

The City of Philadelphia, and especially Center City, is significantly denser than the rest of the five-county region. This density is enabled by public transportation. Simply put, it is not possible to create or maintain a high quality, high density urban environment without public transportation. A significant decrease or elimination of public transportation would make Philadelphia a relatively less desirable place to live or work, leading to a significant exodus from the city into the surrounding counties. This relocation would cause a great deal of land development in the region, with the accompanying loss of open space. If, for example, 100,000 families relocated out of the city, and each family used one half acre of land, there would be 50,000 acres (nearly 80 square miles) consumed for housing, and many more acres for streets, shopping centers, and other supporting uses. To the extent that businesses or people did remain in the City, more of the land would need to be devoted to parking and streets, lowering the density of the City and blemishing its attractiveness.

⁴² This based on research examining the relationship between suburban property values and city and suburban employment growth. This research found that city employment growth positively affects suburban house values (and decline negatively affects value), while suburban employment growth has little effect on suburban house values. See Voith, Richard, “The Suburban Housing Market: Effects of City and Suburban Employment Growth,” *Real Estate Economics*, Vol 27 no. 4 pp621-48 (1999). See page 645.

Dense development also facilitates the interaction and interchange of ideas, sharing of productive and innovative inputs, and easy access to markets. These benefits give rise to what are called “*agglomeration economies*”, a phenomenon where individuals and firms can be relatively more productive in dense areas. The firms and people that benefit most from agglomeration economies are those that are currently in the City. Thus, these people would also be the most harmed by an elimination of public transit.

But in reality, the entire region would feel the economic ripple effects. Travel times would increase for everyone, not just transit riders, as former public transit users divert to driving on the regional road network. The increase in travel costs and time would, for example, increase costs at local restaurants by making it more costly for workers to commute. Servers, cooking staff, and other employees would either absorb those costs, demand higher salaries to absorb those costs, or the restaurants would be forced to reduce the quality of their product (food) to compensate for the losses. Someone would pay.

5.4 SEPTA’S IMPENDING CAPITAL CRISIS

SEPTA faces a different kind of financial crisis in 2013 than it did in 2007. While operating funds are tight and will require fare increases, the immediate operating adjustments are not near the magnitude of those considered in 2007.⁴³ On the other hand, SEPTA has insufficient capital funds required to maintain the current system in a state of good repair (SGR),⁴⁴ a prospect that ultimately will have even more severe consequences than earlier operating funding crises. The shortage of capital funds poses threats to southeastern Pennsylvania’s economy and the Commonwealth over an extended period of time. It is expected that the capital shortage will result in:

- Higher operating costs from poorly maintained equipment;
- Reductions in the scope and scale of transit service; and
- Increases in the future costs of returning the system to a state of good repair.

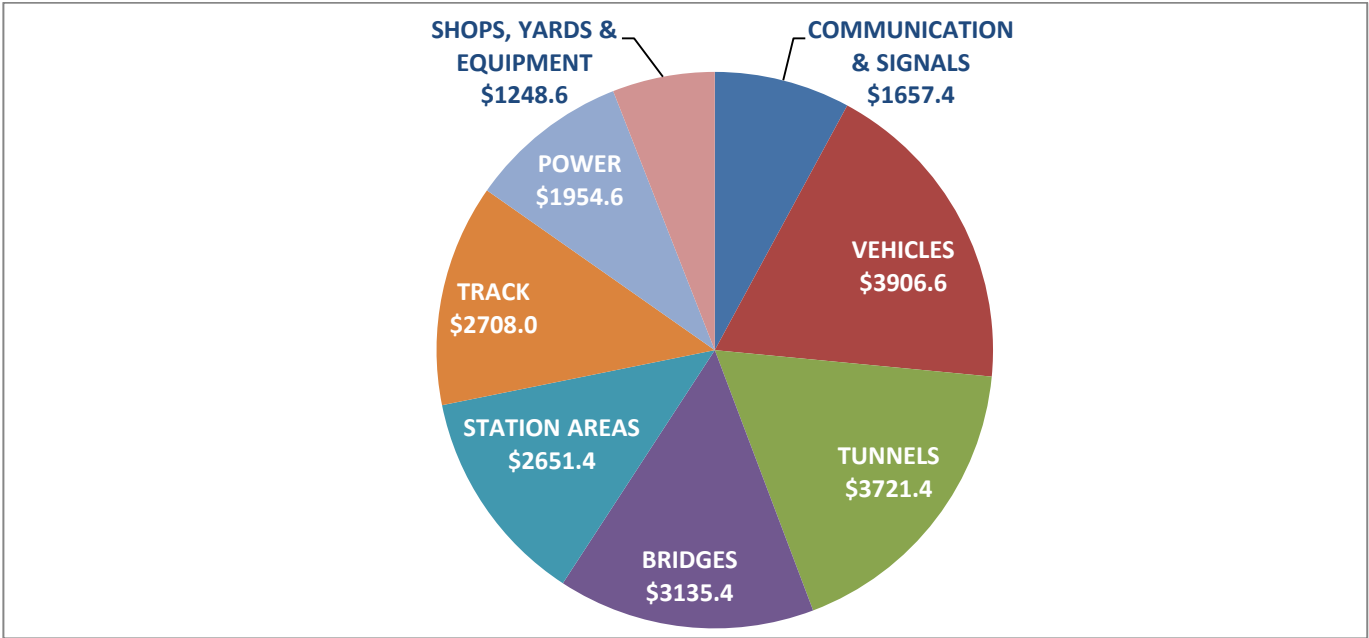
5.4-1 IMPACT ON TRANSIT SERVICE

The SEPTA system is a major infrastructure asset whose replacement cost is roughly \$21 billion. Figure 17 displays the components of asset value.

⁴³ Fares are proposed to increase in FY2014. The base fare, for example, is rising 12.5%, from \$2.00 to \$2.25.

⁴⁴ See Section 2 for more details.

FIGURE 17: REPLACEMENT VALUE OF SEPTA’S ASSETS (\$ BILLIONS, CURRENT DOLLARS)



Source: SEPTA (2013)

The need to make significant infrastructure investments is not unique to SEPTA. A 2012 study of the Bay Area Rapid Transit System (BART) shows that investments needed to achieve and maintain a state of good repair (SGR) totaled \$500 million per year. It should be noted that BART is a newer system that carries roughly one third as many passengers as the SEPTA system.⁴⁵

Moreover, transit is not unique in requiring significant capital reinvestment in infrastructure. A 2013 report conducted by AECOM for the Boston Foundation that examined all forms of transportation in Massachusetts found that the \$1.0 billion per year was needed to keep the Metropolitan Highway System in a SGR, but only \$400 million annually was allocated for that purpose. The report estimated that the net present value of (at 7 percent) costs associated with the failure to maintain highways in a SGR would range from \$18.7 to \$30.0 billion if unaddressed.

As is evident from Figure 17, SEPTA owns a variety of types of assets. Different asset types depreciate at different rates. Even among asset classes depreciation rates differ. For example, buses are typically designed to last 12 years which means that SEPTA’s 1,390 buses, whose replacement cost is nearly \$1 billion, must be replaced approximately every 12 years.⁴⁶ Rail cars are designed to last longer, as long as 40 years. SEPTA’s most recent railcar purchase for 120 Silverliner V cars cost more than \$300 million. SEPTA has another 231 regional rail cars that are between 37 and 40 years old and need to be replaced at an estimated cost of approximately \$1.3 billion.⁴⁷ SEPTA also operates 343 heavy rail and 159 trolley vehicles, a large number of which are approaching their design life and must be replaced.

The failure to make needed capital improvements on bridges, tunnels, track, power, and stations in a timely fashion can lead to much higher future costs. For example, delay in replacing the roof on a station may result in the complete rebuilding of the station after the roof fails. Failure to make improvements on the power systems running the trains could result in the complete loss of train service when the aging equipment stops working.

⁴⁵ American Public Transportation Association, *2012 Public Transportation Fact Book*, p. 8

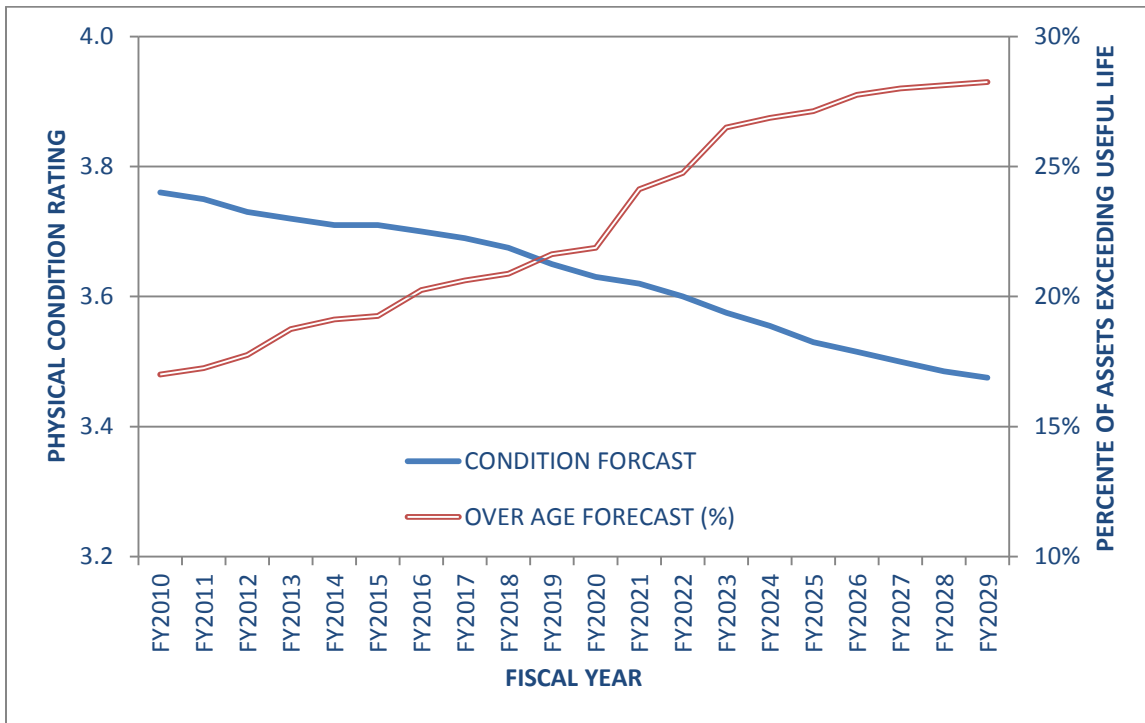
⁴⁶ SEPTA (2013).

⁴⁷ SEPTA (2013).

Delayed capital improvements on a bridge may require complete bridge replacement in the future. SEPTA is currently facing this particular situation now on the Norristown High Speed Line (NHSL) where a bridge is in need of \$33.8 million in repairs, but is estimated to cost \$260 million to replace if the capital improvements are not undertaken.

Based on the continuation of the current level of capital funding programmed for SGR (approximately \$200 million per year), the backlog of capital needs, which currently totals \$4.7 billion, will continue to grow to \$8.5 billion in 2032. The pace of increase in the backlog rises because SEPTA fundamentally cannot keep up with the replacement of its assets at current SGR-programmed funding levels: approximately \$200 million per year. To work off the entire backlog of SGR need in 20 years, SEPTA would need to invest \$652 million per year, approximately \$452 million per year above current levels. SEPTA’s projections are consistent with the Federal Transit Administration’s projections for increases in SGR backlogs nationally, as shown in Figure 18.

FIGURE 18: U.S. TRANSIT INDUSTRY PROJECTED STATE OF GOOD REPAIR (FY2008-2012)

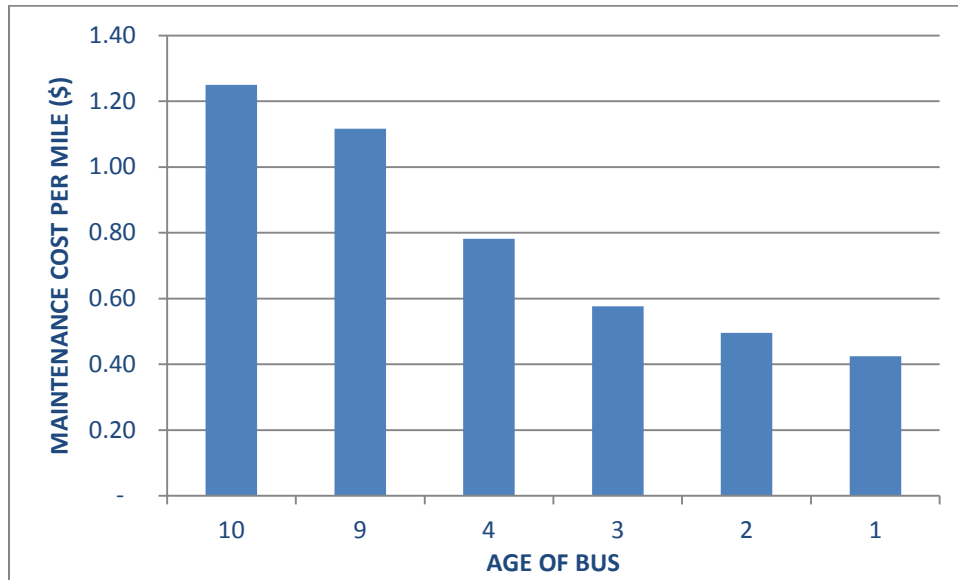


Source: National SGR Assessment, 2010, FTA.

In the long-run, underfunding transit infrastructure investment will force SEPTA to reduce the scale of its operations significantly. At current funding levels, SEPTA estimates that 40 percent of the system will already be beyond its useful life by 2032, over time leading to an elimination of related transit service.

Moreover, as infrastructure depreciates, the cost of delivering service increases. The extent to which operating costs increase as the capital stock depreciates is not universally understood, but it is possible to bring anecdotal information to bear on the issue. SEPTA, for example keeps detailed information on the maintenance costs of buses by vintage. It is thus possible to track the increase in maintenance costs that result from aging of the fleet. Figure 19 shows maintenance costs per mile of SEPTA’s hybrid bus fleet by age of vehicle.

FIGURE 19: SEPTA’S MAINTENANCE COST PER MILE VS. BUS AGE



Source: SEPTA & ESI (2013)

Maintenance costs of buses increase sharply with age, even among buses that are not beyond their design life. Based on these data, maintenance costs for a new hybrid bus are one third of the cost of a 10 year old bus. While these data are only illustrative, they convey the common sense notion that all infrastructure wears out over time, and as it wears out, it becomes increasingly expensive to operate and maintain. Ultimately, it becomes too costly to safely use.

5.5 ECONOMIC COSTS OF STATUS QUO UNDERFUNDING OF SEPTA’S CAPITAL NEEDS

5.5-1 REGIONAL TRAVEL COSTS

A concrete analysis of economic impacts associated with underfunding SEPTA’s capital needs would require a direct connection between the extent to which the capital shortfall will result in reduced transit services, then use those specific changes in service patterns to model the impact on ridership and congestion. Because SEPTA’s capital needs are so expansive, and because they are not directly connected with any specific changes in service patterns at this point, this analysis instead uses scenarios to model the long-term impacts of SEPTA’s overall state of capital underfunding on transit service and, ultimately, regional travel costs.

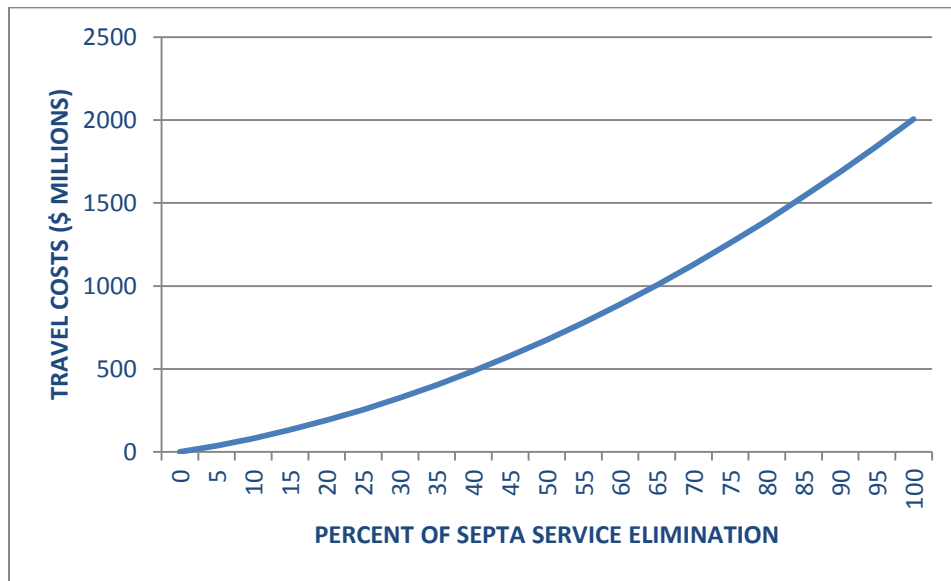
Service elimination scenarios are based on SEPTA’s estimate of SGR at current levels of programmed funding. In 2032, the backlog will reach \$8.5 billion, or roughly 40 percent of SEPTA’s \$21 billion asset base. Over the very long term, this means that 40 percent of the system would ultimately be eliminated if there were no additional funds to replace these assets.

A new DVRPC simulation of travel impacts for a 40 percent service reduction scenario was not available for this report. Instead, this analysis utilizes data from the 2007 study, which featured a 20 percent service reduction, and infers estimates of incremental impacts of increased service reduction levels to model the potential impact of a 40 percent cut.

In doing so, the analysis must account for the fact that small cuts have proportionately smaller negative impacts that do larger cuts. Thus, a 40 percent service cut will have more than double the impact on travel costs than a 20 percent service cut. This occurs both because transit service becomes increasingly unattractive as service declines, and because the cost of congestion increases rapidly as roads reach capacity as a result of transit riders

shifting to automobile travel. Mathematically it is possible to fit a curve that reflects the increasing travel costs resulting from increasingly severe cuts to SEPTA service.⁴⁸ Figure 20 displays the estimated relationship between regional travel costs and SEPTA service elimination.

FIGURE 20: ANNUAL INCREASE IN REGIONAL TRAVEL COSTS FROM INCREMENTAL SEPTA SERVICE ELIMINATION

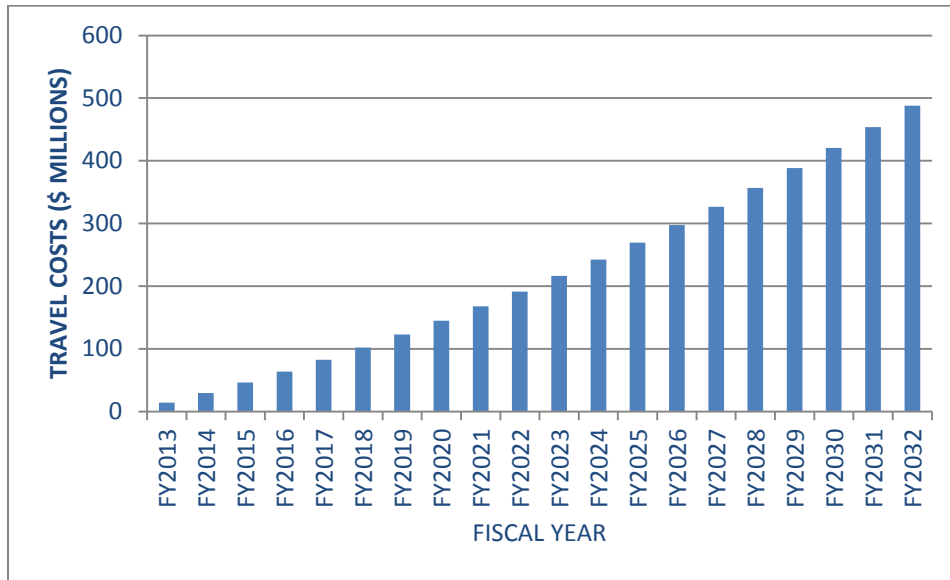


Source: ESI (2013)

Based on the curve shown in Figure 20, a 40 percent elimination of SEPTA service would increase total regional travel costs by \$488 million. Assuming that SEPTA moves gradually to the 40 percent service reduction by 2032 in response to inadequate capital funding, it is possible to show the increasing annual travel costs that the region will bear. These are displayed in Figure 21. The cumulative travel cost increase for all years through 2032 would total \$4.4 billion.

⁴⁸ The regional travel costs increase each year as service is reduced. The cost increases become larger each year because congestion associated with additional travel on roads is exponential in nature. In other words, as roads become more crowded, each additional car creates more time loss than the prior additional car.

FIGURE 21: PROJECTED ANNUAL INCREASE IN REGIONAL TRAVEL COSTS THROUGH 2032



Source: ESI (2013)

5.3-2 ECONOMIC COSTS

These increases in travel costs can be used to calculate the same categories of economic impacts that were identified for the 100 percent service cut (SEPTA elimination). Table 34 displays the magnitude of the various components of impact for the 40 percent service elimination.

TABLE 34: LONG-TERM ECONOMIC LOSSES FROM 40 PERCENT SERVICE ELIMINATION SCENARIO

AREA OF ANALYSIS	IMPACT	40 PERCENT SERVICE ELIMINATION
CITY OF PHILADELPHIA	JOB LOSS	(59,458)
	EARNINGS LOSS	\$(2,355,277,338)
	PROPERTY VALUE LOSS	\$(14,295,992,490)
REGIONAL/COMMONWEALTH	JOB LOSS	(24,772)
	EARNINGS LOSS	\$(1,631,078,911)
	PROPERTY VALUE LOSS	\$(8,443,067,700)

Source: ESI (2013)

Under this scenario, the City would lose close to 60,000 jobs, \$289 million in annual tax revenues, and more than \$14 billion (14 percent) of its property value resulting from a mass migration from the City. Southeastern Pennsylvania would lose close to 25,000 jobs, \$96 million in tax revenue, and more than \$8 billion in property value, as some City businesses and residents relocate to the suburbs, but many leave the region entirely.

The Commonwealth would lose nearly \$100 million in income and sales tax revenues from a gridlocked and less economically productive region. Loss of household wealth from property value declines would be pervasive. Some growth would likely occur on the urban fringe, at the expense of the City and inner-ring suburbs, as the lack of public transportation would fuel a new round of regional decentralization.

5.3-3 FISCAL COSTS

Increases in travel costs and associated economic impacts have important fiscal implications for municipalities. The same categories of fiscal impacts identified for the no-SEPTA scenario were modeled for the 40 percent service elimination scenario. Results are shown in Table 35. The City’s losses of an estimated \$289 million in tax

revenues would pose serious budget problems that would require significant cost-cutting or destructive tax increases. Suburban property tax losses, estimated at \$96 million, and Commonwealth tax revenues, estimated at \$99 million, would also require a fiscal remedy.

TABLE 35: LONG-TERM FISCAL IMPACTS FROM 40 PERCENT SERVICE ELIMINATION SCENARIO

AREA OF ANALYSIS	IMPACT	40 PERCENT SERVICE ELIMINATION
CITY OF PHILADELPHIA	CITY WAGE TAX LOSS	\$(88,558,428)
	SALES TAX LOSS	\$(11,776,387)
	PROPERTY TAX LOSS	\$(188,707,101)
	TOTAL LOSS	\$(289,041,915)
SUBURBAN	PROPERTY TAX LOSS	\$(96,250,972)
COMMONWEALTH	INCOME TAX LOSS	\$(50,074,123)
	SALES TAX LOSS	\$(48,932,367)
	TOTAL LOSS	\$(99,006,490)
<i>Source: ESI (2013)</i>		

In suburban communities, impacts would vary based on transit orientation and anticipated future infrastructure needs. Inner-ring suburbs that are historically more transit dependent would likely see significant property tax revenue losses from declines in property value (assuming that properties are reassessed to market value). Some of this property tax revenue decline may be offset by new development in exurban communities as the region decentralizes in response to the reduction in transit service. The fiscal impacts for these exurban communities associated with the cost of building new infrastructure, schools, and other public services to support further decentralization of the region and the environmental impacts associated with the loss of open space, are not quantified in this report.

APPENDICES

APPENDIX A: SEPTA PROJECTS FUNDED BY ARRA

PROJECT TITLE	TOTAL COST
R3 MEDIA LINE ROADBED STABILIZATION (2: RETAINING WALLS/SLOPE FAILURE & CATENARY STRUCTURES)	\$10,483,393
BSS GIRARD & SPRING GARDEN STATIONS REHABILITATION	\$30,305,809
CROYDON STATION REHABILITATION	\$8,057,387
DARBY TRANSIT CENTER RENOVATION & SITE EXPANSION	\$2,173,742
MALVERN STATION PARKING & RELATED IMPROVEMENTS	\$10,961,568
R5 SIGNAGE - 17 LOCATIONS	\$2,462,235
CATENARY POLES - FRAZER YARD	\$3,787,938
AIRPORT LINE ROW FENCING	\$2,397,573
ROOF REPLACEMENT (3: LANSDALE SUBSTATION, WARMINSTER STATION, GLENSIDE STATION)	\$747,716
NORTH WALES STATION RENOVATION	\$1,068,265
GWYNEDD CUT	\$5,714,504
FOX CHASE STATION BUILDING	\$1,761,962
BRIDGE REHABILITATION PROGRAM (4: 13.04; 18.87; 8.38; 20.25)	\$6,905,904
BRIDGE 12.81	\$153,056
TULPEHOCKEN STATION & CH WEST STATION AMENITIES	\$3,361,097
CHW STATION - RETAINING WALLS	\$723,766
GERMANTOWN/WISTER & CH EAST STATION AMENITIES	\$3,452,134
MSHL PAINTING - OVERHEAD STRUCTURES & CATENARY POLES	\$595,053
MSHL CWR BRUSH CUTTING	\$16,922,263
MSHL - GRADE CROSSINGS	\$10,582,988
MHSL RT. 101/102 - POWER CONTROL & PASS. INFO SYSTEM "FIBER"	\$3,753,736
RT. 101 WARNING DEVICE RECONFIGURATION	\$3,023,836
SECTIONALIZATION TO RTS.101/102	\$3,919,447
NHSL RT. 100 POWER CONTROL & PASS. INFO SYSTEM (FIBER OPTIC)	\$1,772,688
OVERHAUL NORRISTOWN SUBSTATION	\$6,093,751
FERN ROCK YARD	\$18,505,431
69TH ST. TERMINAL RESTROOMS	\$617,875
CBTC UPGRADE	\$4,450,165
40 HYBRID BUSES	\$20,548,675
PHILMONT - REHAB STATION BUILDING	\$498,492
LANGHORNE - STATION BUILDING	\$1,803,199
STATION BUILDINGS (3: MORTON STATION; FOLCROFT STATION; CLIFTON-ALDAN STATION)	\$1,907,248
ELWYN PARKING	\$1,378,321
TOTAL PROJECT COSTS	\$190,891,217

Source: Federal Transit Administration (2013)

APPENDIX B: SEPTA CAPITAL BUDGET DEPARTMENTAL EXPENDITURES BY INDUSTRY GROUPING

DEPARTMENT NAME	COMMONWEALTH OF PA	5 COUNTY REGION
CAPITAL BUDGETS	OTHER SERVICES (100%)	OTHER SERVICES (100%)
CAPITAL CONSTRUCTION- BLUE LINE STRUCTURES	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
CAPITAL CONSTRUCTION - RAIL FACILITIES	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
CAPITAL CONSTRUCTION - SPECIAL PROJECTS	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
CAPITAL CONSTRUCTION - TRANSIT FACILITIES	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
COMMUNICATIONS	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
ENGINEERING & MAINTENANCE - ADMIN/FINANCE	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
ENGINEERING & MAINTENANCE - BRIDGES/ BUILDINGS	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
ENGINEERING & MAINTENANCE – COMMUNICATIONS & SIGNALS	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
ENGINEERING & MAINTENANCE – POWER	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
ENGINEERING & MAINTENANCE – TRACK	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
ELECTRICAL FACILITIES	CONSTRUCTION (78%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7.5%), NON-COMMONWEALTH (14.5%)	CONSTRUCTION (70%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (7%), NON-REGIONAL (23%)
INFORMATION TECHNOLOGY	PUBLISHING INDUSTRIES, EXCEPT INTERNET (10%), NON-COMMONWEALTH (90%)	PUBLISHING INDUSTRIES, EXCEPT INTERNET (10%), NON-REGIONAL (90%)
NEW PAYMENT TECHNOLOGIES	CONSTRUCTION (4%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (14%), NON-COMMONWEALTH (82%)	CONSTRUCTION (4%), PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (14%), NON-REGIONAL (82%)
NEW VEHICLES	MOTOR VEHICLE, BODY, & PARTS MANUFACTURING (6.5%), OTHER TRANSPORTATION EQUIPMENT MANUFACTURING (18%), NON-COMMONWEALTH (75.5%)	MOTOR VEHICLE, BODY, & PARTS MANUFACTURING (6.5%), OTHER TRANSPORTATION EQUIPMENT MANUFACTURING (13%), NON-REGIONAL (80.5%)
REAL ESTATE	REAL ESTATE (100%)	REAL ESTATE (100%)
REVENUE & MARKET DEVELOPMENT	CONSTRUCTION (100%)	CONSTRUCTION (100%)
SAFETY AND RISK MANAGEMENT	WASTE MANAGEMENT & REMEDIATION (100%)	WASTE MANAGEMENT & REMEDIATION (100%)
SERVICE PLANNING	PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (100%)	PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (100%)
STRATEGIC PLANNING AND ANALYSIS	PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (100%)	PROFESSIONAL, TECHNICAL, AND SCIENTIFIC SERVICES (100%)
SUPPLY CHAIN MANAGEMENT	WHOLESALE TRADE (100%)	WHOLESALE TRADE (100%)
TRANSIT POLICE	WHOLESALE TRADE (80%), NON-COMMONWEALTH (20%)	WHOLESALE TRADE (80%), NON-REGIONAL (20%)
VEHICLE ENGINEERING & MAINTENANCE	MOTOR VEHICLE, BODY, & PARTS MANUFACTURING (80%), NON-COMMONWEALTH (20%)	MOTOR VEHICLE, BODY, & PARTS MANUFACTURING (80%), NON-REGIONAL (20%)

Source: SEPTA (2013), ESI (2013)

APPENDIX C: ECONOMIC & FISCAL IMPACT MODEL METHODOLOGY

A.1 ECONOMIC IMPACT MODEL

The methodology and input-output model used in this economic impact analysis are considered standard for estimating such expenditure impacts, and the results are typically recognized as reasonable and plausible effects based on the assumptions (including data) used to generate the impacts. In general, any economic activity can be described in terms of the total output generated from every dollar of direct expenditures. If an industry in a given region sells \$1 million of its goods, there is a direct infusion of \$1 million into the region. These are referred to as direct expenditures.

However, the economic impact on the region does not stop with that initial direct expenditure. Regional suppliers to that industry have also been called upon to increase their production to meet the needs of the industry to produce the \$1 million in goods sold. Further, suppliers of these same suppliers must also increase production to meet their increased needs as well. These are referred to as indirect expenditures. In addition, these direct and indirect expenditures require workers, and these workers must be paid for their labor. These wages and salaries will, in turn, be spent in part on goods and services produced locally, engendering another round of impacts. These are referred to as induced expenditures.

Direct expenditures are fed into a model constructed by ESI and are based on data provided by the US Department of Commerce’s Bureau of Economic Analysis through its Regional Input-Output Modeling System (RIMS II). The model then produces a calculation of the total expenditure effect on the regional economy. This total effect includes the initial direct expenditure effect, as well as the ripple (indirect and induced) effects described.

Part of the total expenditure effect is actually the increase in total wages and salaries (usually referred to as earnings), which the model can separate from the expenditure estimates. Direct payroll estimates are fed into the “household” industry of the input-output model. Impacts of this industry are estimated using the personal consumption expenditure breakdown of the national input-output table and are adjusted to account for regional consumption spending and leakages from personal taxes and savings. The direct, indirect, and induced earnings represent a component of the total economic impact attributable to wages and salaries. Finally, the model calculates the total expenditures affecting the various industries and translates this estimate into an estimate of the total labor (or jobs) required to produce this output.⁴⁹

In short, the input-output model estimates the total economic activity in a region that can be attributed to the direct demand for the goods or services of various industries. This type of approach is used to estimate the total economic activity attributable to the expenditures associated with various types of spending in the region.

A.2 FISCAL IMPACT MODEL

The RIMS II model provides estimates of the economic impact of a new project or program on the regional economy. It does not, however, estimate the fiscal impact of the increased economic activity on state and local governments. ESI has constructed a model that takes the output from the RIMS II model and generates detailed estimates of the increases in state and local tax collections that arise from the new project. Those revenues are in fact a part of the total economic impact of a new project that is often ignored in conventional economic impact analyses.

The RIMS II model provides estimates of direct, indirect, and induced expenditures, earnings, and employment within the defined region. The ESI fiscal impact model combines the RIMS II output with U. S. Census Bureau County Business

⁴⁹ In the input-output model, the estimate of increased employment will always be in terms of the employment required for a given level of production, usually referred to as *person-years* of employment. As such, these estimates cannot be interpreted as specifying *permanent jobs*.

Patterns data to produce estimates of the distribution of additional employment and earnings by county. In addition, the 2000 Census “Journey to Work” data on commuting flows are utilized to estimate income earned by residents of each county within the region, regardless of where they work. The fiscal model can then estimate the increase in earned income taxes by county and for the state as a whole resulting from the new project. For complex cases, like Philadelphia, the model can differentiate between residents and nonresidents and apply the proper wage tax rate. Pennsylvania state business and sales taxes, as well as business taxes in Philadelphia, are estimated based on the most recent data on average sales tax base per employee by major industry, as contained in publications from the Pennsylvania Department of Revenue.

APPENDIX D: GLOSSARY OF ECONOMIC IMPACT ANALYSIS TERMINOLOGY

MULTIPLIER EFFECT – THE NOTION THAT INITIAL OUTLAYS HAVE A RIPPLE EFFECT ON A LOCAL ECONOMY, TO THE EXTENT THAT DIRECT EXPENDITURES LEAD TO INDIRECT AND INDUCED EXPENDITURES.

ECONOMIC IMPACTS – TOTAL EXPENDITURES, EMPLOYMENT, AND EARNINGS GENERATED.

FISCAL IMPACTS – LOCAL AND/OR STATE TAX REVENUES GENERATED.

DIRECT EXPENDITURES – INITIAL OUTLAYS USUALLY ASSOCIATED WITH THE PROJECT OR ACTIVITY BEING MODELED; EXAMPLES: ONE-TIME UPFRONT CONSTRUCTION AND RELATED EXPENDITURES ASSOCIATED WITH A NEW OR RENOVATED FACILITY, ANNUAL EXPENDITURES ASSOCIATED WITH ONGOING FACILITY MAINTENANCE AND/OR OPERATING ACTIVITY.

DIRECT EMPLOYMENT – THE FULL TIME EQUIVALENT JOBS ASSOCIATED WITH THE DIRECT EXPENDITURES.

DIRECT EARNINGS – THE SALARIES AND WAGES EARNED BY EMPLOYEES AND CONTRACTORS AS PART OF THE DIRECT EXPENDITURES.

INDIRECT EXPENDITURES – INDIRECT AND INDUCED OUTLAYS RESULTING FROM THE DIRECT EXPENDITURES; EXAMPLES: VENDORS INCREASING PRODUCTION TO MEET NEW DEMAND ASSOCIATED WITH THE DIRECT EXPENDITURES, WORKERS SPENDING DIRECT EARNINGS ON VARIOUS PURCHASES WITHIN THE LOCAL ECONOMY.

INDIRECT EMPLOYMENT – THE FULL TIME EQUIVALENT JOBS ASSOCIATED WITH THE INDIRECT EXPENDITURES.

INDIRECT EARNINGS – THE SALARIES AND WAGES EARNED BY EMPLOYEES AND CONTRACTORS AS PART OF THE INDIRECT EXPENDITURES.

TOTAL EXPENDITURES – THE SUM TOTAL OF DIRECT EXPENDITURES AND INDIRECT EXPENDITURES.

TOTAL EMPLOYMENT – THE SUM TOTAL OF DIRECT EMPLOYMENT AND INDIRECT EMPLOYMENT.

TOTAL EARNINGS – THE SUM TOTAL OF DIRECT EARNINGS AND INDIRECT EARNINGS.

Source: ESI (2013)