

ECONOMIC AND FISCAL IMPACT OF THE BILLBOARD INDUSTRY IN PHILADELPHIA

Final Report Submitted To:
Duane Morris LLP
30 South 17th Street
Philadelphia, PA 19103-4196

Final Report Submitted By:
Econsult Corporation
1435 Walnut Street Suite 300
Philadelphia PA 19102

April 6, 2012

EXECUTIVE SUMMARY

Billboards are an ordinary sight and a common form of advertising in urban landscapes. Yet the billboard industry is not often viewed in terms of economic impact. It is, however, a significant contributor of economic benefits within the City as well as the Commonwealth of Pennsylvania, **supporting jobs in a wide range of industries and generating significant tax revenues for City and Commonwealth government** (see Table ES.1).

Table ES.1 – Estimated Annual Economic Impact of the Billboard Industry within the City of Philadelphia and the Commonwealth of Pennsylvania (in \$M)

	City of Philadelphia	Commonwealth of Pennsylvania
Total Expenditures	\$38	\$50
Total Employment	400	630
Total Earnings	\$15	\$24
Total Tax Revenues	\$3.1	\$1.7

Source: CBS Outdoor (2012), US Department of Commerce (2009), Econsult Corporation (2012)

Utilizing industry data and industry-recognized input-output modeling techniques, Econsult estimates that the annual economic impact of the billboard industry is about **\$38 million within the City (supporting about 400 jobs) and about \$50 million within the Commonwealth (supporting about 630 jobs)**. Econsult also estimates that the billboard industry generates about **\$3.1 million in tax revenues to the City** and about **\$1.7 million to the Commonwealth each year**. This does not include an additional estimated **\$1 million or more in City property tax revenues** due to the increased value of commercial properties that lease space to billboard operators.

1. INTRODUCTION

Billboards are an ordinary sight and a common form of advertising in urban landscapes. Yet the billboard industry is not often viewed in terms of economic impact. It is, however, a significant contributor of economic benefits within the City, **supporting jobs in a wide range of industries and generating significant tax revenues for City government.**

This study, by Econsult Corporation, estimates the economic and fiscal impact of the billboard industry within the City. It **utilizes industry data and industry-recognized input-output modeling techniques to estimate the scale and composition of the billboard industry's economic footprint within the City**, as measured in expenditures, employment, earnings, and tax revenues.

For thirty years, Econsult Corporation has provided clients with high-quality, rigorous economic analysis in support of both litigation and consulting matters. Its approach combines state-of-the-art analytic methods with extensive professional experience in consulting, academia, and government, providing clients with revealing perspectives and the highest quality empirical analyses.



2. INPUT-OUTPUT METHODOLOGY¹

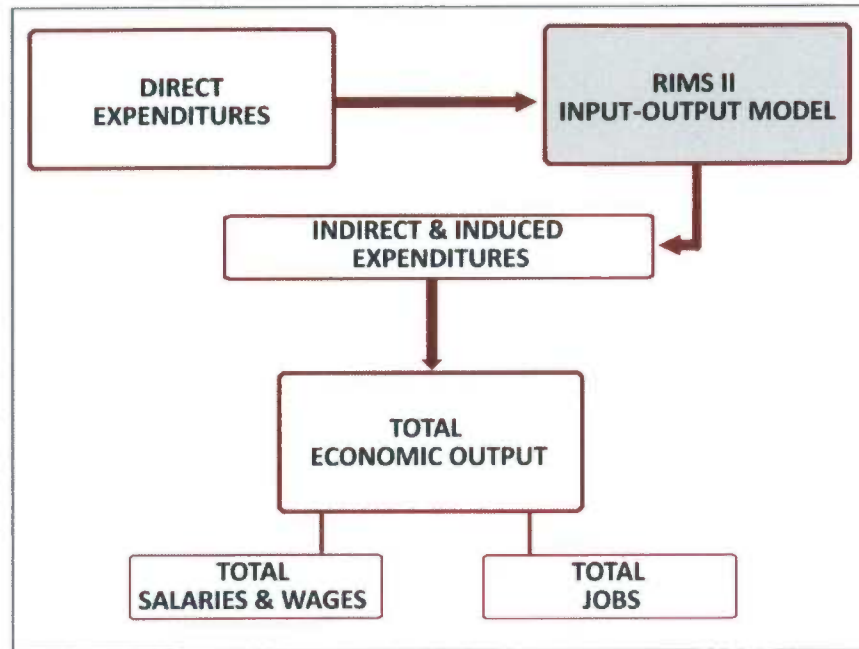
Any expenditure generates additional economic activity in a particular geographic area via the mechanism of the Keynesian consumption multiplier, an established behavioral characterization of the nature of economic activity in a market economy. In other words, in measuring the total economic impact of an initiative, one must account for the countless inter-industry relationships within a region, and specifically the manner in which an increase in output in a particular industry results in increases in outputs by other industries.

To estimate the scale and composition of economic impact supported by the billboard industry, Econsult constructed an **economic impact model** that utilized multiplier data from the US Department of Commerce's Regional Input-Output Modeling Systems (RIMS II). This model estimated two forms of spillover impacts resulting from the direct expenditures by the billboard industry:

1. **Indirect expenditures** are generated as local vendors increase production in response to the initial expenditures. New expenditures on inputs and services (e.g. equipment, materials, professional services) cause suppliers of those inputs and services to ramp up production, and to acquire additional inputs and services from their suppliers, who themselves will do the same. The sum of these economic activities is known as the indirect expenditures, and they support additional employment and earnings beyond the employment and earnings supported by the direct expenditures.
2. **Induced expenditures** are generated as employees spend their earnings within the local economy. New expenditures on people (i.e. salaries) provide those people with additional spending power. Some of that spending power is exercised within the region, supporting local providers of various goods and services (e.g. food, entertainment, lodging, transportation). The sum of these economic activities is known as the induced expenditures, and they also support additional employment and earnings beyond the employment and earnings supported by the direct expenditures.

These direct, indirect, and induced expenditures support a certain scale and composition of employment and earnings within the City, which can also be estimated using RIMS II multipliers (see Figure 2.1). These impacts can also be estimated for the Commonwealth of Pennsylvania as a whole, since they continue to emanate beyond City limits.

¹ See also Appendix A for a more detailed description of Econsult's economic and fiscal impact methodology.

Figure 2.1 - Flowchart of Input-Output Methodology for Estimating Economic Impact

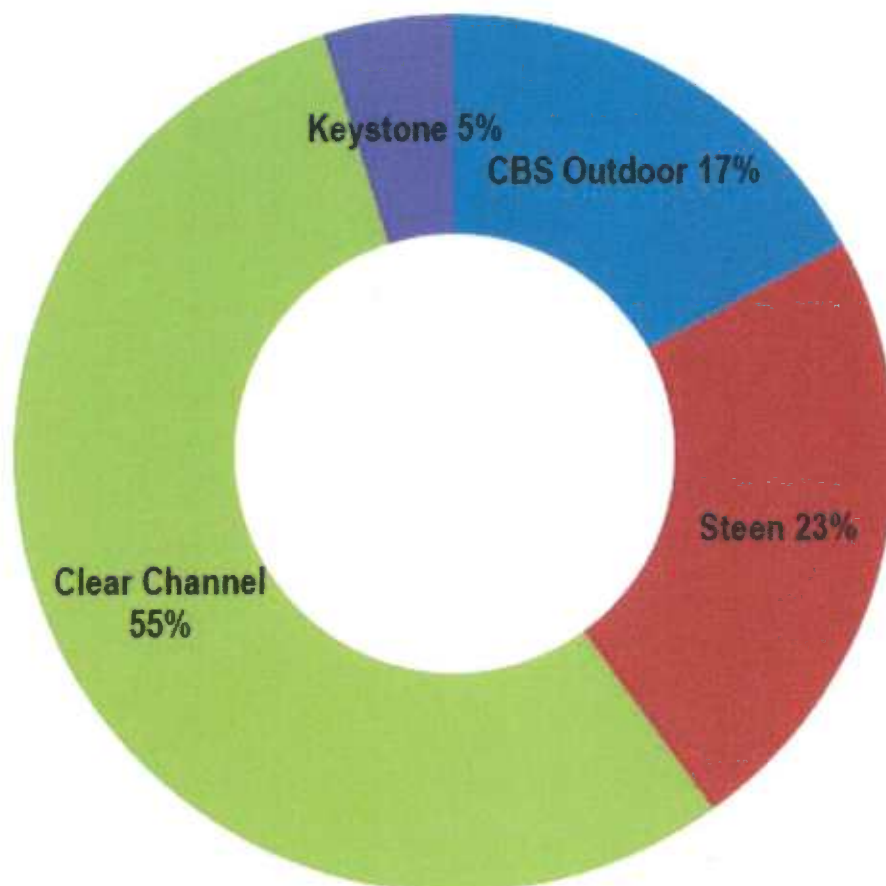
Source: Econsult Corporation (2009)

And, these economic impacts result in the generation of new tax revenues for the City and the Commonwealth. To estimate the fiscal impact supported by the billboard industry within the City and Commonwealth, Econsult constructed a **fiscal impact model** that utilized “Journey to Work” data available through the US Census Bureau to apportion various amounts and kinds of economic activity into various tax base amounts for the City and Commonwealth, which were then multiplied through by the appropriate tax rates to arrive at tax revenues generated to the City and Commonwealth.

3. ESTIMATED DIRECT EXPENDITURES BY THE BILLBOARD INDUSTRY WITHIN THE CITY

The billboard industry within the City consists of four major operators: CBS Outdoor, Clear Channel, Keystone, and Steen (see Figure 3.1). It is estimated that the billboard industry **directly employs about 200 people** within the City and makes about **\$22 million to \$30 million in direct expenditures** within the City each year. These expenditures include salaries for a wide range of positions (from management to sales to installers), as well as lease payments, utilities, maintenance, and improvements.

Figure 3.1 – Estimated Market Share of Billboards within the City of Philadelphia



Source: CBS Outdoor (2012), Econsult Corporation (2012)

4. ESTIMATED ECONOMIC IMPACT OF THE BILLBOARD INDUSTRY WITHIN THE CITY

The economic impact of the direct expenditures by the billboard industry within the City is significant. Even taking the low-end estimate of \$22 million per year in direct expenditures within the City, the billboard industry is estimated to annually generate about **\$38 million in total expenditures within the City, supporting about 400 jobs and about \$15 million in earnings** (see Table 4.1).

Table 4.1 – Estimated Annual Economic Impact of the Billboard Industry within the City of Philadelphia (in \$M)²

	Billboard Industry
Direct Expenditures	\$22
Indirect and Induced Expenditures	\$15
Total Expenditures	\$38
Total Employment	400
Total Earnings	\$15

Source: CBS Outdoor (2012), US Department of Commerce (2009), Econsult Corporation (2012)

These economic impacts continue to emanate beyond City limits to benefit the Commonwealth as a whole. Taking the low-end estimate of \$22 million per year in direct expenditures within the City, the billboard industry is estimated to annually generate about **\$50 million in total expenditures within the Commonwealth, supporting about 630 jobs and about \$24 million in earnings** (see Table 4.2).³

² Throughout this report, totals may not sum precisely due to rounding.

³ Since the City is completely contained within the Commonwealth, Commonwealth estimates include City estimates. Thus, the difference between the two economic impact estimates represents the amount of impact estimated to take place within the Commonwealth but outside the City.

Table 4.2 – Estimated Annual Economic Impact of the Billboard Industry within the Commonwealth of Pennsylvania (in \$M)

	Billboard Industry
Direct Expenditures	\$22
Indirect and Induced Expenditures	\$27
Total Expenditures	\$50
Total Employment	630
Total Earnings	\$24

Source: CBS Outdoor (2012), US Department of Commerce (2009), Econsult Corporation (2012)

These economic impacts reach numerous sectors within the City and Commonwealth, including professional services, real estate, and finance but also administrative services, accommodation and food services, manufacturing, and retail (see Table 4.3 and Table 4.4). Hence, the billboard industry is responsible for **supporting economic activity, employment, and earnings in a wide range of industries.**⁴

⁴ See Appendix B for more detail on the estimated distribution of the expenditure and employment impact of the billboard industry within the City and the Commonwealth.

Table 4.3 – Estimated Distribution of the Expenditure and Employment Impact of the Billboard Industry within the City of Philadelphia

Industry	Expenditure Impact	Industry	Employment Impact
Professional, scientific, and technical services	38%	Professional, scientific, and technical services	34%
Real estate and rental and leasing	33%	Real estate and rental and leasing	27%
Finance and insurance	6%	Administrative and waste management services	8%
Information	5%	Accommodation and food services	7%
Administrative and waste management services	4%	Health care and social assistance	4%
All other industries	15%	All other industries	20%

Source: CBS Outdoor (2012), US Department of Commerce (2009), Econsult Corporation (2012)

Table 4.4 – Estimated Distribution of the Expenditure and Employment Impact of the Billboard Industry within the Commonwealth of Pennsylvania

Industry	Expenditure Impact	Industry	Employment Impact
Professional, scientific, and technical services	31%	Professional, scientific, and technical services	31%
Real estate and rental and leasing	27%	Real estate and rental and leasing	14%
Manufacturing	7%	Retail trade	8%
Finance and insurance	6%	Health care and social assistance	8%
Health care and social assistance	5%	Administrative and waste management services	7%
All other industries	24%	All other industries	31%

Source: CBS Outdoor (2012), US Department of Commerce (2009), Econsult Corporation (2012)

5. ESTIMATED FISCAL IMPACT OF THE BILLBOARD INDUSTRY WITHIN THE CITY

These economic impacts translate into fiscal impacts, in the form of tax revenues generated for the City and Commonwealth. It is estimated that the economic impacts from direct expenditures by the billboard industry resulted in about **\$3.1 million in City tax revenues** (including \$2.3 million in direct Outdoor Advertising Tax payments) (see Table 5.1) and about **\$1.7 million in Commonwealth tax revenues** (see Table 5.2).⁵

Table 5.1 – Estimated Annual Fiscal Impact of the Billboard Industry within the City of Philadelphia (in \$M)

	City of Philadelphia
Wage and Earnings Tax	\$0.5
Sales Tax	\$0.1
Business Privilege Tax	\$0.2
Outdoor Advertising Tax	\$2.3
Total City Tax Revenues	\$3.1

Source: CBS Outdoor (2012), Econsult Corporation (2012)

Table 5.2 – Estimated Annual Fiscal Impact of the Billboard Industry within the Commonwealth of Pennsylvania

	Commonwealth of Pennsylvania
Personal Income	\$0.8
Sales	\$0.7
Corporate Net Income	\$0.2
Total Commonwealth Tax Revenues	\$1.7

Source: CBS Outdoor (2012), Econsult Corporation (2012)

⁵ Since the City and the Commonwealth are distinct governmental entities, Commonwealth estimates do not include City estimates. Rather, each set of fiscal impact estimates represents the tax revenue amounts going to each entity.

This does not include an additional estimated **\$1 million or more in City property tax revenues** due to the increased value of commercial properties that lease space to billboard operators. This estimate is determined based on the following data points and conservative assumptions:

1. The value of a property represents the present value of future cash flows that can be derived from the property.
2. Billboard operators make an estimated aggregate \$10 million to \$13 million in lease payments to the owners of the commercial properties on which their billboards are located.
3. These revenues, in the form of lease payments by billboard operators, make these commercial properties more valuable.
4. At a conservative capitalization rate of 10 percent, the low end of the aggregate annual lease payment amount, \$10 million, represents an additional \$100 million in aggregate property value.⁶
5. Conservatively assuming a common level ratio of 12.2 percent, \$100 million in aggregate property value represents about \$12 million in aggregate assessed value.⁷
6. At the current property tax rate of 9.432 percent, \$12 million in aggregate assessed value yields about \$1.1 million in property tax revenues per year (about \$500,000 to the City and about \$600,000 to the School District of Philadelphia).⁸

⁶ Capitalization rates represent the ratio between operating income and market value. A more realistic capitalization rate of 8 percent would translate into an additional \$125 million to \$163 million in aggregate property value.

⁷ As computed by the Philadelphia Inquirer in 2012, and consistent with a 2008 study by the Wharton School of Business conducted by Kevin C. Gillen, Vice President and Director of Econsult. The official common level ratio, as recently revised and released by the Pennsylvania State Tax Equalization Board, is 24.8 percent (which would mean an aggregate assessed value closer to \$25 million), down from 32 percent (which would mean an aggregate assessed value closer to \$32 million).

⁸ Using the recently revised common level ratio of 24.8 percent, the annual property tax revenue amount would be about \$2.4 million per year (about \$1.0 million to the City and about \$1.4 million to the School District).

APPENDIX A – ECONOMIC AND 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, one can say that 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 Econsult Corporation and 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 effects described, the indirect and induced expenditure effects.

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.⁹

⁹ 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*.

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. Econsult 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 Econsult fiscal impact model combines the RIMS II output with U. S. Census Bureau County Business 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.

Figure A.1 – Glossary of Terms for Input-Output Models

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: Econsult Corporation (2009)

APPENDIX B – ESTIMATED DISTRIBUTION OF THE ECONOMIC IMPACT OF THE BILLBOARD INDUSTRY

Table B.1 – Estimated Distribution of the Expenditure and Employment Impact of the Billboard Industry within the City of Philadelphia

Industry	Expenditure Impact	Employment Impact
Agriculture, forestry, fishing, and hunting	0.1%	0.2%
Mining	0.0%	0.0%
Utilities	0.8%	0.1%
Construction	0.2%	0.3%
Manufacturing	2.3%	1.5%
Wholesale trade	0.8%	0.6%
Retail trade	1.3%	3.2%
Transportation and warehousing	2.3%	3.6%
Information	4.6%	1.7%
Finance and insurance	5.7%	3.2%
Real estate and rental and leasing	33.2%	26.7%
Professional, scientific, and technical services	38.3%	34.2%
Management of companies and enterprises	0.5%	0.3%
Administrative and waste management services	3.5%	8.4%
Educational services	0.5%	1.0%
Health care and social assistance	2.3%	4.0%
Arts, entertainment, and recreation	0.4%	1.1%
Accommodation and food services	1.8%	6.7%
Other services	1.5%	3.2%

Source: CBS Outdoor (2012), US Department of Commerce (2009), Econsult Corporation (2012)

Table B.2 – Estimated Distribution of the Expenditure and Employment Impact of the Billboard Industry within the Commonwealth of Pennsylvania

Industry	Expenditure Impact	Employment Impact
Agriculture, forestry, fishing, and hunting	0.4%	0.7%
Mining	0.1%	0.1%
Utilities	1.3%	0.3%
Construction	0.5%	0.6%
Manufacturing	6.7%	3.7%
Wholesale trade	2.1%	1.9%
Retail trade	3.6%	8.0%
Transportation and warehousing	2.7%	3.5%
Information	3.9%	1.8%
Finance and insurance	6.2%	4.8%
Real estate and rental and leasing	27.2%	14.4%
Professional, scientific, and technical services	31.0%	31.4%
Management of companies and enterprises	0.8%	0.7%
Administrative and waste management services	3.5%	7.4%
Educational services	0.8%	1.8%
Health care and social assistance	4.5%	7.7%
Arts, entertainment, and recreation	0.5%	1.3%
Accommodation and food services	1.9%	5.6%
Other services	2.4%	4.5%

Source: CBS Outdoor (2012), US Department of Commerce (2009), Econsult Corporation (2012)