
**ECONSULT
CORPORATION®**

Member of the Econsult/Fairmount Group

*Suite 300
1435 Walnut Street
Philadelphia, PA 19102*

*Voice (215) 382-1894
Fax: (215) 382-1895
Web: www.econsult.com*

December 21, 2012

To: National Trust for Historic Preservation, Chicago Office

Re: The Economic Impact of Rehabilitating the Prentice Women's Hospital Building – FINAL

This memo serves as an articulation of our analysis of the economic impact of rehabilitating the Prentice Women's Hospital Building in the Streeterville neighborhood of the City of Chicago in Cook County, Illinois. I look forward to presenting these findings at your January 3rd event if needed.

Best regards,



Lee Huang
Director

SUMMARY

Northwestern University is proposing to demolish the Prentice Women's Hospital Building, in the Streeterville neighborhood of the City of Chicago in Cook County, Illinois, to build new research space at that site. The National Trust for Historic Preservation is counter-proposing the construction of the desired research space at an adjacent location that is controlled by Northwestern, and the preservation of Prentice into usable office and retail space.

The Trust's counter-proposal to preserve and reuse Prentice is likely to generate significant upfront and ongoing economic benefits:

1. Upfront rehabilitation of Prentice, and the spillover economic activity that results from it, will generate about \$100 million in one-time expenditures, support about 600 temporary jobs and generating about \$400,000 in tax revenues to local and county governments.
2. Ongoing operations at Prentice, and the spillover economic activity that results from them, will generate about \$150 million in annual expenditures, support about 1,000 permanent jobs and generating about \$1 million in tax revenues to local and county governments.
3. The combination of preserving Prentice and adding new research space at an adjacent location is likely to generate more positive property value impact nearby than simply demolishing Prentice and building new research space there, with attendant increases in property tax revenues to the City of Chicago and Chicago Public Schools on the order of hundreds of thousands of dollars per year.

1. CONTEXT AND SCOPE OF ANALYSIS

We understand that Northwestern University is proposing to demolish Prentice to build new research space at that site, and has generated preliminary estimates of the upfront and ongoing economic impacts that will result as part of its argument to proceed. The National Trust for Historic Preservation is counter-proposing the construction of the desired research space at an adjacent location that is controlled by Northwestern, and the preservation of Prentice into usable office and retail space.

Thus, from a cost-benefit standpoint, both Northwestern's proposal and the Trust's counter-proposal have in common the upfront construction and ongoing operations of new research space, and therefore the economic impacts that will result. What is different about the two proposals is where that new research space should go, whether or not Prentice is preserved, and what costs and benefits are associated with preserving Prentice (see Table 1.1).¹

Therefore, this report does not comment on Northwestern's recent estimates of the economic impacts that will result from constructing and operating new research space, since such impacts would occur under both scenarios. This report also does not cover whether Prentice is "worth" saving, from a historical or aesthetic standpoint, but rather identifies and quantifies the economic benefits that may result should it be saved. Nor does this report suggest a specific alternative site for Northwestern to build new research space instead of Prentice, although it assumes that such a satisfactory alternative site does in fact exist at an adjacent location.

¹ In actuality, the cost of demolishing Prentice and preparing that site for development is likely to be far greater, on the order of many millions of dollars, than the cost of preparing an adjacent location for development. If this is the case, that represents an additional financial advantage of the Trust's counter-proposal over Northwestern's proposal.

Table 1.1 – Similarities and Differences between Northwestern University’s Proposal to Build New Research Space at the Site of the Prentice Women’s Hospital Building and the National Trust for Historic Preservation’s Counter-Proposal to Preserve and Reuse Prentice and to Locate the New Research Space at an Adjacent Location Controlled by Northwestern (Shaded = Assumed to Be Equivalent and Therefore to Effectively Cancel Each Other Out)

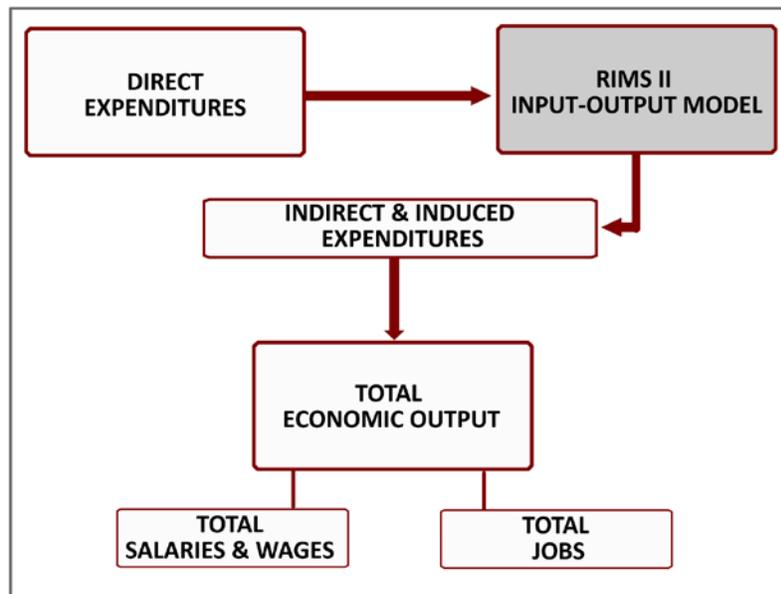
	Northwestern Proposal	NTHP Counter-Proposal
Costs	Demolition of and site preparation at Prentice	Demolition of and site preparation at adjacent location
	Upfront construction of new research space at Prentice	Upfront construction of new research space at adjacent location
		Rehabilitation of Prentice
Benefits	Economic impact from upfront construction of new research space at Prentice	Economic impact from upfront construction of new research space at adjacent location
	Economic impact from ongoing operations of new research space at Prentice	Economic impact from ongoing operations of new research space at adjacent location
		Economic impact from upfront rehabilitation of Prentice
		Economic impact from ongoing operations of Prentice
	Property value impact from new research space at Prentice	Property value impact from newly rehabilitated Prentice
		Property value impact from new research space at adjacent location

Source: National Trust for Historic Preservation (2012), Econsult Corporation (2012)

2. ECONOMIC AND FISCAL IMPACT METHODOLOGY

Economic impacts are typically expressed in terms of total expenditures and the employment and earnings supported by them. New expenditures lead to a series of spillover effects, whereby the impact of new spending and employee earnings ripples through local economies and supports additional economic activity and job creation (see Figure 2.1).

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



Source: Econsult Corporation (2009)

Impact estimates were determined by using standard input-output methodologies and multipliers, as provided by the US Department of Commerce. The smallest level of geography for which multipliers are available is a single county, so multipliers were purchased for Cook County, Illinois, and were integrated into an input-output model for purposes of understanding how direct expenditures within Cook County translate into economic impacts within Cook County.²

² See Appendix A.1 for a summary of Econsult Corporation's economic impact methodology.

Fiscal impacts represent the tax revenues generated to various taxing jurisdictions as a result of the increases in various tax bases associated with the economic impacts described above. Using existing tax revenue and tax base data for each relevant local or county taxing jurisdiction (the City of Chicago, other municipalities within Cook County, and Cook County itself), and applying any appropriate tax types and tax rates to the increases in various tax bases as accounted for the estimated economic impacts, fiscal impact estimates could be determined.³

Economic and fiscal impact modeling is necessarily imprecise in nature, as there is no way to predict or account for all of the spillover effects taking place within a dynamic and interconnected regional economy. Furthermore, this report focuses not on estimated impacts from actual past economic activity but forecasted impacts from projected future economic activity. Estimates are rounded accordingly and should be taken as order-of-magnitude estimates and not as precise accountings of actual economic activity, employment, and tax revenues.

³ See Appendix A.2 for a summary of Econsult Corporation's fiscal impact methodology.

3. ECONOMIC AND FISCAL IMPACT FROM UPFRONT REHABILITATION

Upfront rehabilitation of Prentice is estimated to cost about \$54.5 million, excluding inflation and contingencies (see Table 3.1). This cost estimate was provided by the Trust and is based on initial estimates prepared by Affiliate Engineers for Northwestern as part of the Prentice-Stone Pavilion report prepared in May 2011 by Jacobs Consultancy, Inc. From this report and these estimates, adjustments were made by the Trust to account for a modification in uses.

Table 3.1 – Estimated Direct Expenditures Associated with Upfront Rehabilitation of the Prentice Women’s Hospital Building (in \$M)

General	Mechanical	Electrical	Plumbing	Total
\$23.8	\$12.8	\$10.7	\$3.4	\$54.5

Source: National Trust for Historic Preservation (2012), Econsult Corporation (2012)

This one-time rehabilitation expenditure will represent a significant temporary contribution to the local economy, supporting jobs and generating tax revenues. It is estimated that these expenditures will result in about \$100 million in total expenditures, supporting about 600 jobs and about \$30 million in earnings within Cook County (see Table 3.2). These impacts are the sum of the economic activity represented by the upfront rehabilitation activity, the spillover economic activity that results from local vendors ramping up in response to the upfront activity, and the spillover economic activity that results from workers spending a portion of their earnings within the local economy.

The construction industry will gain the most from upfront rehabilitation of Prentice, but many other industries will also be positively impacted. Within Cook County, it is estimated that about 60 percent of the expenditure impact and about 60 percent of the employment impact will be in industries besides construction (see Table 3.3).

Table 3.2 – Estimated One-Time Economic Impact of Direct Expenditures Associated with Upfront Rehabilitation of the Prentice Women's Hospital Building

	Economic Impact within Cook County
Direct Expenditures (\$M)	\$55
Indirect and Induced Expenditures (\$M)	\$49
Total Expenditures (\$M)⁴	\$103
Total Employment	580
Total Earnings (\$M)	\$27

Source: US Department of Commerce (2011), National Trust for Historic Preservation (2012), Econsult Corporation (2012)

Table 3.3 – Industry Distribution of Estimated One-Time Economic Impact of Direct Expenditures Associated with Upfront Rehabilitation of the Prentice Women's Hospital Building

Expenditure Impact within Cook County	%	Expenditure Impact within Cook County	%
Construction	43%	Construction	42%
Professional, scientific, and technical services	16%	Professional, scientific, and technical services	15%
Manufacturing	9%	Retail trade	6%
Real estate and rental and leasing	6%	Administrative and waste management services	5%
Finance and insurance	6%	Health care and social assistance	5%
All other industries	22%	All other industries	26%

Source: US Department of Commerce (2011), National Trust for Historic Preservation (2012), Econsult Corporation (2012)

It is also estimated that this temporary economic expansion will also result in about \$200,000 in new tax revenues to the City of Chicago, about \$100,000 in new tax revenues to other

⁴ Throughout the report, totals may not sum exactly due to rounding.

municipalities within Cook County, and about \$100,000 in new tax revenues to Cook County (see Table 3.4). These tax revenues are generated from the one-time increase in various tax bases – in the City of Chicago, in other municipalities within Cook County, and in Cook County – represented by the economic impacts associated with the upfront rehabilitation activity.

Table 3.4 – Estimated One-Time Fiscal Impact of Upfront Rehabilitation of Direct Expenditures Associated with the Prentice Women's Hospital Building (in \$000s)⁵

	Tax Revenues to the City of Chicago	Tax Revenues to Other Municipalities within Cook County	Tax Revenues to Cook County
Utility Tax Revenues	\$100		
Share of State Income Tax Revenues ⁶	\$56	\$56	
Sales Tax Revenues ⁷	\$49	\$32	\$76
Total Tax Revenues⁸	\$205	\$88	\$76

Source: US Department of Commerce (2011), National Trust for Historic Preservation (2012), Econsult Corporation (2012)

⁵ The City of Chicago, other municipalities within Cook County, and Cook County itself are all distinct jurisdictions, and therefore these tax revenue amounts do not overlap.

⁶ "Share of State Income Tax Revenues" represents the portion of the amounts of personal and business income taxes collected by the State of Illinois that get transferred back to the municipalities within which they were generated.

⁷ These amounts for sales tax revenues do not include that which will be generated to the State of Illinois or to Chicago Transit Authority. Cook County estimates were reduced by 20 percent to account for the 20 percent rate reduction that will take effect in 2013.

⁸ It is likely that upfront rehabilitation of Prentice will increase other tax bases and thus generate other tax revenues, besides these main categories contained in this table. Therefore, totals should be considered conservatively low.

4. ECONOMIC AND FISCAL IMPACT FROM ONGOING OPERATIONS

Ongoing operations of Prentice is estimated to include event, office, and retail space totaling about 200,000 square feet (see Table 4.1). This square footage estimate is based on work performed for the Trust by Loeb Schlossman Hackl, a long-established and prominent health care design and planning firm in Chicago, and reflects the most compatible and viable reuses for Prentice that would complement Northwestern’s intended new research space.

Table 4.1 – Proposed Distribution of Uses of the Rehabilitated Prentice Women’s Hospital Building (by 000 SF)

Resource Center	Event Space	Educational	Offices	Lobby/Retail	Total
18.5	73.6	54.3	41.2	15.6	203.2

Source: National Trust for Historic Preservation (2012), Loeb Schlossman Hackl (2012), Econsult Corporation (2012)

Operating expenditures for such a distribution of uses can be estimated using conservative assumptions of employees per square foot, annual salaries per employee, and percentage of operating expenditures represented by salaries. These assumptions are based on publicly available averages for the industries represented by the proposed uses of Prentice, and yield an estimate of about \$80 million in annual operating expenditures, about \$30 million in annual employee salaries, and about 580 employees (see Table 4.2).

Table 4.2 – Annual Direct Operating Expenditures, Annual Employee Salaries, and Employees Represented by the Rehabilitated Prentice Women's Hospital Building, as Estimated Based on Proposed Distribution of Uses by Square Footage

	Annual Operating Expenditures (\$M) ⁹	Annual Employee Salaries (\$M)	Employees
Resource Center	\$5	\$2	40
Event Space	\$13	\$7	110
Educational	\$38	\$14	260
Offices	\$25	\$10	170
Lobby/Retail	\$2	\$0	10
Total	\$82	\$33	580

Source: National Trust for Historic Preservation (2012), Loebel Schlossman Hackl (2012), US Department of Energy (1995), Rutgers University (2006), US Bureau of Labor Statistics (2011), bizstats.com (2011), Econsult Corporation (2012)

These ongoing operating expenditures represent a significant permanent contribution to the local economy, supporting jobs and generating tax revenues. It is estimated that these expenditures will result in about \$150 million in total expenditures, supporting about 1,000 jobs and about \$90 million in earnings within Cook County each year (see Table 4.3). These impacts are the sum of the economic activity represented by the ongoing operational activity, the spillover economic activity that results from local vendors ramping up in response to the ongoing activity, and the spillover economic activity that results from workers spending a portion of their earnings within the local economy.

The professional services industry will gain the most from ongoing operations of Prentice, but many other industries will also be positively impacted. Within Cook County, it is preliminarily estimated that about 60 percent of the expenditure impact and about 70 percent of the employment impact will be in industries besides professional services (see Table 4.4).

⁹ Annual operating expenditure amounts include annual employee salary amounts.

Table 4.3 – Estimated Annual Economic Impact of Direct Expenditures Associated with Ongoing Operations of the Prentice Women's Hospital Building

	Economic Impact within Cook County
Direct Expenditures (\$M)	\$82
Indirect and Induced Expenditures (\$M)	\$72
Total Expenditures (\$M)	\$155
Total Employment	980
Total Earnings (\$M)	\$87

Source: US Department of Commerce (2011), National Trust for Historic Preservation (2012), Econsult Corporation (2012)

Table 4.4 – Industry Distribution of Estimated Annual Economic Impact of Direct Expenditures Associated with Ongoing Operations of the Prentice Women's Hospital Building

Expenditure Impact within Cook County	%	Expenditure Impact within Cook County	%
Professional, scientific, and technical services	42%	Professional, scientific, and technical services	33%
Educational services	11%	Educational services	19%
Real estate and rental and leasing	8%	Food services and drinking places	13%
Finance and insurance	7%	Administrative and waste management services	6%
Food services and drinking places	6%	Retail trade	5%
All other industries	27%	All other industries	24%

Source: US Department of Commerce (2011), National Trust for Historic Preservation (2012), Econsult Corporation (2012)

It is also estimated that this permanent economic expansion will also result in about \$600,000 in new tax revenues to the City of Chicago, about \$240,000 in new tax revenues to other municipalities within Cook County, and about \$210,000 in new tax revenues to Cook County (see Table 4.5). These tax revenues are generated from the annual increase in various tax bases – in the City of Chicago, in other municipalities within Cook County, and in Cook County – represented by the economic impacts associated with the ongoing operating activity.

Table 4.5 – Estimated Annual Fiscal Impact of Ongoing Operations of Direct Expenditures Associated with the Prentice Women's Hospital Building (in \$000s)¹⁰

	Tax Revenues to the City of Chicago	Tax Revenues to Other Municipalities within Cook County	Tax Revenues to Cook County
Utility Tax Revenues	\$321		
Share of State Income Tax Revenues ¹¹	\$154	\$154	
Sales Tax Revenues ¹²	\$137	\$89	\$214
Total Tax Revenues¹³	\$612	\$243	\$214

Source: US Department of Commerce (2011), National Trust for Historic Preservation (2012), Econsult Corporation (2012)

5. PROPERTY VALUE IMPACT

¹⁰ The City of Chicago, other municipalities within Cook County, and Cook County itself are all distinct jurisdictions, and therefore these tax revenue amounts do not overlap.

Slight downward adjustments were made to these tax revenue estimates to account for the fact that, as a tax-exempt entity, Northwestern does not directly pay business income taxes or sales taxes. Ongoing operations of Prentice still generate some business tax revenues and sales tax revenues, since they lead spillover economic activities that increase those tax bases.

¹¹ "Share of State Income Tax Revenues" represents the portion of the amounts of personal and business income taxes collected by the State of Illinois that get transferred back to the municipalities within which they were generated.

¹² These amounts for sales tax revenues do not include that which will be generated to the State of Illinois or to Chicago Transit Authority. Cook County estimates were reduced by 20 percent to account for the 20 percent rate reduction that will take effect in 2013.

¹³ It is likely that ongoing operations of Prentice will increase other tax bases and thus generate other tax revenues, besides these main categories contained in this table. Therefore, totals should be considered conservatively low.

As noted above, while Northwestern's proposal entails replacing Prentice with new research space, the Trust's proposal entails rehabilitating Prentice and adding new research space at an adjacent location. The Trust's proposal therefore yields two facilities: Prentice, which will be rehabilitated and reused, and a second, adjacent facility to house new research space.

These two facilities will be owned and operated by Northwestern, which is a tax-exempt entity. Therefore, there is no direct effect on the property tax base of the City of Chicago or of Chicago Public Schools from building new research space or from rehabilitating Prentice.

However, the newly occupied parcels may have a positive property value effect on adjacent taxable parcels, thus increasing the property tax base of the City of Chicago and of Chicago Public Schools and yielding additional property tax revenues to both jurisdictions. This positive property value impact may occur on two fronts:

1. First, at the adjacent location where Northwestern builds new research space instead of Prentice, that development may remove a vacant or blighted parcel from the area, thus removing the negative property value impact it is exerting on its surrounding area.
2. Second, the introduction of newly constructed space at the adjacent location, as well as the rehabilitation and reuse of Prentice, may generate positive property value impacts.
 - This may be because the two facilities are physically pleasing structures that enhance their surrounding area aesthetically.
 - This may also be because the two facilities represent amenities for their surrounding area (e.g. retail, event space) or because they represent foot traffic that can support complementary uses in their surrounding area (e.g. students and employees to frequent dining establishments).

While representing a different kind of new addition to a downtown area, Millennium Park is an instructive local example. It represented the removal of a blighted and vacant area and the addition of publicly available amenities. The resulting positive property value impact¹⁴ came as the desirability of the amenities made proximity to them more valuable, thus driving up rents and increasing the value of those locations.

¹⁴ In fact, these positive property value impacts paid for Millennium Park in part, through the use of tax increment financing, whereby the increases in property tax revenues were used to finance upfront infrastructure investments). "The Millennium Park Effect: Creating A Cultural Venue with an Economic Impact," Greater Philadelphia Regional Review (Winter 2006).

Many but not all of the parcels near Prentice are owned by Northwestern (see Table 5.1). On the blocks bounded by Michigan Avenue to the west, Chicago Avenue to the north, Lake Shore Drive to the east, and Erie Street to the south, Northwestern owns 19 of the 20 tax exempt parcels and 3 of the 33 taxable parcels.

Table 5.1 – Selected Parcels within Close Proximity to the Prentice Women's Hospital Building

	All Parcels		Owned by Northwestern	
	# Parcels	Taxes Paid in 2010	# Parcels	Taxes Paid in 2010
Tax Exempt	20	\$0	19	\$0
Taxable	33	\$16.4M	3	\$2.0M
Total	53	\$16.4M	22	\$2.0M

Source: National Trust for Historic Preservation (2012), Econsult Corporation (2012)

Those 33 taxable parcels currently pay an aggregate \$16 million in property tax revenues per year. Therefore, each percentage point increase in property value resulting from the newly constructed research space and from the rehabilitation of Prentice will be worth, if properly accounted for in property assessments, about \$160,000 per year in new property tax revenues to the City of Chicago and to Chicago Public Schools. Therefore, while it is unknown as of now what the property value impact will be in this immediate area from adding new research space and rehabilitating Prentice, even a small gain, of 1 to 5 percent, will add about \$160,000 to \$800,000 per year in property tax revenues (see Table 5.2).

Table 5.2 – Estimated Property Tax Revenue Gain to the City of Chicago and to Chicago Public Schools Resulting from Positive Property Value Impact of Addition of New Research Space and Rehabilitation of Prentice Women's Hospital Building

Estimated Percentage Increase in Nearby Aggregate Property Value	Aggregate Increase in Property Tax Revenue
If nearby properties increase by 1%	\$164,000
If nearby properties increase by 2%	\$328,000
If nearby properties increase by 3%	\$492,000
If nearby properties increase by 4%	\$656,000
If nearby properties increase by 5%	\$820,000

Source: National Trust for Historic Preservation (2012), Econsult Corporation (2012)

6. SUMMARY

In summary, the Trust's counter-proposal to preserve and reuse Prentice, while locating Northwestern's new research space at an adjacent location, is likely to generate significant upfront and ongoing economic benefits.

1. Upfront rehabilitation of Prentice, and the spillover economic activity that results from it, will generate one-time economic impacts, support temporary employment, and produce local tax revenues.
2. Similarly, ongoing operations at Prentice, and the spillover economic activity that results from them, will generate annual economic impacts, support permanent employment, and produce local tax revenues.
3. Furthermore, the combination of preserving Prentice and adding new research space at an adjacent location is likely to generate more positive property value impact nearby than simply demolishing Prentice and building new research space there, with attendant increases in property tax revenues to the City of Chicago and Chicago Public Schools on the order of hundreds of thousands of dollars per year.

These economic benefits must be weighed against the economic costs associated with the Trust's counter-proposal. And, as noted above, there are broader arguments to be made about the architectural and aesthetic merits of preserving Prentice, and the feasibility of locating an alternative site for Northwestern to build new research space. Nevertheless, any discussion concerning Northwestern's proposal and the Trust's counter-proposal is made more thorough with the inclusion of the economic benefit categories and estimates provided in this memo.

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.¹⁵

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 fiscal impact model is designed to estimate the fiscal benefits generated as the result of a new project. These benefits come in the form of a variety of taxes and fees, most commonly income taxes, business taxes, and sales taxes. Fiscal impacts are calculated differently based on the level of government in question (for example, state or local) and the data available.

For sales taxes and business taxes, one of two approaches may be taken. First, if total value added is available for the geography in question (namely, if the geography is a state, since Gross State Products are calculated on a regular basis and are available from the Federal Reserve Bank of St. Louis), a sales tax collected per dollar value added is calculated. If value added numbers are unavailable, total earnings within the locality are used instead. Total sales taxes for the geography are found in government documents or from the US Census Bureau. The rate of dollar of sales tax collected per dollar value added or dollar earned is then multiplied by the total value added or total income numbers generated by the economic impact model.

For income taxes, an effective tax rate supplied directly from the municipality in question is used if available. If unavailable, an estimated effective income tax can be calculated by income tax collected in the most recent year for which data was available, divided by the total income earned in that year. These numbers are taken from government documents if available. If not, they are obtained from the US Census Bureau or the US Bureau of Labor Statistics. If a flat tax exists, that number is the effective tax rate. This effective tax rate is then multiplied by the final income numbers generated by the economic impact model.

¹⁵ 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*.

If relevant for a given jurisdictions, revenue amounts from other taxes can also be generated, using a similar apportionment based on earnings or value added, as is appropriate.

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)