POTENTIAL ECONOMIC BENEFITS OF

THE SPRING GARDEN STREET GREENWAY



in collaboration with:







POTENTIAL BENEFITS OF THE SGSG PREFERRED OPTION

EXECUTIVE SUMMARY

The **Spring Garden Street Greenway [SGSG]** project reimagines the 2.2 miles of Spring Garden Street in Philadelphia located between the Schuylkill River / Art Museum area and the revitalizing Delaware River waterfront. When built, the new greenway will create the safest, most vibrant and user-friendly street for all types of users in Philadelphia.

Implementation of the SGSG preferred option will have a number of positive impacts on the surrounding neighborhood and the City of Philadelphia. On the cost side, the required capital investment to construct the preferred option is estimated to be \$30,558,000¹, and maintenance costs are estimated to be \$15,638 per year². This report summarizes the benefits that would be leveraged by this investment including:

- Increased employment and economic activity related to the construction of the SGSG: an addition of nearly \$40 million in economic activity in the City of Philadelphia, including \$6 million in earnings and the creation of 127 jobs during the construction period.
- 2. Increased property values, real estate and transfer tax revenues: an increase in real estate market value of more than \$100 million; Increased assessed valuation of \$13.2 million based on current assessments of taxable real estate; and increased annual real estate tax revenues (from taxable properties) of \$1.25 million.

- 3. Increased retail sales and sales tax receipts: this benefit was not quantified, but would represent an increase over the estimated \$30 million in annual retail sales occurring in commercial corridors adjacent to the SGSG and related increases in receipts from the 2 percent sales tax imposed by the City of Philadelphia.
- 4. Improved mobility, decreased traffic, recreation and health benefits: for each \$1.00 invested in implementing the SGSG, the project yields between \$1.18 and \$1.92 in mobility benefits, decreased auto use and health benefits. If recreation benefits are added to the analysis, then the benefit generated for each \$1.00 invested increases to between \$3.42 and \$25.18.
- 5. An improved real estate development environment due to improved property values, a more functional and attractive streetscape environment and the opportunity for relief from storm water fees and mitigation/retrofit costs potentially offered by the storm water management features of the SGSG.







INTRODUCTION

In 2010, the Pennsylvania Environmental Council (PEC) began partnering with the City of Philadelphia and the Philadelphia Water Department to imagine the complete transformation of Spring Garden Street. The three organizations are working together with neighborhood organizations, businesses, institutions, and the public to plan a redesign of this 2.2 mile stretch of Spring Garden Street.

The "Spring Garden Street Greenway" project will create the safest, most vibrant and user-friendly street for bikers, runners, pedestrians and drivers in Philadelphia. A new, protected bikeway; canopies of trees; better street lighting, for better safety and security; rebuilt sidewalks; safer pedestrian and ADA complliant crossings; traffic signals synchronized to help traffic flow faster at slower, safer speeds; innovative underground structures and rain gardens to collect, store, and infiltrate rain; more active businesses – these are just some of the improvements proposed in this project.

The goal of the project is to make Spring Garden Street a hub of activity with added opportunities for recreation, connecting Schuylkill Banks with neighborhoods along Spring Garden and the revitalizing Delaware River waterfront.

Spring Garden Street was chosen as the location for this greenway after an extensive feasibility study analyzed how to best connect Philadelphia's two riverfronts and the region's growing trail network – which already includes 250 miles of trails in the region and 210 miles of bike lanes in Philadelphia. The greenway, which would run from the Schuylkill River Trail on the west, to the developing Delaware River Trail and Delaware Avenue waterfront on the east, would not only improve transportation and create new recreational opportunities, but could also connect neighborhoods, unifying and leveraging investments to expand business opportunities.

In addition to serving as a major transportation corridor in Philadelphia, the Spring Garden Street Greenway would also become part of the larger East Coast Greenway, a developing trail system, spanning nearly 3,000 miles and linking all the major cities on the eastern seaboard, from Maine to Key West, Florida. More than 25 percent of this route is already on safe, traffic-free paths.

Another key feature of the project is its focus not only on what it **could** be, but on the process to get there. Public involvement to date included three community meetings (averaging 100+ participants each), a website and web-based feedback, a walkability audit of the

corridor with local residents, multiple presentations to every civic association along the corridor, and oneon-one conversations with dozens of institutions and businesses along the corridor.

Finally, we see enthusiasm for the project growing and additional support coming from many different places, even some unexpected corners. For example, a Health Impact Assessment (HIA) was conducted during the spring of 2012 by a team of University of Pennsylvania graduate students and Fellows with backgrounds in planning, medicine and public health.³ The project was part of Professor Amy Hillier's "Community Development and Public Heath" class. The HIA considered how impacts attributable to implementation of the SGSG such as changing transportation modes, enhanced traffic safety, economic development, and improved social capital would affect public health. The team summarized its findings as follows:

"After completing the screening, scoping and assessment phases of the HIA, our team concluded that the proposed Greenway will have an overall positive impact on health in the community immediately surrounding Spring Garden." ⁴

PEC's ongoing outreach and the example of these graduate students inspired us to go one step further as well. If these graduate students took on the tough task of quantifying at least some of the health benefits that will accrue to the community when the greenway is built – we certainly could, and should, try to quantity as many of the benefits as we can, from transportation to recreation to health to economic development.

PEC retained Real Estate Strategies, Inc. (RES) to quantify some of these specific benefits that would be generated by the establishment of the SGSG. These benefits are discussed in the following sections of this report.

For more information please visit:

www.SpringGardenStreetGreenway.com





ECONOMIC IMPACT OF CONSTRUCTING THE SGSG

Based on the estimated construction cost of \$30.588 million, the SGSG project would add nearly \$40 million to the Philadelphia economy, including \$6 million in earnings, and create approximately 127 jobs during the construction period.

RES estimated the economic impact of constructing the SGSG using the Regional Input-Output Modeling System (RIMS II) developed by the U.S. Department of Commerce Bureau of Economic Analysis (BEA). RIMS II has been used throughout the United States for over four decades to analyze the impacts of development proposals and public policy initiatives on county and regional economies. Our analysis quantifies economic impacts to the City of Philadelphia (Philadelphia County).

RIMS II is an input-output model- essentially an accounting system that quantifies the strength of the linkage between each sector of Philadelphia's economy with each other sector. These linkages are expressed as numbers called **multipliers**. The inputs to the model are estimates of **direct impacts**—in this case, the costs of the construction project. Applying the multipliers to the direct impacts creates estimates of indirect and induced impacts of the project. **Indirect impacts** reflect potential gains

to Philadelphia businesses supplying goods and services used to construct the project. **Induced impacts** reflect economic activity generated by employee⁵ earnings spent in the local economy. These indirect/induced impacts are the "trickle down" or "spin-off" effects that are generated from construction projects in the City of Philadelphia. The multipliers take into account "leakage" of demand and earnings outside the Philadelphia economy.

RIMS II provides matrices of multipliers for use in estimating impacts to output, earnings and employment attributable to a construction project. **Output** is a concept that includes the value of products and services or the profit margin retained (for wholesalers and retailers) as well as the dollar value of earnings paid to employees.

Table 1 below presents the RIMS II multipliers and the SGSG economic impact calculation. The output and earnings multipliers are applied directly to the total construction cost expressed in 2012 dollars. The employment multiplier calculates the number of jobs generated per \$1,000,000 of construction costs. Because the RIMS II employment multipliers are benchmarked to 2008 wage levels, the construction costs must first be deflated to 2008 dollars before the multiplier is applied.

DIRECT/INDIRECT/INDUCED IMPACTS

 TABLE 1: CONSTRUCTION IMPACTS
 sources: Bureau of Economic Analysis RIMS II; SSE; RES

CONSTRUCTION COST 2012 \$30,588,480 2008 \$28,559,485 [deflated equivalent cost]

RIMS II MULTIPLIERS

OUTPUT [A]	1.3057	\$ 39,939,378
EARNINGS [A]	0.1975	\$ 6,041,225
EMPLOYMENT [B]	4.4576	127 JOBS

[[]A] Output includes earnings

[B] Multiplier calculates jobs per \$1,000,000 of construction costs. For this multiplier only, construction cost must be deflated to 2008 dollars.



INCREASED PROPERTY VALUES, REAL ESTATE AND TRANSFER TAX REVENUES

Several academic studies have documented increased property values associated with proximity to green space, streetscape improvements and the installation of improved pedestrian and bicycle facilities. One of the most recent and rigorous analyses was completed in 2006 by University of Pennsylvania researchers Susan Wachter and Kevin Gillen⁶. Wachter and Gillen found that property values for Philadelphia properties located adjacent⁷ to "green" streetscape improvements have values 28 percent higher than similar parcels on unimproved streets.

RES reviewed the September 2011 Office of Property Assessment (OPA) file of market and assessed valuation for the 455 parcels fronting the SGSG. Contiguous parcels under the same ownership as the parcel fronting the SGSG were also included. The OPA market value for all properties (taxable and tax-exempt) totaled \$357.2 million. Applying the 28 percent premium to OPA market values⁸ of parcels with frontage on the proposed SGSG would result in:

- An increase in real estate market value of more than \$100 million⁹.
- Increased assessed valuation of \$13.2 million based on current assessments of <u>taxable</u> real estate.
- Increased annual real estate tax revenues (from taxable properties) of \$1.25 million.
- An increase in total real estate transfer taxes collected from sales of property along the SGSG, as a result of higher property sales prices.

This analysis only considers the impact on existing properties. New development will add to the tax base as well, subject to any tax abatement period in effect.

INCREASED RETAIL SALES AND SALES TAX RECEIPTS

The University of Pennsylvania HIA team concluded that transformation of Spring Garden Street into a complete street would result in increased levels of bicycle and pedestrian activity over current conditions. The HIA cited studies of areas with improved cycling and pedestrian facilities that found that **people who bike or walk to a business visit more often and spend more than those who drive.**¹⁰

The Philadelphia City Planning Commission (PCPC) tracks 382 commercial corridors in Philadelphia. Four of the PCPC-defined commercial corridors will be impacted by implementation of the SGSG: 20th and Green; 15th and Spring Garden; 5th and Spring Garden and 2nd and Fairmount. An Econsult study indicated that these corridors had more than \$30 million in sales in 2005. Implementation of the SGSG should result in incremental sales above existing levels, particularly in those corridors east of Broad Street. The City of Philadelphia collects a 2% sales tax on many retail items. Additional retail sales in the City will result in increased sales tax revenue to the City.



In addition to the economic and tax revenue impacts identified, implementation of the SGSG will create other benefits. The HIA identified some of these impacts including:

- An increase in bicycle use and physical activity will result in a more active population, which can lead to decreased levels of chronic diseases such as heart disease and obesity.
- Neighborhood improvements, such as increases in commercial/retail and residential space lead to a decrease in crime and increased feelings of personal safety.
- Increased pedestrian traffic will provide an opportunity for community interaction, increasing social networks and social capital within the Spring Garden street community.

Many of these benefits can be quantified using a model developed by the University of Minnesota with funding from The Transportation Research Board (TRB).¹¹ The PEC staff used the TRB model to quantify the benefits of construction of the SGSG. Inputs to the model included the residential density within certain distances of the SGSG and the share of Philadelphia residents who commute by bicycle. The types of benefits calculated by the TRB model include:

- Mobility Benefits: Mobility benefits are quantified based on the value of the time premium research shows bicycle commuters are willing to "pay" for the opportunity to ride on protected bike lanes as compared to riding on a street with parked cars.
- Decreased Auto Use: Decreased auto use is calculated based on research estimating the economic value of reduced congestion and air pollution as well as user cost savings (versus automobile or other forms of transportation).
- Health Benefits: Health benefits are quantified based on the median value of findings from ten separate studies on the medical costs of physical inactivity. The model applies this figure to the estimated number of new cyclists generated by establishment of the bicycle facility.

• Recreation Benefits: Recreation benefits are calculated based on the concept of implied value of a recreational activity over and above the value of time "expended" to take part in the activity. The University of Minnesota researchers reviewed an extensive body of literature on the economic value consumers ascribe to many forms of outdoor recreation, including cycling. The values estimated in the literature cluster around \$10 per hour, and this is the figure used in the model, assuming one hour of cycling activity per day. The calculation is based on the total of new cyclists less new commuters generated by the establishment of the bicycle facility.

A detailed discussing of the methodology, assumptions, and calculations used in the TRB model, as well as a review of the underlying body of research is available at www.bicyclinginfo.org/bikecost/.

Table 2 shows the demand and benefit estimates calculated by the TRB model. The TRB model indicates that the recreational benefits of the SGSG have the most significant dollar value followed by mobility and health benefits.

Table 3 presents a comparison of the benefits estimated using the TRB model and the estimated capital and annual maintenance costs for the SGSG. Both benefits and costs are presented in 2012 dollars. The benefit and costs were projected in constant 2012 dollars over a 30-year period. The net present value of the streams of benefits and costs were calculated using a 7 percent discount rate, the rate currently required for analysis of federal transportation projects.

Benefit-cost ratios were calculated based on the low and middle estimates for each benefit type. If recreation is excluded, the analysis indicates that **for each \$1.00 invested in implementing the SGSG, the project yields between \$1.18 and \$1.92 in benefits.** If recreation is added to the analysis, then the benefit generated **for each \$1.00 invested increases to between \$3.42 and \$25.18.** The economic and tax revenue impacts discussed earlier are not included in these benefit-cost ratio calculations. The economic and tax revenue impacts represent additional benefits of the project.

TABLE 2: ESTIMATE OF INCREASED DEMAND AND BENEFITS OF CONSTRUCTION OF THE SPRING GARDEN STREET GREENWAY

SOURCE: TRB model at www.bicyclinginfo.org/bikecost/. Inputs including Center City bicycling commute share and population density provided by PEC.

	LOW ESTIMATE	MID ESTIMATE	HIGH ESTIMATE	
RESIDENTS	283,291	283,291	283,291	
EXISTING COMMUTERS	2,040	2,040	2,040	
NEW COMMUTERS	636	636	636	
TOTAL EXISTING CYCLISTS	4,873	50,607	76,942	
TOTAL NEW CYCLISTS	2,157	16,428	24,645	
MOBILITY	\$4	\$10,919	\$2,565,894	
DECREASED AUTO USE	\$91,821	\$91,821	\$91,821	
HEALTH	\$276,080	\$2,102,736	\$3,154,557	
RECREATION	\$5,549,540	\$57,637,781	\$87,631,109	

TABLE 3: BENEFIT-COST RATIOS BY TYPE OF BENEFIT

SOURCE: TRB model; PEC; RES

BENEFIT TYPE	CAPITAL	ANNUAL MAINTE- NANCE	ANNUAL	30-YR BENEFITS	30 YR COSTS	BENEFIT COST RATIO	
MOBILITY	\$30,558,000	\$15,348	\$2,565,894	\$29,757,275	\$28,736,871	1.04	
DECREASED AUTO USE	\$30,558,000	\$15,348	\$91,821	\$1,064,870	\$28,736,871	0.04	
HEALTH							
MID ESTIMATE	\$30,558,000	\$15,348	\$2,102,736	\$24,385,923	\$28,736,871	0.85	
LOW ESTIMATE	\$30,558,000	\$15,348	\$276,080	\$3,201,765	\$28,736,871	0.11	
RECREATION							
MID ESTIMATE	\$30,558,000	\$15,348	\$57,637,781	\$668,438,877	\$28,736,871	23.26	
LOW ESTIMATE	\$30,558,000	\$15,348	\$5,549,540	\$64,359,318	\$28,736,871	2.24	
TOTAL: INCLUDING RECREATION BENEFITS							
MID ESTIMATE	\$30,558,000	\$15,348	\$62,398,232	\$723,646,945	\$28,736,871	25.18	
LOW ESTIMATE	\$30,558,000	\$15,348	\$8,483,335	\$98,383,227	\$28,736,871	3.42	
TOTAL: EXCLUDING RECREATION BENEFITS							
MID ESTIMATE	\$30,558,000	\$15,348	\$4,760,451	\$55,208,068	\$28,736,871	1.92	
LOW ESTIMATE	\$30,558,000	\$15,348	\$2,933,795	\$34,023,909	\$28,736,871	1.18	



The improved functional and aesthetic environment along the SGSG will support increased property values along the corridor and attract new residents and businesses to the Spring Garden corridor. The more balanced treatment of automobile, transit, pedestrians and cyclists may lead to an improved retail environment and higher retail rental rates on the corridor which will support and encourage reinvestment in the existing commercial building inventory.

The storm water management features of the SGSG preferred option may offer an additional motivation for property owners and developers to invest in the Spring Garden Street corridor, assuming the City agrees to create incentives for properties that tie in to the new infrastructure. Property owners along the SGSG could see relief from storm water fees and retrofit costs and would potentially be allowed to build out more of the site than if they needed to provide storm water retention or infiltration facilities on-site. These savings could help to spur revitalization of underutilized sites along the SGSG.

Philadelphia landowners can receive a credit of up to \$0.10/impervious square foot annually if the first one inch of storm water is managed on-site. If the credit is extended to properties tied in to the SGSG storm water infrastructure, the credit would total approximately \$4,350/impervious acre annually.

Developers/landowners would also avoid the costs of onsite infrastructure/retrofit investments that they would have incurred to get the credit. Typical strategies used in dense downtown settings (subsurface infiltration, rain gardens, rainwater harvest/reuse) can cost \$1.00-\$3.00/impervious SF managed. Porous pavements can cost between \$2.00 and \$21.00/SF managed. Green roofs can cost more than \$30.00/SF.¹³

• EXAMPLE: According to OPA records, the parcels making up the parking lot fronting the north side of Spring Garden Street between Broad Street, N. 15th Street and Brandywine Street have a total of 63,862 square feet of impervious area. A developer building on the site could save between \$63,862 to \$191,586 in development costs (and perhaps more, depending on the storm water management technique that would have been incorporated into the building design.) The property would also save \$6,382 in storm water fees annually.

The implementation of the SGSG, in conjunction with the improving real estate market in the areas surrounding Center City Philadelphia, may spur development projects along Spring Garden Street that have been "on hold" for years.

¹ Sam Schwartz Engineering (SSE), 2012 dollars

² 2012 dollars. Maintenance costs based on NCHRP 552: Guidelines for Analysis of Investment in Bicycle Facilities, p.20.

³ http://springgardenstreetgreenwayhia.wordpress.com (March 2012)

⁴ University of Pennsylvania HIA

⁵ Either employees directly employed in the construction project or employees of other establishments that are indirectly supported by spending on the construction project.

⁶ Wachter,, Susan M. and Kevin Gillen, Public Investment Strategies: How They Matter for Neighborhoods in Philadelphia. Philadelphia: Wharton School, University of Pennsylvania, 2006.

⁷ Within 100 feet.

⁸ The Actual Value Initiative (AVI) being debated in City Council will likely in new official market and assessed values for these parcels. This analysis should be seen as preliminary and illustrative of the order of magnitude of incremental market value and real estate taxes.

⁹ More than half of the total current market value is in exempt properties. This increase in value includes both exempt and non-exempt (taxable) properties.

Bikes Lanes, On-Street Parking and Business, (http://www.cleanairpartnership.org/pdf/bike-lanes-parking.pdf) and Krizek, Kevin Two Approaches to Valuing Some of Bicycle Facilities Presumed Benefits, Journal of the American Planning Association 72(3), Summer 2006.

¹¹ This model offers a rigorous approach to estimating the increase in cyclist demand and quantifying the benefits associated with construction of new bicycle facilities. The project was completed in 2005 and included an interactive on-line model that allows planners to compare costs to the potential benefits of new cycling facilities. The model can be accessed at www.bicyclinginfo.org/bikecost/.

¹² University of Pennsylvania HIA

¹³ Valderrama, Alisa and Larry Levine, Financing Storm Water Retrofits in Philadelphia and Beyond. Natural Resources Defense Council, February 2012.

CONCLUSION

Construction of the SGSG will generate a variety of benefits for both neighborhood residents and the City of Philadelphia. The construction activity itself will add nearly \$40 million to the Philadelphia economy, including \$6 in earnings and 127 jobs during the construction period. The improvements to SGSG are anticipated to increase the market value of existing properties fronting Spring Garden Street by over \$100 million and to increase annual property tax receipts to the City of Philadelphia and the Philadelphia School District by \$1.25 million.

The development of the SGSG will create an amenity that will increase pedestrian and bicycle activity. More activity along the street is expected to increase retail sales in the commercial corridors along and adjacent to Spring Garden Street. In addition, increased pedestrian activity will create new opportunities for community interaction resulting in improved social networks and enhanced social capital within the surrounding neighborhoods.

Implementation of the SGSG is expected to spur additional real estate development along Spring Garden Street, particularly if the storm water management features of the plan allow property owners to realize relief from impact fees and onsite storm water management/retrofit requirements. New real estate development will expand the City's real estate tax base, and after any tax abatement period, generate additional tax revenue for the City of Philadelphia and the Philadelphia School District.

As proposed, the bicycle facility features of the SGSG will generate additional benefits for neighborhood residents, including decreased auto usage, health benefits, and improved mobility for cyclists. The economic value of these benefits is expected to total between \$1.18 and \$1.92 for every \$1.00 of investment in developing the SGSG. When recreation benefits are figured into the analysis, the benefit cost ratio increases to between \$3.42 to over \$25.00 for every \$1.00 of initial investment.

IN ALL, THE GREENWAY WILL ADD:

- >\$40 million & 125 jobs to the local economy during construction
- > \$100 million in increased real estate value afterwards
- >\$1.25 million in increased tax revenue annually
- >\$3-\$25 in recreation, health and transportation benefits

ABOUT REAL ESTATE STRATEGIES

Real Estate Strategies, Inc. (RES) is a full service real estate and economic development advisory firm based in Paoli, Pennsylvania. RES specializes in the following areas:

- > Market and financial analysis of residential and commercial real estate, including transit-oriented development and commercial corridor analysis
- > Highest and best use studies of vacant property and buildings
- > Economic development studies and strategic plans
- > Fiscal and economic impact analyses
- > Public/private deal structuring and joint venture development

Previously, RES professionals have worked as private developers, served in the public sector and run community based organizations. As consultants, the firm's client base includes organizations in all of these sectors throughout the mid-Atlantic region and selected markets across the United States and Canada.

For the Spring Garden Street Greenway study, RES assisted PEC in identifying and quantifying public and private sector benefits that could be generated by an investment in implementing the preferred SGSG option.

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GIVE US A CALL!

Want to contact us directly to offer support for the project? Or just to voice your opinion? Contact Jeffrey Knowles at JKnowles@pecpa.org or (215) 545 - 4570



www.pecpa.org

ABOUT US:

The Pennsylvania Environmental Council is one of the state's leading environmental organizations and has been protecting and restoring natural and built environments through innovation, collaboration, education and advocacy for over 40 years. One of PEC's major initiatives has been developing greenway corridors throughout the Greater Philadelphia area. The Spring Garden Street Greenway is one of the latest projects which PEC has been engaged in to add to Pennsylvania's green infrastructure.

A PROUD PARTNER OF:



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PROJECT PARTNERS:

So far, The Pennsylvania Environmental Council has received enormous support from both the public and the following partners in seeing this project through:

- City of Philadelphia
- Philadelphia Water Department
- Philadelphia Streets Department
- Philadelphia Mayor's Office of Transportation & Utilities
- Philadelphia Mayor's Office of Sustainability
- Philadelphia Parks & Recreation Department
- Philadelphia City Planning Commission
- Pennsylvania Dept. of Conservation & Natural Resources
- Delaware Valley Regional Planning Commission

- PennDOT
- SEPTA
- Bicycle Coalition of Greater Philadelphia
- East Coast Greenway Alliance
- Delaware River Waterfront Corporation
- Schuylkill River Development Corporation
- Pennsylvania Horticultural Society
- Center City District