## How to Calculate the Economic Contribution of Office, Industrial and Retail Real Estate to the Local Community

Prepared for The National Association of Industrial and Office Properties Research Foundation

By

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It is important to remember that the data collection measures included in these worksheets should be regarded as guidelines rather than as absolute standards. The information readily available may differ according to the geographic area in question, and results may vary accordingly. Local and regional economic performance is a key factor. Further study and evaluation are recommended before any investment decisions are made.

This project is intended to provide information and insight to industry practitioners and does not constitute advice or recommendations. NAIOP disclaims any liability for action taken as a result of this project and its findings.

## **Table of Contents**

Section Page Number
Introduction 5
General Guidelines7
Analytical Procedures9
Definitions 11
Information Sources 13
Work Sheets Introduction
Office Building Economic Impact Work Sheet
Retail Economic Impact Work Sheet
Industrial Building Economic Impact Work Sheet
RIMS II State Multipliers: Office, Industrial and Commercial Buildings
Appendix I Sample from Loudoun County, Virginia
Appendix II Flowchart I: Economic Impact: New Construction
Flowchart II: Economic Impact: Post-Construction 47
Resources

## Introduction

New and existing commercial real estate constitute a major source of economic activity within local communities. Many of these contributions can be documented and measured in terms of dollar value, jobs supported/created and housed, personal earnings generated, sales and value added and tax revenues produced.

The measurement of these economic and fiscal impacts often involves complex calculations and requires extensive data collection. However, these benefits also can be estimated employing more simple methods that rely on public information and widely accepted industry standards. This simplified approach to the measurement of economic and fiscal impacts focuses on identifying the larger and more visible sources of impacts and does not attempt to represent an all-inclusive scope. While providing a less-than-100 ,percent accounting, this approach can be represented as providing a conservative estimate of impacts, one that does not overstate the importance of the industry; that is, one that demonstrates its value without overstatement or subjectivity.

It should be noted that economic impacts are not synonymous with fiscal impacts. Economic impacts—job generation, growth of personal earnings, expansion of the output value of the economy-are generated by changes in economic activity while fiscal impacts reflect the difference between the tax revenues generated by a given activity and the demands for public services (expenditures) required to support this activity. Economic impact analysis measures the effects of changes on the economy where fiscal impact analysis measures the effects of changes on the budget of the host community. The analytical methods outlined here are focused on calculating the economic impacts of office, retail and industrial real estate development but also include identification of tax revenues (fiscal benefits) where these are easily calculated. These methods rely on common data sources and techniques while also reflecting necessary differences that may characterize the specific class of land use. These methods will distinguish between new construction and the existing stock of buildings. It will also distinguish between the direct and the total economic impacts.

Lastly, the analyses will distinguish between economic impacts that flow from the building type being analyzed and the economic impacts generated by the building's use following construction. These later impacts magnify the value of the commercial base by accounting for the work being done within the buildings—the workers housed, the payroll generated, and the value added to the economy. With the exception of government and non-profit activities, the productive output of the community is done within the commercial base; this is where the value of goods and services that constitutes the local GDP is generated. Consequently, the value of commercial buildings is much more than the sum of their construction outlays or their assessed valuation. The methods outlined here provide the guidance required to identify and measure the full range of economic impacts of office, industrial and retail real estate emphasizing the sources of benefits that comprise the large majority of economic impacts and that are widely appreciated and understood by the general public. The results of these analyses can be used to educate the public regarding the broad value of the commercial real estate industry and to establish the range of benefits that would flow to the community as a result of the construction of a proposed commercial building. Finally, as public attitudes towards any new growth harden, having facts that demonstrate the critical contributions made by commercial development to the community's economic vitality becomes even more important in balancing the debate.

## **General Guidelines**

To undertake the measurement of economic impacts of the accumulated stock of buildings or the new construction during a given year or span of years in a given community requires planning and training prior to data collection and analysis. While the exact sequence of steps may vary, they should include the following:

**1.** Establish a technical committee or panel to manage the process and to act as an advisory resource to revolve questions that may arise during the analyses;

**2.** Determine the geographic and industry focus of the analysis; is the analysis to report the economic and fiscal impacts of the entire stock of a specific type or class of commercial buildings or of new construction during a set time span?

3. Identify the responsible person who will conduct the analysis:

- -staff
- -intern with supervision
- -volunteers
- -outsource to a consultant

**4.** The technical committee and staff person/intern should meet to review procedures, clarify assumptions and data sources, develop a contact list, establish the data collection schedule, review the computational steps and assignments (who will do what and when?);

**5.** The first step should be to collect information that is published, available on websites, and available from industry sources and then pursue remaining, hard-tocollect data from identified sources (people in local government offices)—these contacts need to be protected as sources of information that only they can provide; that is, do not wear out your welcome with key data providers by asking them for data that are easily available elsewhere; public sources are generally considered more objective than industry or proprietary sources;

**6.** Document all data collected by source for future reference or for follow up (name, place, date); keep complete records throughout the process;

**7.** Do not collect data you do not need; be disciplined or the data collection process could become too time consuming and confusing;

**8.** After collecting all of the required information, calculate impacts following the guidance provided in this manual; always total your rows and columns and make sure they add up; and,

**9.** Assign the report writing to someone knowledgeable about the analyses process, the industry and the objectives of the report; use summary tables to simplify the communications of findings, keep the report short, place data tables and supporting materials in the appendix.

**10.** Determine the audience and dissemination procedures for the results of the analysis.

## **Analytical Procedures**

To identify and calculate the economic and fiscal impacts of a commercial building or the total inventory of commercial real estate within a community, follow these steps:

**Define the Problem**: This phase involves establishing the objectives of the exercise. This would include determining whether the scope is restricted to the totality of office buildings and uses existing in the local community, some other set of structures (e.g., all Class A office structures) or to a single building (e.g., a proposed new office complex). These objectives must be realistic in terms of available time and budget as well as the skill of the staff and availability of data. While a full fiscal analysis might be desirable, such an analysis will be far too complex to accomplish with voluntary labor and with little or no professional experience in public finance. Still, some fiscal impacts can be identified, such as real estate tax revenues or sales taxes generated. These should be represented for what they are and not used to suggest the net fiscal benefit; that would require all local public expenditure demands to be totaled and subtracted from the total revenues generated by the commercial properties being analyzed.

This phase would also specify the geographic scope of the analysis. The best jurisdictional scale (because the best economic information is available) is the county. At the city scale or any subdivision of a city or county, there are serious data constraints. The state level may also provide a useful analytical scale as the economic multipliers increase in value with larger geographic scales; that is, the county multipliers are smaller than the encompassing metro area's multipliers and these are both smaller than the state's within which the county (metro area) is located.

All analytical assumptions should be established at this early stage of the analysis. These assumptions should include: the amount of gross square feet per office worker, retail worker, and warehouse/ industrial worker; hard cost-soft cost splits if not established in fact; pricing and value information if not known in fact; mean salary levels for jobs housed as a result of the completed buildings if not known in fact (these must be mean or arithmetic averages and not median values); average inventory-wide annual per square foot values for building maintenance and repair and for operations (HVAC, custodial services, utilities, management) should be determined; other data requirements for which actual official data are not available will also need careful estimating based on industry standards. These values should be documented and referenced to a published or accepted source such as NAIOP, ULI, or a recognized trade publication. **Collect and Analyze the Data**: see General Guidelines and Informational Sources. Data collection table shells with explanatory notes are provided herein to assist in the data collection and analysis process. Whether all of the indicated information is actually required or some other form of this information would be more appropriate will be determined by the specification of research objectives. This should be accomplished in the initial problem definition phase where the research scope and data requirements are established.

**Prepare and Disseminate the Report**: While the staff assigned to collect the required information for calculating the economic and fiscal impacts may have the analytical and expository skills to prepare the report, this assignment might be better fulfilled by a more senior professional. It could also involve joint authorship. The technical committee/panel should make this assignment.

Before preparing a report, determine to whom the report is being directed. For almost any audience, a short report is more effective. A one-page summary of impacts—a fact sheet—is an effective device for disseminating the big picture values. A question and answer sheet can also be effective. A model for a three-page Executive Summary is as follows:

 $(\mathbf{1})$  an introduction that briefly presents the objectives and scope of the report,

(2) the key findings of the research as one-line bullet points organized from macro to micro (general to specific), and

(**3**) a conclusion that states the importance of the findings supported by one simple summary table. This Executive Summary could be attached to a full report if that was determined to be useful or it could be supported solely by appendix materials. Such an executive summary would imply a full and detailed report but none would have to be available for distribution.

How to disseminate the findings? The answer to this question is best determined by the reason for conducting the analysis in the first place. If it is to support a specific project application, then that is the sole audience. If it is to educate the elected officials and broader business community, the scope and packaging of the report needs to be different. If it is to provide response materials for a no-growth debate or to inform the media, the release of the findings could be accomplished through an open press briefing or through a selected newspaper columnist, whichever best achieves the purpose. Consulting a communications professional would be beneficial in determining the most favorable PR strategy for achieving the appropriate placement of facts and findings.

## Definitions

**Area of Analysis**—the geographic unit of analysis, normally a political unit for which economic, demographic and fiscal information is reported.

**Building Value**—construction value would include hard costs (costs of the structure) and soft costs (management, engineering, design, taxes, fees); the finished commercial value would reflect cash flow potential or current performance; assessed valuation for tax purposes may be accepted as an appropriate substitute for actual market value.

**Direct Outlays**—are all spending associated with the construction of a building (on- and off-site expenditures) including *Hard* and *Soft Costs*. For a completed structure, direct outlays are those annual expenditures associated with building operations include management, maintenance and repair, and operations (security, cleaning services, utilities, taxes).

**Economic Impact**—is the generation of new spending (\$s) within a jurisdiction as a result of investing in and operating new economic activity, in this case, office, retail or industrial buildings and related site improvements.

**Fiscal Impact**—is the effect of real estate development on the host jurisdiction's budget and reflects the net of revenues generated by land uses minus the expenditures (public spending) associated with the locally provide services required to support the specific land uses.

**Gross Domestic Product** (*GDP*), **Gross State Product** (*GSP*), **Gross County Product** (*GCP*)—the value of goods and services produced within the economy of the respective geographic area (nation, state, county/city).

**Gross Square Feet**—as a measure of an individual building size or aggregate inventory of building space reflecting the total envelope of the structures and not the occupied or usable building area.

**Hard Costs**—include all of the construction-related outlays associated with developing a new building and include site preparation, building construction (labor and materials), landscaping, roadway and parking facilities, and any off-site improvements required to support the new facility.

**Indirect Benefit**—the additional economic benefits—measured in dollars or jobs—resulting from the accumulated additional value generated by the direct outlays or expenditures, as these dollars are re-spent within the economy. Indirect effects are calculated using *Multipliers* and include sales and purchases by businesses supplying goods and services in support of the construction project as well as the re-spending of payroll by construction and related workers (*Induced Effects*) associated with the project. **Induced Effects**—the impacts of the payroll spending by workers in the specific industry or sector on local businesses providing goods and services to households.

**Infrastructure**—utilities, roads, parking lots, storm drainage structures; other site improvements could be included in estimating these costs if not included elsewhere; if these improvements are financed by the private sector, whether on- or off-site, their cost should be reflected in the base values for calculating industry economic impacts.

**Land Value**—either assessed land value exclusive of structures or purchase price.

**Multiplier**—a numerical factor that captures the compounded value of a direct outlay of or benefit produced by an industry (firm) on the economy as it is re-spent within that economy; an output multiplier measures the contribution (impact) of a direct outlay on the overall economy, an employment multiplier measures the total number of jobs that can be supported by a direct outlay; and a personal earnings multiplier measures the total personal earnings (wages and salaries) generated within the jurisdiction as a result of a direct outlay and the jobs it supports.

**Output**—the goods and services produced for sale to other firms or industries as intermediate goods or services or for sale to consumers as final goods or services.

**Sector**—a grouping of industries or firms by similar characteristics of operations (e.g., retail trade sector, manufacturing sector, construction sector, mining sector, service sector, government sector).

**Soft Costs**—are a category of construction costs that reflect the professional services and administrative and management processes required to support the construction project and may precede actual on-site construction by several years and include legal and other consultant services, architectural and engineering services (A/E), inspections, loan origination fees, real estate taxes and other government fees, insurance, management fees and the development fee.

**Total Output**—the sum of the *direct and indirect benefits* (outlays) reflecting the combination of the initial expenditures of a firm (cost of an output) and its subsequent accumulated value as it is cycled through the economy inclusive of benefits (*induced*) generated by the re-spending of personal earnings; contribution to *GDP*, *GSP* or *GCP*.

**Value Added**—a measure of the incremental dollar value created by an industry, firm or individual employee as a result of its production (work performed) process; the value created beyond the value of the individual inputs.

## **Information Sources**

The sources below are numbered to correspond with the instructions on each worksheet, e.g. "See Information Sources, Paragraph 3."

(1) **Regional Input-Output Multipliers** (available at county or state levels; not available at city or town level) may be purchased from the Bureau of Economic Analysis (BEA), US Department of Commerce as follows. The current price for one report (jurisdiction) is \$275.00. The delivery times ranges from one to two weeks. Hard copy of multiplier tables and on disk sent via FedEx.

- a) Go to www.bea.doc.gov/bea/regional/rims/orderform.htm
- b) Complete the form on-line and then print out the form.
- c) Fax the completed form to: (202) 606-5321
- d) The BEA will fax to you a completed purchase order for confirmation.
- e) Call BEA at (202) 606-5343 to confirm order and to pay by credit card.

(2) Building/Inventory Information will generally be developed from industry (private, sometimes proprietary) sources. For new or proposed structures, respective developers would be the logical sources. For the total inventory, local real estate research firms can provide most of the required information; some may need to be estimated. The technical committee or other local experts may be able to fill in the data gaps on the size of the inventory and building operating costs.

(3) **Real Estate Tax Information** may be available on line for the jurisdiction being analyzed. Each year, local governments release what is generally titled a Comprehensive Annual Financial Report (CAFR) that presents the audited revenues and expenditures for the previous fiscal year. Many jurisdictions have their CAFRs on-line. If not on-line, the CAFR would be available from the city/county Department of Finance or the Executive's office. Real estate tax revenues and tax rates are included in the CAFR as are all other financial information concerning the jurisdiction. The CAFR is a superior source to the budget as it documents actual revenues and expenditures while budgets offer only specific expected outcomes.

The total assessed valuation of all real estate in the jurisdiction may not be included in the CAFR. Also, its division between commercial and non-commercial land uses is not likely to be reported in the CAFR. For these data, a call or visit to the Department of Finance (or equivalent office) to gather this information for the most recent year will be necessary; historic trends would also be available.

(4) **Economic Data**, including employment by sector, unemployment, and income, are available from several standard sources: local economic development agency (government office or Authority), state-level employment commission (these issue quarterly reports for most

jurisdictions within their state with a 6 to 9 month lag— commonly referred to as the 202 survey), or employment and income data can be purchased commercially from local and national vendors. Obtain the most recent release as these reports may change monthly or quarterly. Annual values are also available. The most recent year is subject to revision during the first quarter of the following year (e.g., 2005 employment data released during the year are revised after one month and both monthly and annual values will be revised again by March of 2006).

One national vendor is NPA Data Services, Inc. of Arlington, Virginia (703-979-8400). For a small fee, a county-level report can be purchased presenting employment by sector, income generated by corresponding sector, population, per capita income, households and household income for the period 1968-2030. These are available for every county, state, and metropolitan area in the U.S. as well as for the nation, but not for cities, as cities are always part of an economy that extends into a surrounding jurisdiction(s). When purchasing county-level data, also purchase the state; also acquire the metro area if the county is part of one, and the nation in order to be able to show relative sizes and comparative trends. A service fee (less than \$100) plus a charge for each jurisdiction ordered would bring the total for four jurisdictions (county, metro, state and US) to under \$200. Orders are usually filled within 48 hours. These data are updated and revised two times a year. Other vendors are available. Local universities that have an economic or business research center may be able to provide these data at no cost or for a small fee.

(5) **Operating, Repair and Maintenance Expenditures.** Per square foot annual operating outlays associated with occupied buildings will vary from market to market and therefore are best developed from local industry sources. Major brokerages would be a primary source for these data. For annual repair and maintenance expenditures associated with maintaining the building stock, local industry sources may provide reliable data. Alternatively, office building income and expense data is available from BOMA (Building Owners and Managers Association, 202-408-2662 or www.boma.org) and office building and shopping center information from IREM (Institute of Real Estate Management, 800-837-0706 or www.irem.org). NAIOP also has information about industrial properties in its 2001-2002 Industrial Income and Expense Report (703-904-7100) or go to www.naiop.org.

## **Work Sheets**

The work sheets are designed as general guides for the identification of data inputs for the analysis of economic impacts. As such they may require modification to fit a specific application. The analysis of a single building's impacts (which is not the focus of this report) would require some modification of scope and may involve additional data sources.

Before beginning any data collection, a data collection plan should be developed that focuses the data requirements specifically to the end product. It is important for the person collecting data to know exactly what data are required and why, so that the requests are clear to the provider. It is not unusual that the provider of the requested data will misunderstand the request and provide what is thought to be the data requested even though they are not quite the right information. If the person collecting the data cannot distinguish the requested data from the provided data, getting the correct data will at least require a second request and extra time, but could also produce incorrect analytical results if no one else has noticed the error. It is also important that the data sources be recognized as being objective sources. Objectivity should take precedence over convenience. Usually, implies that public sources are to be preferred over private or proprietary sources. "Garbage in garbage out" is a constant threat to the credibility of the research results.

## Office Building Economic Impact Work Sheet

Page 1 of 5

Total Inventory Impact Analysis	
Total assessed value (1)	\$
(1) See Information Sources paragraph 3.	
See local government real estate tax inform Report (CAFR). Many jurisdictions post their	ation, e.g. a Comprehensive Annual Financial CAFRs online.
<b>Total real estate tax revenue</b> (2) (Tax rate/\$100 x value)	\$
(2) See Information Sources paragraph 3.	
See local government real estate tax inform (CAFR). Many jurisdictions post their CAFRs	ation, e.g. a Comprehensive Annual Financial Report online.
Total square feet (3)	
(3) See Information Sources paragraph 2.	
Building/industry information will generally b (new structures) or local real estate researc able to fill in the data gaps.	e available from local sources, such as developers h firms (total inventory). Other local experts may be
<b>Total estimated work force</b> (4) (Total sf divided by sf/worker)	
(4) Multiply the total inventory square foota square feet in the locale (e.g., 250 gross sf	ge by the accepted number of workers per gross per worker).
<b>Total estimated payroll</b> (5) (Workers times mean salary)	\$
(5) Multiply the mean annual salary for offic developed from local sources (Chamber of C times the number of office workers being ho	e workers (service sector employment may be used) Commerce, Department of EconomicDevelopment) pused.
<b>Total building operating outlays</b> (6) (Cost/sf times total sf)	\$
(6) Multiply the annual average per square to prices or use industry standard from approp Association) times the inventory's total num	foot operating costs (excluding utilities) reflecting local riate source (e.g., IREM, BOMA, Property Managers ber of square feet.

continued

Office Building Economic Impact Work Sheet with instructions continued Page 2 of 5

## Total repair and maintenance outlays $\left(7\right)$

(Cost/sf times total sf)

(7) Multiply the annual average per square foot repair and maintenance cost for office uses (from local sources or industry association publications [e.g., BOMA, IREM]) times the number of gross square feet in the inventory. The total economic impacts of the dollar values developed for the spending potential of the work force housed in the office inventory and the outlays associated with operating and maintaining this inventory as determined in the work sheet above can be calculated by applying the appropriate economic multiplier to each category of impact. As each source of spending has an indirect effect on the local economy as these new dollars are re-spent locally, the value of this additional spending represents an important contribution to the economy's overall vitality. The magnitude of these combined economic impacts (direct and indirect) are represented by the "multiplier" for each respective source of new spending; for example, for each new dollar of spending for building operations in Fairfax County, Virginia, the total economic impact in the County is \$1.55. The source of these multipliers (by county) is provided in paragraph 1 under Information Sources.

\$

The total economic impacts of the dollar values developed for the spending potential of the work force housed in the office inventory and the outlays associated with operating and maintaining this inventory as determined in the work sheet above can be calculated by applying the appropriate economic multiplier to each category of impact. As each source of spending has an indirect effect on the local economy as these new dollars are re-spent locally, the value of this additional spending represents an important contribution to the economy's overall vitality. The magnitude of these combined economic impacts (direct and indirect) are represented by the "multiplier" for each respective source of new spending; for example, for each new dollar of spending for building operations in Fairfax County, Virginia, the total economic impact in the County is \$1.55. The source of these multipliers (by county) is provided in paragraph 1 under Information Sources.



## Office Building Economic Impact Work Sheet with instructions continued Page 3 of 5

### New Construction Analysis (total current year construction or cumulative years)

The economic impacts associated with one year's (or the cumulative impact of several year's) of new construction can be calculated by applying the appropriate construction multipliers as outlined below.

Value of construction in dollars (round to thousands or millions for presentation)

Hard Costs (1)	\$
Soft Costs (1)	\$
<b>Total Building Costs</b> (sum of hard and soft \$s)	\$
Land Costs (1) Associated Infrastructure (value) On-site (1)	\$\$
Off-Site (1)	\$
(1) See Information Sources paragrap	oh 2.
Building/industry information will gene (new structures) or local real estate re able to fill in the data gaps.	erally be available from local sources, such as developers esearch firms (total inventory). Other local experts may be
Total value of new construction— sum of above (2)	\$
(2) This value would be used to calcu county or state levels): see Informatic	late economic impacts using BEA multipliers at the on sources, paragraph 1.
Estimate added annual value to existin	g

real estate base (3)

18

\$

(3) This value would be representative of the assessed valuation of the built inventory so would exclude off-site costs incurred by the developer and some soft costs that would not be reflected in an appraisal. Insurance and financing costs and fees should be excluded from the soft cost value for purposes of this calculation as these outlays have little or no impact on the local economy; all soft costs that reflect professional services should be included as these outlays clearly represent economic activity generated within the local economy as a consequence of the building industry.

continued

Office Building Economic Impact Work Sheet with instructions continued Page 4 of 5

#### Value Added Impacts (of one or more years of new construction)

The objective of this analysis is to calculate the economic output associated with the work or activity that is enabled due to the new building capacity provided. This work/activity includes both the outlays associated with operating the new inventory of buildings and the work of the jobs housed in the building.

#### **Building Operations and Maintenance and Repair** (1)

Building operations outlays	
(management, utilities, custodial)	\$ /sf
Annual maintenance and repair outlays	\$ /sf
Building or inventory square feet	

(1) See Information Sources paragraph 5.

Per square foot annual operating outlays associated with occupied buildings will vary from market to market and therefore are best developed from local industry sources. Major brokerages would be a primary source for these data. For annual repair and maintenance expenditures associated with maintaining the building stock, local industry sources may provide reliable data. Alternatively, office building income and expense data is available from BOMA (Building Owners and Managers Association, 202-408-2662 or www.boma.org) and office building and shopping center information from IREM (Institute of Real Estate Management, 800-837-0706 or www.irem.org). NAIOP also has information about industrial properties in its 2001-2002 Industrial Income and Expense Report (703-904-7100) or go to www.naiop.org.

Total annual outlays to support building/office inventory (2)	\$	
(2) Square feet times cost per square foot summer	i.	
Persons working in the office building(s) @ 250 sf/worker (3)		
(3) Use local worker/sf value here.		

## Office Building Economic Impact Work Sheet continued

Page 5 of 5

#### Average (mean) salary of office jobs in current year (4) \$

(4) See Information Sources paragraph 4; the local department of economic development or chamber of commerce may be able to provide estimates for average salaries.

Employment data are available from local or state-level economic development and/or employment offices; can also be purchase from local and national vendors. Local universities with an economic or business research center may be able to provide data at no cost or for a nominal fee.

#### Payroll impact of housed workers (5)

\$

(5) # of workers times mean salary.

To calculate the total value of these outlays on the local economy, the respective spending values should be multiplied by the appropriate total output, personal income and job multipliers from the BEA tables — see Information Sources paragraph 1 regarding multipliers. Different multipliers are available for each county in the US for new construction (commercial maybe distinguished from residential), architectural and engineering services or specialized design services (soft costs), management companies (operating outlays), facilities support services (operating outlays), services to buildings (operating outlays), retail trade, personal services, health and education services and restaurant and entertainment (employee spending impacts).

## **Office Building Economic Impact Work Sheet**

Page 1 of 2

Total Inventory Impact Analysis		
Total assessed value	\$	
<b>Total real estate tax revenue</b> (Tax rate/\$100 x value)	\$	
Total square feet		
Total estimated work force (Total sf divided by sf/worker)		
Total estimated payroll (Workers times mean salary)	\$	
Total building operating outlays (Cost/sf times total sf)	\$	
<b>Total repair and maintenance outlays</b> (Cost/sf times total sf)	\$	

The total economic impacts of the dollar values developed for the spending potential of the work force housed in the office inventory and the outlays associated with operating and maintaining this inventory as determined in the work sheet above can be calculated by applying the appropriate economic multiplier to each category of impact. As each source of spending has an indirect effect on the local economy as these new dollars are re-spent locally, the value of this additional spending represents an important contribution to the economy's overall vitality. The magnitude of these combined economic impacts (direct and indirect) are represented by the "multiplier" for each respective source of new spending; for example, for each new dollar of spending for building operations in Fairfax County, Virginia, the total economic impact in the County is \$1.55. The source of these multipliers (by county) is provided in paragraph 1 under Information Sources.

## New Construction Analysis (total current year construction or cumulative years)

The economic impacts associated with one year's (or the cumulative impact of several year's) of new construction can be calculated by applying the appropriate construction multipliers as outlined below.

Value of construction in dollars (round to thousands or millions for presentation)

Hard Costs	\$
Soft Costs	\$
Total Building Costs	
(sum of hard and soft \$s)	\$

continued on next page



Office Building Economic Impact Work Sheet continued Page 2 of 2

Land Costs Associated Infrastructure (value) On-site	\$\$
Off-Site	\$
Total value of new construction—sum of above	\$
Estimate added annual value to existing real estate base	\$
Value Added Impacts (of one or more year	rs of new construction)
The objective of this analysis is to calculate the econ activity that is enabled due to the new building capa the outlays associated with operating the new inven housed in the building.	nomic output associated with the work or acity provided. This work/activity includes both tory of buildings and the work of the jobs
Building Operations and Maintenance and Repa	ir
<b>Building operations outlays</b> (management, utilities, custodial)	<b>\$</b> /sf
Annual maintenance and repair outlays	<b>\$</b> /sf
Building or inventory square feet	
Total annual outlays to support building/office inventory	\$

Persons working in the office building(s) @ 250 sf/worker

\$\_\_\_\_\_ Average (mean) salary of office jobs in current year \$\_\_\_\_\_ Payroll impact of housed workers

## **Retail Economic Impact Work Sheet**

Page 1 of 5

The data requirements and analytical approach for retail space will parallel the requirements and processes outlined for office buildings. Assumptions concerning workers per square foot, payroll, and construction and operating costs should reflect industry specifics.

## **Total Inventory Impact Analysis**

#### Total assessed value (1)

(1) See Information Sources paragraph 3.

See local government real estate tax information, e.g. a Comprehensive Annual Financial Report (CAFR). Many jurisdictions post their CAFRs online.

**Total real estate tax revenue** (2) (Tax rate/\$100 x value)

\$\_\_\_\_\_

\$\_\_\_\_\_

(2) See Information Sources paragraph 3.

See local government real estate tax information, e.g. a Comprehensive Annual Financial Report (CAFR). Many jurisdictions post their CAFRs online.

### Total square feet (3)

(3) See Information Sources paragraph 2.

Building/industry information will generally be available from local sources, such as developers (new structures) or local real estate research firms (total inventory). Other local experts may be able to fill in the data gaps.

#### Total estimated work force (4)

(Total sf divided by sf/worker)

(4) Multiply the total inventory square footage by the accepted number of workers per gross square feet in the locale (e.g., 450 gross sf per worker).

### $\textbf{Total estimated payroll} \ (5)$

\$\_\_\_\_\_

(Workers times mean salary)

(5) Multiply the mean annual salary for retail workers (retail sector employment may be used) developed from local sources (Chamber of Commerce, Department of Economic

Development) times the number of retail workers being housed.



Retail Economic Impact Work Sheet continued Page 2 of 5

Total	building	operating	outlays	(6)
-------	----------	-----------	---------	-----

(Cost/sf times total sf)

(6) Multiply the annual average per square foot operating costs (excluding utilities) reflecting local prices or use industry standard from appropriate source (e.g., IREM, ICSC) times the inventory's total number of square feet.

\$\_\_\_\_

### Total repair and maintenance outlays (7)

(Cost/sf times total sf)

(7) Multiply the annual average per square foot repair and maintenance cost for retail uses (from local sources or industry association publications [e.g., IREM, ICSC]) times the number of gross square feet in the inventory.

\$

#### Total retail sales generated by the inventory \$ \_

(Sales/sf times total sf of stock)

The total economic impacts of the dollar values developed for the spending potential of the work force housed in the retail building inventory and the outlays associated with operating and maintaining this inventory as determined in the work sheet above can be calculated by applying the appropriate economic multiplier to each category of impact. As each source of spending has an indirect effect on the local economy as these new dollars are re-spent locally, the value of this additional spending represents an important contribution to the economy's overall vitality. The magnitude of these combined economic impacts (direct and indirect) are represented by the "multiplier" for each respective source of new spending; for example, for each new dollar of spending for building operations in Fairfax County, Virginia, the total economic impact in the County is \$1.55. The source of these multipliers (by county) is provided in paragraph 1 under Information Sources.



Retail Economic Impact Work Sheet continued Page 3 of 5

#### **New Construction Analysis** (total current year construction or cumulative years)

The economic impacts associated with one year's (or the cumulative impact of several year's) of new construction can be calculated by applying the appropriate construction multipliers as outlined below.

Value of construction in dollars (round to thousands or millions for presentation)

Hard Costs (1)	\$
Soft Costs (1)	\$
<b>Total Building Costs</b> (sum of hard and soft \$s)	\$
Land Costs (1) Associated Infrastructure (value)	\$
On-site (1)	\$
Off-Site (1)	\$

(1) See Information Sources paragraph 2.

Building/industry information will generally be available from local sources, such as developers (new structures) or local real estate research firms (total inventory). Other local experts may be able to fill in the data gaps.

#### Total value of new construction sum of above (2)

(2) This value would be used to calculate economic impacts using BEA multipliers at the county or state levels): see Information Sources, paragraph 1.

\$

## Estimate added annual value to existing real estate base (3) \$\_\_\_\_\_

(3) This value would be representative of the assessed valuation of the built inventory so would exclude off-site costs incurred by the developer and some soft costs that would not be reflected in an appraisal. Insurance and financing costs and fees should be excluded from the soft cost value for purposes of this calculation as these outlays have little or no impact on the local economy; all soft costs that reflect professional services should be included as these outlays clearly represent economic activity generated within the local economy as a consequence of the building industry.

Retail Economic Impact Work Sheet continued Page 4 of 5

### Value Added Impacts (of one or more years of new construction)

The objective of this analysis is to calculate the economic output associated with the work or activity that is enabled due to the new building capacity provided. This work/activity includes both the outlays associated with operating the new inventory of buildings and the work of the jobs housed in the building.

#### Building Operations and Maintenance and Repair (1)

Building operations outlays	
(management, utilities, custodial)	\$ /sf
Annual maintenance and repair outlays	\$ /sf
Building or inventory square feet	

(1) See Information Sources paragraph 5.

Per square foot annual operating outlays associated with occupied buildings will vary from market to market and therefore are best developed from local industry sources. Major brokerages would be a primary source for these data. For annual repair and maintenance expenditures associated with maintaining the building stock, local industry sources may provide reliable data. Alternatively, office building income and expense data is available from BOMA (Building Owners and Managers Association, 202-408-2662 or www.boma.org) and office building and shopping center information from IREM (Institute of Real Estate Management, 800-837-0706 or www.irem.org). NAIOP also has information about industrial properties in its 2001-2002 Industrial Income and Expense Report (703-904-7100) or go to www.naiop.org.

Total annual outlays to support retail space inventory (2)	\$	
(2) Square feet times cost per square foot summed.		
Persons working in the retail space @ 450 sf/worker (3) Use local worker/sf value here.	r (3)	

Retail Economic Impact Work Sheet continued Page 5 of 5

#### Average (mean) salary of retail jobs in current year (4)

(4) See Information Sources paragraph 4; the local department of economic development or chamber of commerce may be able to provide estimates for average salaries.

Employment data are available from local or state-level economic development and/or employment offices; can also be purchase from local and national vendors. Local universities with an economic or business research center may be able to provide data at no cost or for a nominal fee.

\$\_

\$

#### **Payroll impact of housed workers** (5)

(5) # of workers times mean salary.

To calculate the total value of these outlays on the local economy, the respective spending values should be multiplied by the appropriate total output, personal income and job multipliers from the BEA tables — see Information Sources paragraph 1 regarding multipliers. Different multipliers are available for each county in the US for new construction (commercial maybe distinguished from residential), architectural and engineering services or specialized design services (soft costs), management companies (operating outlays), facilities support services (operating outlays), services to buildings (operating outlays), retail trade, personal services, health and education services and restaurant and entertainment (employee spending impacts).

## **Retail Economic Impact Work Sheet**

Page 1 of 2

The data requirements and analytical approach for retail space will parallel the requirements and processes outlined for office buildings. Assumptions concerning workers per square foot, payroll, and construction and operating costs should reflect industry specifics.

### **Total Inventory Impact Analysis**

Total assessed value	\$
<b>Total real estate tax revenue</b> (Tax rate/\$100 x value)	\$
Total square feet	
<b>Total estimated work force</b> (Total sf divided by sf/worker)	
<b>Total estimated payroll</b> (Workers times mean salary)	\$
<b>Total building operating outlays</b> (Cost/sf times total sf)	\$
<b>Total repair and maintenance outlays</b> (Cost/sf times total sf)	\$
<b>Total retail sales generated by the inventory</b> (Sales/sf times total sf of stock)	' \$

### New Construction Analysis (total current year construction or cumulative years)

The economic impacts associated with one year's (or the cumulative impact of several year's) of new construction can be calculated by applying the appropriate construction multipliers as outlined below.

Value of construction in dollars (round to thousands or millions for presentation)

Hard Costs	\$
Soft Costs	\$
<b>Total Building Costs</b> (sum of hard and soft \$s)	\$

Retail Economic Impact Work Sheet continued Page 2 of 2

Land Costs	\$	
On-site	\$	
Off-Site	\$	
Total value of new construction— sum of above	\$	
Estimate added annual value to existing real estate base	\$	
Value Added Impacts (of one or more year	s of new construction)	
The objective of this analysis is to calculate the ecor activity that is enabled due to the new building capa the outlays associated with operating the new invent housed in the building.	nomic output associated with the work or city provided. This work/activity includes both tory of buildings and the work of the jobs	
Building Operations and Maintenance and Repair	ir	
<b>Building operations outlays</b> (management, utilities, custodial)	<b>\$</b> /sf	
Annual maintenance and repair outlays	<b>\$</b> /sf	
Building or inventory square feet		
Total annual outlays to support retail space inventory	\$	
Persons working in the retail space $@$ 450 sf/wo	orker	
Average (mean) salary of retail jobs in current y	ear \$	
Payroll impact of housed workers	\$	

## **Industrial Building Economic Impact Work Sheet**

Page 1 of 5

The data requirements and analytical approach for industrial building space will parallel the requirements and processes outlined for office building and retail centers. Assumptions concerning workers per square foot, payroll, and construction and operating costs should reflect industry specifics.

## **Total Inventory Impact Analysis**

Total assessed value (1)	\$
(1) See Information Sources paragra	aph 3.
See local government real estate ta (CAFR). Many jurisdictions post thei	x information, e.g. a Comprehensive Annual Financial Report r CAFRs online.
<b>Total real estate tax revenue</b> (2) (Tax rate/\$100 x value)	\$
(2) See Information Sources paragra	aph 3.
See local government real estate ta (CAFR). Many jurisdictions post their	x information, e.g. a Comprehensive Annual Financial Report r CAFRs online.
Total square feet (3)	
(3) See Information Sources paragra	aph 2.
Building/industry information will ger (new structures) or local real estate able to fill in the data gaps.	nerally be available from local sources, such as developers research firms (total inventory). Other local experts may be
<b>Total estimated work force</b> (4) (Total sf divided by sf/worker)	
(4) Multiply the total inventory squa feet in the locale (e.g., 900 gross st	re footage by the accepted number of workers per gross square f per worker).
<b>Total estimated payroll</b> (5) (Workers times mean salary)	\$
(5) Multiply the mean annual salary employment may be used) develope Economic Development) times the r	for industrial workers (manufacturing or wholesale sector ed from local sources (Chamber of Commerce, Department of number of industrial workers being housed.
<b>Total building operating outlays</b> (6) (Cost/sf times total sf)	\$
(6) Multiply the annual average per	square foot operating costs (excluding utilities) reflecting local

number of square feet.

continued

Industrial Building Economic Impact Work Sheet with instructions continued Page 2 of 5

**Total repair and maintenance outlays** (7) (Cost/sf times total sf)

(7) Multiply the annual average per square foot repair and maintenance cost for industrial/ warehouse uses (from local sources or industry association publications [e.g., NAIOP]) times the number of gross square feet in the inventory.

\$

\$

#### Total retail sales generated by the inventory (Sales/sf times total sf of stock)

The total economic impacts of the dollar values developed for the spending potential of the work force housed in the industrial building inventory and the outlays associated with operating and maintaining this inventory as determined in the work sheet above can be calculated by applying the appropriate economic multiplier to each category of impact. As each source of spending has an indirect effect on the local economy as these new dollars are re-spent locally, the value of this additional spending represents an important contribution to the economy's overall vitality. The magnitude of these combined economic impacts (direct and indirect) are represented by the "multiplier" for each respective source of new spending; for example, for each new dollar of spending for building operations in Fairfax County, Virginia, the total economic impact in the County is \$1.55. The source of these multipliers (by county) is provided in paragraph 1 under

Information Sources.



## Industrial Building Economic Impact Work Sheet with instructions continued

Page 3 of 5

### New Construction Analysis (total current year construction or cumulative years)

The economic impacts associated with one year's (or the cumulative impact of several year's) of new construction can be calculated by applying the appropriate construction multipliers as outlined below.

Value of construction in dollars (round to thousands or millions for presentation)

	Hard Costs (1)	\$	
	Soft Costs (1)	\$	
	Total Building Costs	•	
	(sum of hard and soft \$s)	\$	
Land C	osts (1)	\$	
Associa	ated Infrastructure (value)		
	On-site (1)	\$	
	Off-Site (1)	\$	
	(1) See Information Sources paragraph 2.		
	Building/industry information will generally be ava (new structures) or local real estate research firm able to fill in the data gaps.	ailable from local sources, such as develo ns (total inventory). Other local experts m	ipers ay be
Total va	alue of new construction—		
sum of	above (2)	\$	
	(2) This value would be used to calculate econor county or state levels): see Information sources,	nic impacts using BEA multipliers at the paragraph 1.	
Estimat	te added annual value to existing		
real est	tate base (3)	\$	
	(3) This value would be representative of the ass exclude off-site costs incurred by the developer a an appraisal. Insurance and financing costs and	sessed valuation of the built inventory so and some soft costs that would not be ref fees should be excluded from the soft co	<i>w</i> ould flected in st value

exclude off-site costs incurred by the developer and some soft costs that would not be reflected in an appraisal. Insurance and financing costs and fees should be excluded from the soft cost value for purposes of this calculation as these outlays have little or no impact on the local economy; all soft costs that reflect professional services should be included as these outlays clearly represent economic activity generated within the local economy as a consequence of the building industry.

continued

Industrial Building Economic Impact Work Sheet with instructions continued Page 4 of 5

#### Value Added Impacts (of one or more years of new construction)

The objective of this analysis is to calculate the economic output associated with the work or activity that is enabled due to the new building capacity provided. This work/activity includes both the outlays associated with operating the new inventory of buildings and the work of the jobs housed in the building.

#### Building Operations and Maintenance and Repair (1)

Building operations outlays	
(management, utilities, custodial)	\$ /sf
Annual maintenance and repair outlays	\$ /sf
Building or inventory square feet	

(1) See Information Sources paragraph 5.

Per square foot annual operating outlays associated with occupied buildings will vary from market to market and therefore are best developed from local industry sources. Major brokerages would be a primary source for these data. For annual repair and maintenance expenditures associated with maintaining the building stock, local industry sources may provide reliable data. Alternatively, office building income and expense data is available from BOMA (Building Owners and Managers Association, 202-408-2662 or www.boma.org) and office building and shopping center information from IREM (Institute of Real Estate Management, 800-837-0706 or www.irem.org). NAIOP also has information about industrial properties in its 2001-2002 Industrial Income and Expense Report (703-904-7100) or go to www.naiop.org.

## Total annual outlays to support building/office inventory $\left(2\right)$

\$\_\_\_\_\_

(2) Square feet times cost per square foot summed.

Persons working in the office building(s) @ 900 sf/worker (3)

(3) Use local worker/sf value here.

## Industrial Building Economic Impact Work Sheet with instructions continued

Page 5 of 5

## Average (mean) salary of office jobs in current year (4) \$\_\_\_\_\_ (4) See Information Sources paragraph 4; the local department of economic development or chamber of commerce may be able to provide estimates for average salaries. Employment data are available from local or state-level economic development and/or employment offices; can also be purchase from local and national vendors. Local universities with an economic or business research center may be able to provide data at no cost or for a nominal fee. Payroll impact of housed workers (5) \$\_\_\_\_ (5) # of workers times mean salary. To calculate the total value of these outlays on the local economy, the respective spending values should be multiplied by the appropriate total output, personal income and job multipliers from the BEA tables — see Information Sources paragraph 1 regarding multipliers. Different multipliers are available for each county in the US for new construction (commercial maybe distinguished from residential), architectural and engineering services or specialized design services (soft costs), management companies (operating outlays), facilities support services (operating outlays), services to buildings (operating outlays), retail trade, personal services, health and education services and restaurant and entertainment (employee spending impacts).

## **Industrial Building Economic Impact Work Sheet**

Page 1 of 2

Total Inventory Impact Analysis			
Total assessed value	\$		
<b>Total real estate tax revenue</b> (Tax rate/\$100 x value)	\$		
Total square feet			
Total estimated work force (Total sf divided by sf/worker)			
<b>Total estimated payroll</b> (Workers times mean salary)	\$		
<b>Total building operating outlays</b> (Cost/sf times total sf)	\$		
<b>Total repair and maintenance outlays</b> (Cost/sf times total sf)	\$		
<b>Total retail sales generated by the</b> <b>inventory</b> (Sales/sf times total sf of stock)	\$		
The total economic impacts of the dollar values developed for the spending potential of the work force housed in the industrial building inventory and the outlays associated with operating and maintaining this inventory as determined in the work sheet above can be calculated by applying the appropriate economic multiplier to each category of impact. As each source of spending has an indirect effect on the local economy as these new dollars are re-spent locally, the value of this additional spending represents an important contribution to the economy's overall vitality. The magnitude of these combined economic impacts (direct and indirect) are represented by the "multiplier" for each respective source of new spending; for example, for each new dollar of spending for building operations in Fairfax County, Virginia, the total economic impact in the County is \$1.55. The source of these multipliers (by county) is provided in paragraph 1 under Information Sources.			
New Construction Analysis (total curr	ent year construction or cumulative years)		
The economic impacts associated with one year' of new construction can be calculated by applyin outlined below.	s (or the cumulative impact of several year's) g the appropriate construction multipliers as		

Value of construction in dollars (round to thousands or millions for presentation)

Hard Costs	\$
Soft Costs	\$
Total Building Costs (sum of hard and soft \$s)	\$

Industrial Building Economic Impact Work Sheet continued Page 2 of 2

Land Costs Associated Infrastructure (value) On-site	\$ \$
Off-Site	\$
Total value of new construction— sum of above	\$
Estimate added annual value to existing	¢
	*
Value Added Impacts (of one or more year	s of new construction)
The objective of this analysis is to calculate the ecor activity that is enabled due to the new building capa the outlays associated with operating the new invent housed in the building.	nomic output associated with the work or city provided. This work/activity includes both tory of buildings and the work of the jobs
Building Operations and Maintenance and Repair	ir
<b>Building operations outlays</b> (management, utilities, custodial)	<b>\$</b> /sf
Annual maintenance and repair outlays	<b>\$</b> /sf
Building or inventory square feet	
Total annual outlays to support building/office inventory	\$
Persons working in the office building(s) @ 900 sf/worker	
Average (mean) salary of office jobs in current y	/ear \$

## **RIMS II State Multipliers:**

**Office, Industrial and Commercial Buildings** 

#### Table 1.A--Total Multipliers for Output, Earnings, and Employment by State

Output/V (rblins) (1)         Earningst/V (rblins) (2)         Earningst/V (rblins) (2) <thearningst v<br="">(rblins) (2)         <thearningst th="" v<=""><th></th><th></th><th colspan="2">Final-demand multiplier</th><th colspan="2">Direct-effect multiplier</th></thearningst></thearningst>			Final-demand multiplier		Direct-effect multiplier		
1         Abbam         2.3431         0.682         22.2         2.332         2.386           3         Atona.         2.195         6.601         22.3         2.1161         2.2478           3         Atona.         2.195         6.601         22.3         2.1161         2.2478           4         Atonas         2.195         6.001         22.3         2.1161         2.2478           4         Atonas         2.195         6.001         2.33         2.1161         2.2478           4         Atonas         2.195         1.001         2.335         2.3357         2.3365           7         Conceico.         2.010         6.007         1.44         1.3462         2.1318           8         Dehave.         2.1451         4.661         2.131         1.4622         1.102           11         Georgia         2.1451         4.6628         2.25         1.1031         2.4664           15         Indaa         2.4664         7.638         2.25         1.102         2.4071           15         Indaa         2.4664         6.2617         2.1182         2.4072         2.1011         2.2020         2.4011         2.4021			Output/1/ (dollars) (1)	Earnings/2/ (dollars) (2)	Employment/3/ (jobs) (3)	Earnings/4/ (dollars) (4)	Employment/5/ (jobs) (5)
2       Ajsha		Alabama	2 3431	0.6093.0	25.2	2 2220	3 3060
A Astona.         2:1655         2:000         223         1/163         2:246           A Astona.         2:0052         6:000         223         1/163         2:246           Colorado.         2:3101         7:000         207         2:186         2:276         2:476           Colorado.         2:3101         7:000         207         2:186         2:276         2:476           Colorado.         2:3101         7:000         207         2:186         2:276         2:311         1:422           D Colorado.         2:311         7:000         207         2:186         2:2001         1:555         2:301         1:668         4:722         1:3.9         1:4:422         2:301         1:4622         2:301         1:4622         2:301         1:4:628         2:301         1:4:628         2:301         1:4:628         2:301         1:4:6:55         2:3311         1:4:6:55         2:3311         1:5:55         2:3201         2:2:6:51         2:3:311         1:5:55         2:3:311         1:5:55         2:3:311         1:5:55         2:3:311         1:5:5         2:3:311         1:5:5         2:3:311         1:5:5         2:3:311         1:5:5         2:3:311         1:5:5         2:3:311         1	2	Alacha	1 7479	6300	23.2	1 2100	2.3656
A Maximum         2.182         2.001         2.23         2.100         2.243         2.100         2.2478           C Calloria         2.315         7.26         18.7         2.2075         2.4778           G Colecido         2.2171         7000         20.7         2.188         2.2478           G Colecido         2.2171         7000         20.7         2.188         2.2478           G Colecido         2.2171         7000         20.7         2.188         2.2478           G Colecido         2.0101         6.0714         1.35505         1.4622         2.1318           B Distric of Columbia         2.1378         6.0600         12.0         1.55505         1.4622           D Ferida         1.3664         6008         12.9         1.869         2.3357         2.2357           1.1 Georgia         2.4006         15.9         1.85505         2.2357         2.3351         6.011         2.3555         2.2357           1.3 Maha         2.4006         15.9         1.85505         2.2357         2.2357         2.2357           1.4 Maha         2.3017         2.2357         2.2357         2.2357         2.2357         2.2357         2.2357         2.2357	6		1.7473	.5368	14.9	1./193	2.2246
4. Advista         2.000         Advista         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         2.000         1.4.4         1.990         2.000         2.000         1.4.4         1.990         2.000         1.000	3.	Alizona	2,1955	.6901	22.3	2.1161	2.2478
5       Coloration       2.3159       7288       18.7       2.2077       2.2778         6       Coloration       2.3159       7288       18.7       2.2077       2.2778         7       Conscience       1.808       4.727       13.9       1.741       1.4528         10       Florida       2.135       5.751       2.31       2.002       2.1351         10       Florida       2.1351       5.751       2.31       2.002       2.1351         11       Coroscience       2.1351       5.751       2.31       2.002       2.1351         11       Coroscience       1.864       4.003       1.2       1.8532       2.3073         12       Hawai       1.864       4.003       1.9       1.857       2.3073       2.2073       2.1311       1.657       1.855       2.3311       1.3       2.1312       2.2073       2.1311       1.856       1.855       2.3311       1.3       2.1312       2.2073       2.1311       1.856       1.855       2.3311       1.3       2.1311       1.311       1.452       2.6411       1.855       2.3311       1.331       1.331       1.331       1.331       1.3311       1.3311       1.331	4.	Arkansas	2.0902	.6016	22.3	1.9769	2.1486
6. Codesdo	5.	California	2.3136	.7258	18.7	2.2067	2.4778
7. Concercical       2.0190       .6070       14.4       1.9364       2.118         9. Delaware       1.2081       .477       1.35       1.7417       1.1420         9. Delaware       2.0191       .5761       2.11       1.6081       .477       1.35       1.7417         10. Georgia       2.4066       .7243       2.2662       2.0031       2.0092       2.0091         11. Georgia       2.4066       .7243       2.26       2.0032       2.0031	6.	Colorado	2.2171	.7000	20.7	2.1386	2.3627
8. Delsmare.         18.06         4727         13.9         1.7477         1.9492           0. Florida.         12766         6600         2.0         1.5550         1.6602           10. Florida.         2.4695         7.743         2.26         2.0031           11. Georgin.         2.4695         7.743         2.26         2.0002         2.4031           11. Maxim.         1.9864         .6028         2.29         1.9187         2.3050         2.4011           14. Binos.         2.4079         7.7319         19.1         2.0000         2.4011           14. Binos.         2.4073         7.319         19.1         2.0000         2.4011           15. Invis.         2.4073         7.319         19.1         2.0000         2.4011           15. Invis.         2.4073         7.319         19.1         2.0000         2.4011           16. Invis.         2.4073         2.1180         2.1180         2.1180         2.1180         2.1117         2.21402         2.4021         2.1117         2.24966         2.1657         2.32         2.1652         2.2033         2.2071         2.2071         2.2071         2.2071         2.2071         2.20711         2.20802         2.24662 <td>7.</td> <td>Connecticut</td> <td>2.0190</td> <td>.6070</td> <td>14.4</td> <td>1.9346</td> <td>2.1138</td>	7.	Connecticut	2.0190	.6070	14.4	1.9346	2.1138
9. District of Columbia       12789       6000       2.0       1.5500       1.4222         10. Eriotá       21351       6761       22.11       2.002       2.1051         11. Georgía       2.4058       7243       22.6       2.1051       2.1051         11. Georgía       2.4078       7739       129       1.5550       2.1351       2.4078       2.1311         12. Havai       1.8684       6.060       2.17       2.1188       2.4378       7.319       19.1       2.0020       2.6011         15. Iroána       2.2073       6.661       2.17       2.1188       2.4379       2.1181       2.4329       1.9167       2.1311       2.4378       2.1351       2.4478       7.319       19.1       2.0000       2.6071       2.4478       7.319       19.1       2.0000       2.6071       2.4478       7.319       2.031       2.4378       2.031       2.6076       2.665       2.22       2.0281       2.1951       2.2076       2.665       2.22       2.0281       2.1951       2.2076       2.465       2.675       1.49       2.0064       2.2665       2.675       1.49       2.0064       2.2665       2.2184       2.6076       2.466       2.685       2.2176 <td< td=""><td>8.</td><td>Delaware</td><td>1,8081</td><td>.4727</td><td>13.9</td><td>1.7417</td><td>1.9492</td></td<>	8.	Delaware	1,8081	.4727	13.9	1.7417	1.9492
10. Fininda	9.	District of Columbia	1,2786	0800	2.0	1,5590	1.4622
11       Corogia	10.	Florida	2.1351	.6761	23.1	2.0642	2.1031
12       Hami       18.844       6004       16.9       18.95       2.335         13       Maho       13.964       6026       22.9       19.187       2.1311         14       Minos       2.4778       7.319       19.1       2.2020       2.6401         15       Maha       2.4778       7.319       19.1       2.1220       2.641         15       Kanasa       2.359       6.933       2.03       1.6974       2.2311         16       Kanasa       2.1664       6.006       2.22       2.0031       2.1916         16       Kanasa       2.1654       6.202       2.2003       2.1916         17       Kanasa       2.0151       6.6257       1.4.3       2.033       2.3653         20       Maryland       2.1465       6.232       2.033       2.3653       2.0451       2.2352       2.0451       2.2352       2.0451       2.1452       2.0453       2.0452       2.1462       2.0451       2.1452       2.0453       2.0452       2.1454       2.0452       2.1454       2.0452       2.1454       2.0452       2.0451       2.1454       2.0452       2.1454       2.0455       2.0451       2.1454       2.0455       <	11,	Georgia	2.4096	.7243	22.6	2.3073	2.3608
13       daho	12.	Hawaii	1,8884	.6004	16.9	1.8355	2 3357
14. Minosis       2.4478       7319       19.1       2.3020       2.2423         15. Modana       2.2473       4616       21.7       2.1128       2.4329         16. Kowa       2.0330       6198       21.8       1.9925       2.2439         16. Kowa       2.0390       6198       21.8       1.9925       2.2439         18. Kanasa       2.1689       5.931       20.3       2.0714       2.3468         2.0761       6.2587       2.0231       2.1980       2.189       2.189       2.189         2.1 Maryland       2.0469       6.230       17.9       2.1117       2.3700       2.2667         2.1 Maryland       2.1469       6.230       17.9       2.1117       2.3700       2.6673       14.9       2.0364       2.2467         2.1 Maryland       2.1469       6.230       17.9       2.1117       2.0733       2.4617       2.1469       2.0332       2.4617       2.1469       2.0342       2.4617       2.1469       2.4617       2.1469       2.4617       2.1469       2.4617       2.1469       2.4617       2.1469       2.4617       2.1469       2.4617       2.1469       2.4612       2.4617       2.1469       2.4612       2.4617	13.	Idaho	1.9664	6028	22.9	1 9187	2 1311
15. hd(anta	14	llinais	2 4478	7319	10.1	2 2020	2 6401
16. Dowa.       26930       2693       21.6       1.623       22.327         17. Aarsas.       2.1634       6096       22.2       2.0281       2.1921         18. Kenucky.       2.1664       6096       22.2       2.0281       2.1921         20. Maine       2.0151       6557       23.2       1.5507       2.1288         21. Maryland       2.0164       6250       17.9       2.1117       2.3760         22. Massechusetts       2.0033       6275       14.3       2.0033       2.4615         23. Maryland       2.1469       6230       13.4       2.0033       2.4615         24. Massechusetts       2.1370       6.853       13.4       2.0033       2.4615         24. Massechusetts       2.1469       6230       13.4       2.0033       2.4615         25. Mostana       2.1310       6.681       20.2       2.1446       2.4832         24. Mostana       2.2011       6.681       20.2       2.1446       2.4832         26. Mostana       2.6066       21.3       1.6605       2.2392       2.841         28. Netwaska       2.0228       6.666       21.3       1.6605       2.3932         28. Netwaska	15	ladiana l	2 2672	CELE	01.7	2.3020	2.0401
19. Vertes.         21930         6139         213         19957         2231           18. Kenitzy.         21051         2132         20714         2332         21910           19. Louisiana.         21051         6257         232         20713         21950           20. Mano.         20151         6257         232         19507         2328           21. Maryland.         2.1469         6230         17.9         21117         23760           22. Machgan.         2.1469         6230         17.9         2013         2465           23. Machgan.         2.1469         6230         17.9         2.1116         2.2465           24. Manscola.         2.2170         6776         19.4         2.1464         2.2465           24. Manscola.         2.2170         6776         19.4         2.1464         2.2452           25. Mortana.         2.2311         688         2.23         1.8605         2.2932           26. Mortana.         2.2311         688         2.23         1.8605         2.2932           26. Mortana.         2.1904         6340         15.5         2.0318         2.2932           27. Mortana.         2.1905         1.9502	10.	nuitaite	2.2073	.0010	21.7	2.1128	2.4329
17. Narissa	10.		2.0930	.6158	21.8	1.9925	2.2611
18. Kenlucky       2.1664       6096       222       2.0281       2.1890         20. Marken       2.0151       6257       6348       227       2.0283       2.1890         21. Maryland       2.0151       6257       6234       6220       1.17       2.2390         22. Maryland       2.0853       6275       1149       2.0364       2.24617         23. Mchigan       2.1146       6330       19.3       2.0333       2.24617         24. Marysina       2.1344       6.6284       2.35       2.0263       2.2413         26. Missispip.       2.1344       6.6284       2.35       2.0362       2.2413         26. Mortana       1.6601       5.888       2.2.8       1.6001       2.2528         27. Mortana       1.6601       5.888       2.2.8       1.8005       2.2112       3.18605       2.2321         28. Nevada       1.8972       5.804       1.6.4       1.8811       2.1728         29. Neva fame       2.1112       5.013       1.75       2.0332       2.2111         30. Nev fork       1.8980       5.421       1.3.8       1.7363       1.8921         31. Nev fork       2.3003       6.679       2.3.3	17.	Kansas	2.1369	.5931	20.3	2.0714	2.3496
19. Louisiana	18.	Kenlucky	2.1604	.6096	22.2	2.0281	2.1921
20. Mishine       2.0151       6.257       23.2       1.9507       2.1228         21. Maryland       2.1469       6.230       17.9       2.1117       2.3790         23. Mchigan       2.0653       6.275       14.9       2.0334       2.2465         24. Manesola       2.1946       6.680       19.3       2.0333       2.2467         24. Manesola       2.170       6.776       19.4       2.1145       2.5015         25. Msissispip       2.1384       6.284       23.5       2.0429       2.2413         27. Moristra       2.1384       6.284       23.5       2.0429       2.2432         27. Moristra       2.046       2.0505       2.1384       6.264       23.5       2.0429       2.2432         28. Nevada       2.0285       6.0665       2.1.3       1.9605       2.2392       2.2312         29. Nevada       2.112       6.013       17.5       2.0322       2.2119         30. New Hampshire       2.1112       6.030       15.5       2.0818       2.0932         21. New Morico       1.9563       6.102       2.303       1.9102       2.1193         31. New Vork       1.9800       5.421       1.3.8       1.7336	19.	Louisiana	2.0767	.6348	22.7	2.0038	2.1880
21. Mayland.       2.1463       6320       17.9       2.1117       2.3760         22. Massachusetts       2.0653       6275       14.9       2.0034       2.4617         23. Mehgan       2.1946       6830       19.3       2.0033       2.4617         24. Manesota       2.134       6284       23.5       2.0429       2.2413         25. Mississippi       2.134       6284       23.5       2.0429       2.2413         26. Missouri       2.134       6284       23.5       2.0429       2.2413         26. Missouri       2.131       6481       20.0       2.1446       2.4617         27. Montane       2.1630       5888       22.8       1.8647       2.0500         28. Netraska       2.0228       6066       21.3       1.9605       2.2321         30. New Hampshite       2.1112       6013       17.5       2.0332       2.2611         31. New Jørsey       2.1904       6340       15.5       2.0818       2.3099         28. New Marko       1.8563       6102       23.0       1.9102       2.1193         32. New Marko       2.490       5714       2.6       2.2773       2.0332         29. New Marko	20.	Maine.	2.0151	.6257	23.2	1.9507	2.1228
22. Masschusetts.       2.0853       .6275       14.9       2.0364       2.2465         23. Mchigan.       2.1946       .6830       19.3       2.0933       2.4617         24. Mchigan.       2.1384       .6224       2.3       2.0232       2.2413         24. Misissiph.       2.1384       .6224       2.3       2.0232       2.2413         23. Misissiph.       2.1384       .6224       2.3       2.04617       2.0502         24. Misissiph.       2.1384       .6224       2.3       2.0422       2.2413         23. Misissiph.       2.1384       .6224       2.3       2.04617       2.0502         24. Montana.       1.8630       .5888       2.2       1.8047       2.0502         28. Novada.       1.8972       .5804       16.4       1.811       1.7288         20. New Manpshife       2.1112       .6013       1.5       2.0818       2.3022         30. New York.       1.8600       .5421       1.38       1.7635       1.8923         33. New York.       2.3022       .6379       2.3       2.1970       2.3033         34. Non Carolina.       2.4260       .7145       2.0       2.1575       2.3033         <	21.	Maryland	2.1469	.6230	17.9	2.1117	2.3790
23. Mchigan.       2.1946       6830       19.3       2.0933       2.4617         24. Manesola       2.2170       6776       19.4       2.1146       2.5132         25. Mississippi.       2.1384       6.264       23.5       2.0429       2.2413         26. Missouri.       2.3211       6.641       20.2       2.14.46       2.432         27. Montana       2.3211       6.641       2.022       2.14.46       2.432         28. Notrasia.       2.0228       6.056       21.3       1.9605       2.2392         28. Notrasia.       2.0024       6.056       21.3       1.9605       2.2392         29. Novada.       1.972       5.054       16.4       1.8811       2.1728         20. New Marpshire       2.1112       6.013       17.5       2.0318       2.3039         21. New Morico       1.9563       6.102       23.0       1.9102       2.1933         31. New Morico       1.9563       6.102       23.0       1.9102       2.3039         23. Notri Dakota       1.8420       5.316       20.4       1.7688       1.9911         35. Orb.       2.2652       6.689       26.1       2.1575       2.3915         2	22.	Massachusetts	2.0853	.6275	14.9	2.0364	2.2465
24. Manesola       22.170       5776       19.4       2.1146       2.501         25. Mississpi       21.384       6.264       23.5       2.0528       2.134       2.433         28. Novada       23.81       5.888       22.8       1.8630       5.888       2.8       1.8630       5.888       2.8       1.8630       5.888       2.8       1.8630       2.888       2.8       1.8630       2.888       2.8       1.8630       2.888       2.8       1.8630       2.888       2.8       1.8630       2.888       2.8       1.8630       2.888       2.8       2.0501       1.75       2.0332       2.2911         30. New Hampshire       2.1112       .6013       17.5       2.0332       2.2911       2.183       1.8500       5.612       2.102       2.1933       3.8       1.8500       2.323       2.2011       2.1525       2.0318       2.3035       1.8500       2.133       1.8500       2.161       2.1575       2.3035       3.1800       5.612       2.13       1.2507       1.2335       1.163       1.9515       2.0318       2.1576       2.3035       3.2177       2.5500       2.2035       5.516       2.6677       2.3.3       2.1773       2.555       2.20315 <t< td=""><td>23.</td><td>Michigan</td><td>2.1946</td><td>.6830</td><td>19.3</td><td>2.0933</td><td>2.4617</td></t<>	23.	Michigan	2.1946	.6830	19.3	2.0933	2.4617
25. Mississippi.       2.1384       6294       22.5       2.0429       2241         26. Missoir       2.321       6.681       20.2       2.14.6       2.482         27. Monana       2.321       6.681       20.2       2.14.6       2.482         28. Notraska       2.0228       6.066       21.3       1.9647       2.0328         29. Novada       2.0228       6.066       21.3       1.9647       2.0332       2.2911         30. New Mampshite       2.1112       6.013       17.5       2.0332       2.2911         31. New Jorsey.       2.1004       6.540       15.5       2.0818       2.3039         32. New Work.       1.9563       6.102       23.0       1.9102       2.1333         33. New York.       1.8600       5421       13.8       1.735       2.3039         34. Noth Carolina.       2.3023       6.679       23.3       2.1870       2.3033         35. Onth Dakota.       1.8420       53.16       20.4       1.7688       1.9911         36. Oho.       2.4190       7.143       22.6       2.2773       2.5750         38. Oregon.       2.1612       6310       19.0       2.0834       2.5681 <t< td=""><td>24.</td><td>Minnesola</td><td>2.2170</td><td>.6776</td><td>19.4</td><td>2,1146</td><td>2 5015</td></t<>	24.	Minnesola	2.2170	.6776	19.4	2,1146	2 5015
26. Missouri.       2.2211       6.481       20.2       2.1446       2.4332         27. Mortana.       1.8630       5888       22.8       1.8047       2.0322         27. Mortana.       1.8630       5888       22.8       1.8047       2.0322         28. Nevada.       1.8640       5888       22.8       1.8047       2.0322         29. Nevada.       1.8972       5804       16.4       1.8811       2.1728         30. New Hampshile       2.1112       6013       1.7.5       2.0332       2.1932         21. New Jorsey.       2.1904       6530       15.5       2.0818       2.3033         28. New Mexico.       1.5553       6102       23.0       1.9102       2.1183         21. New York       2.3023       6679       23.3       2.1870       2.3033         31. New York       2.3023       6679       23.3       2.1870       2.3033         34. Notin Carolina.       2.2023       6679       23.3       2.1870       2.3033         35. Oregon       2.1612       6310       19.0       2.0334       2.5903         36. Oregon       2.1612       6310       19.0       2.0344       2.5903         36. Oregon<	25	Mississioni	2 1384	6284	23.5	2 0429	2 2413
27. Martiana	26	Miccouri	2 2211	C401	20.0	0.1440	0 1000
24. winking       1.6650       3888       22.5       1.847       2.032         28. Netvaska       6066       21.3       1.9605       2.2322         28. Netvaska       1.8972       5804       16.4       1.811       2.1728         20. New Hampshire       2.1112       6013       17.5       2.0332       2.2919         31. New Jersey       2.1112       6013       17.5       2.0318       2.1933         32. New York       1.55       2.0818       2.3039       1.9102       2.1193         33. New York       1.8800       5421       13.8       1.7836       1.8927         34. Notin Carolina       2.3023       6879       23.3       2.1970       2.3035         35. Notin Dokota       2.4190       7143       22.6       2.2773       2.5750         35. Orep.       2.2652       6899       26.1       2.1575       2.9133         39. Pennsylvania       2.4190       7143       22.6       2.2773       2.5750         39. Pennsylvania       2.4669       .7215       2.081       2.5081       2.5081         41. South Carolina       2.2207       .6425       22.6       2.1576       2.3744         43. Ternesylvania </td <td>27</td> <td>Vostag</td> <td>1.0020</td> <td>.0401</td> <td>20.2</td> <td>2.1440</td> <td>2.4832</td>	27	Vostag	1.0020	.0401	20.2	2.1440	2.4832
22. Nevada	27.	Mohadia	1.0030	.5668	22.8	1.8047	2.0500
22.       NevAda.       1.972       5804       16.4       1.8811       2.7211         31.       New Jørssy.       2.1112       6013       17.5       2.0332       2.2911         31.       New Jørssy.       2.1904       6.640       15.5       2.0818       2.3099         32.       New Moxico.       1.9563       6.102       23.0       1.9102       2.1113         33.       New York.       1.8800       5421       13.8       1.7335       1.8921         34.       Notin Carolina.       2.3023       6879       23.3       2.1870       2.3035         35.       Notin Okola.       1.8420       5.316       20.4       1.7688       1.9031         36.       Oregon.       2.4190       7.143       22.6       2.2773       2.5750         38.       Oregon.       2.1612       6310       19.0       2.0834       2.5081         39.       Pennsykania.       2.4652       6889       26.1       2.1575       2.1915         39.       Pennsykania.       1.9022       5348       1.59       1.8765       2.1935         41.       South Carolina.       2.2207       .6425       2.2.6       2.1576       2.	28.	Nobraska	2.0228	.6066	21.3	1.9605	2.2392
31. New Jersey	30.	New Hampshire	2.1112	.5804	16.4	1.8811	2.1728
31. New Jorsey.       2.1904       6.340       15.5       2.0393       2.2039         32. New Mexico.       1.9563       6.102       23.0       1.9102       2.1193         33. New York.       1.8800       5.421       13.8       1.7336       1.8921         33. New York.       2.3023       6879       23.3       2.1870       2.3033         34. North Carolina.       2.3023       6879       23.3       2.1870       2.3033         35. North Dakola       2.4190       7.143       22.6       2.2773       2.5750         36. Oho.       2.4590       7.143       22.6       2.2915       2.9915         38. Oregon.       2.4669       7.715       2.3915       2.9915       2.9915         38. Oregon.       2.4669       7.7215       20.8       2.3221       2.5681         40. Encode Island.       2.2652       5.848       15.9       1.8765       2.1935         41. South Carolina.       2.4669       7.7215       20.8       2.3221       2.5681         42. South Dakota       1.9022       .5348       15.9       1.8765       2.1935         41. South Carolina.       2.2207       .6425       22.6       2.176       2.3744							
32. New York.       1.9563       6102       23.0       1.9102       2.1193         33. New York.       1.8800       5421       13.8       1.7836       1.8921         34. North Carolina.       2.3023       6879       23.3       2.1870       2.3035         35. North Dakota.       1.8420       5316       20.4       1.7636       1.9911         36. Ohto.       2.4190       7.143       22.65       2.2652       6889       26.1       2.1575       2.3915         37. Oktahoma.       2.1612       6.310       19.0       2.0834       2.5681         38. Oregon.       2.1612       6.310       19.0       2.0834       2.5681         39. Pennsylvania.       2.2652       2.689       2.1576       2.3744       2.5081         40. Roode Island.       1.9022       5348       15.9       1.8765       2.1935         41. South Carolina.       2.2207       .6425       2.2.6       2.1576       2.3744         42. South Dakota       1.9204       .5813       22.2       1.8486       2.0645         43. Tennessee       2.4009       .6984       22.3       2.2978       2.4996         44. Texas       2.2542       .7752       2.315	31.	New Jersey	2.1904	.6340	15.5	2.0318	2.3099
33. New York.       1.8800       5421       13.8       1.7836       1.8921         34. North Carolina.       2.3023       6879       23.3       2.1870       2.3033         35. North Dakola       1.8800       5411       13.8       1.7836       1.8921         35. North Dakola       2.3023       6879       23.3       2.1870       2.3033         36. Oho.       2.4190       .7143       22.6       2.2773       2.5750         37. Oklahoma.       2.2652       .6889       26.1       2.1575       2.3915         38. Oregon.       2.4669       .7215       20.84       2.3221       2.5681         40. Encode Island.       1.9022       .5348       15.9       1.8765       2.1935         41. South Carolina.       2.2207       .6425       22.6       2.1576       2.3744         42. South Dakota.       1.9202       .5348       15.9       1.8765       2.1935         43. Tenessee.       2.4009       .6984       22.3       2.2978       2.4996         43. Teras.       2.5342       .7922       23.7       2.3852       2.4631         44. Teras.       2.5342       .7922       20.9       1.8493       2.0140	32.	New Mexico	1.9563	.6102	23.0	1.9102	2.1193
34. North Carolina.       2.3023       6879       23.3       2.1870       2.3035         35. North Dokola.       1.8420       5316       20.4       1.7688       1.9911         36. Oho.       2.4190       7143       22.6       2.2773       2.5750         37. Oklahoma.       2.4190       7143       22.6       2.2773       2.5750         37. Oklahoma.       2.611       2.1575       2.3915       3.58       0.6100       1.901       2.0834       2.5933         38. Oregon.       2.1612       6.810       19.0       2.0834       2.5933       3.59       1.59       1.8765       2.915       2.08       2.3221       2.5681         41. South Carolina.       2.2027       56425       22.6       2.1576       2.3744       2.1935         42. South Dakota       1.9022       5348       15.9       1.8765       2.996       2.4623       2.2378       2.4996         43. Tennessee       2.4009       6.994       22.3       2.2378       2.4996       2.4631       2.2710       2.035       2.0410         44. Texas       2.2504       5.513       22.2       1.8486       2.0625       2.4454       2.4532       2.2996       2.4531       2.237 </td <td>33.</td> <td>New York</td> <td>1.8800</td> <td>.5421</td> <td>13.8</td> <td>1.7836</td> <td>1.8921</td>	33.	New York	1.8800	.5421	13.8	1.7836	1.8921
35. North Dakola       1.8420       5316       20.4       1.7668       1.9911         36. Oho.       2.4190       .7143       22.6       2.2773       2.5753         37. Oktahoma.       2.2652       .6899       26.1       2.1575       2.3915         38. Oregon.       2.4669       .7215       2.3034       2.5903         39. Pennsylvania       2.4669       .7215       20.8       2.3221       2.5681         40. Enode Island.       1.9022       .5348       15.9       1.8765       2.1935         41. South Carolina.       2.2207       .6425       22.6       2.1576       2.3744         42. South Dakota.       1.9202       .5348       1.5.9       1.8765       2.1935         43. Tennessee       2.4009       .6984       22.3       2.2978       2.4996         44. Texas.       2.5342       .7792       23.7       2.3858       2.4631         45. Utah       2.210       .7030       24.6       2.1927       2.5149       2.5142         45. Washington       2.2131       .6280       19.9       2.1866       2.626       2.1876       2.8451         49. Wost Wrighia       1.7944       .4899       1.8.8       2.0525 <td>34.</td> <td>North Carolina</td> <td>2.3023</td> <td>.6879</td> <td>23.3</td> <td>2.1870</td> <td>2.3035</td>	34.	North Carolina	2.3023	.6879	23.3	2.1870	2.3035
36       Ohio.       2.4190       .7143       22.6       2.2773       2.5750         38.       Oregon.       2.652       .6889       26.1       2.1575       2.3915         38.       Oregon.       2.6612       .6310       19.0       2.0834       2.5933         39.       Pennsylvania       2.4669       .7215       20.8       2.3221       2.5681         41.       South Carolina.       1.9022       .5348       15.9       1.8765       2.1935         41.       South Carolina.       2.207       .6425       22.6       2.1576       2.3744         42.       South Dakota.       1.9024       .5813       22.2       1.8486       2.0645         43.       Tennessee       2.4009       .6984       22.3       2.2978       2.4996         44.       Texas       2.5342       .7752       23.58       2.6151       2.5142       2.753       2.5199         45.       Utah       2.2110       .7030       24.6       2.1827       2.5199       2.5199         46.       Vermont.       2.1912       .5752       2.00       1.8493       2.0140         47.       Virginia.       2.111       2.0255	35.	North Dakola	1.8420	.5316	20.4	1.7688	1.9911
37. Oktahoma.       22652       6869       26.1       2.1575       2.3915         38. Oregon.       21612       6310       19.0       2.0834       2.5903         38. Oregon.       2.4669       7215       2.3015       2.5903         40. Finode Island.       2.4669       7215       2.0834       2.5903         41. South Carolina.       2.4669       7215       22.66       2.1576       2.3744         42. South Dakta       1.9022       5348       15.9       1.8765       2.1935         42. South Dakta       1.9024       5813       22.2       1.8486       2.0453         43. Tennessee       2.4009       6984       22.3       2.2978       2.4996         44. Texas.       2.5342       7792       23.7       2.3858       2.4631         45. Utah       2.2710       7.030       24.6       2.1827       2.5193         45. Warmont       2.1712       7.722       23.7       2.3858       2.4631         45. Warmont       2.2710       7.7030       24.6       2.1827       2.1939         45. Warmont       2.2131       6.6280       19.9       2.186       2.2625       2.4452         4. Warpinia       1.7	36	Ohio	2.4190	.7143	22.6	2,2773	2.5750
38. Oregon	37.	Oklahoma	2,2652	6889	26.1	2 1575	2 3915
39. Perñsylvania.       2.4665       .7215       20.8       2.3221       2.5681         40. Rinoże Island.       1.9022       .5348       15.9       1.8765       2.1935         41. South Carolina.       2.2007       .6425       22.6       2.1576       2.744         42. South Dakota.       1.9022       .5348       15.9       1.8765       2.1935         43. Tennessee.       2.4009       .6984       22.3       2.2978       2.4996         44. Texas.       2.5342       .7729       23.7       2.3858       2.4631         45. Utah.       2.2710       .7030       24.6       2.1827       2.5183       2.0140         47. Vrignia.       2.2710       .7030       24.6       2.1827       2.5189       2.6131         48. Vermont.       2.1912       .5752       20.0       1.8493       2.0140         47. Vrignia.       2.2131       .62800       19.9       2.1286       2.2625       2.4452         49. Washington.       1.7944       .4899       18.8       2.0525       2.4452       1.9573       2.1990       .6708       21.1       2.0749       2.5063         50. Wisconsin.       2.1990       .6708       21.1       2.0749 <td>38.</td> <td>Oregon</td> <td>2,1612</td> <td>.6310</td> <td>19.0</td> <td>2.0934</td> <td>2,5983</td>	38.	Oregon	2,1612	.6310	19.0	2.0934	2,5983
40. Rhode Island       1.9022       5.348       15.9       1.9765       2.1921         41. South Carolina       2.2207       .6425       22.6       2.1576       2.3744         42. South Dakota       1.9024       .5913       22.2       1.8466       2.0645         43. Tennessee       2.4009       6984       22.3       2.2978       2.4986         44. Texas       2.5342       7.792       2.358       2.4631       2.427       2.5199         45. Vermont       1.9128       .5752       2.00       1.8493       2.0142       2.5193       2.2127       2.5199       2.5193       2.0140         47. Vriginia       2.2131       .6280       19.9       2.1286       2.2624         48. Washington       2.115       .6635       18.8       2.0525       2.4452         49. Wey Vriginia       2.1990       .6708       21.1       2.0749       2.5063         50. Wisconsin       2.1990       .6708       21.1       2.0749       2.5063         51. Wyoming       1.6656       .5001       19.2       1.6487       1.8574         52. United States       .9585       28.1       2.8879       3.1211	39	Pennsylvania	2 4669	7215	20.8	2 3221	2 5 6 9 1
41. South Carolina.       2.2207       .6425       22.6       2.1576       2.3744         42. South Dakota       1.9204       .5813       22.2       1.8486       2.0645         43. Tennessee       2.4009       .6984       22.3       2.2978       2.4996         44. Texas       .25342       .7722       23.7       2.358       2.4996         45. Utah       .25342       .7722       23.7       2.358       2.6519         45. Vermont       .9128       .5752       20.9       1.8493       2.0140         47. Vrighia       .2131       .6635       18.8       2.0525       2.4452         49. Washington       .2134       .6635       18.8       2.0525       2.4452         49. West Vrighia       .2139       .6635       18.8       2.0525       2.4452         49. West Vrighia       .21990       .6708       21.1       2.0749       2.5063         50. Wisconsin       .21656       .5001       19.2       1.6487       1.8574         51. Wyoming       .1.6656       .5001       19.2       1.6487       1.8574         52. United States       .3.1805       .9585       28.1       2.8879       3.1211    >	40.	Rhode Island	1.9022	.5348	15.9	1.8765	2.1935
42. South Dakota       1.9204       5.813       22.2       1.8486       2.045         43. Tennessee       2.4009       6.984       22.3       2.2978       2.4996         44. Texas       2.5042       7.792       23.7       2.3858       2.4631         45. Utah       2.2710       7.030       24.6       2.1827       2.5199         45. Vermont       1.9128       5.752       20.0       1.8493       20140         47. Vriginia       1.9128       5.752       20.0       1.8493       2.1452         48. Washington       2.2131       .6635       18.8       2.0525       2.4452         49. West Virginia       1.7627       1.9573       2.1990       .6708       21.1       2.0749       2.5063         51. Wyoming       1.6656       .5001       19.2       1.6487       1.8574         52. United States       3.1805       .9585       28.1       2.8879       3.1211	41.	South Carolina.	2,2207	6425	22.6	2 1576	2 3744
3. Tennessee       1.2000       56184       22.2       1.6487       2.4978       2.4978         4. Texas       2.4009       66984       22.3       2.2978       2.4978       2.4978         4. Texas       2.5142       7722       23.7       2.3858       2.4631         4. Texas       2.2710       77030       24.6       2.1827       2.5193         45. Utah       2.2710       77030       24.6       2.1827       2.5193         46. Vermont       2.131       6.2800       19.9       2.1286       2.6264         2.131       6.6280       19.9       2.1286       2.6255       2.4452         2.9. West Verginia       1.7944       .4699       18.8       2.0525       2.4452         2.9. West Verginia       1.7627       1.9573       2.1990       .6708       21.1       2.0749       2.5063         50. Wisconsin       2.1656       .5C01       19.2       1.6487       1.8574         51. Wyoming       3.1805       .9585       28.1       2.8879       3.1211	42	South Dakota	1 9204	5913	22.2	1 8490	2 0646
Latter         Latter <thlatter< th=""> <thlatter< th=""> <thlatter< td="" th<=""><td>43</td><td>Tennessee</td><td>2 4000</td><td>6094</td><td>22.2</td><td>2 2070</td><td>2 4000</td></thlatter<></thlatter<></thlatter<>	43	Tennessee	2 4000	6094	22.2	2 2070	2 4000
Lizh         Lizh <thlizh< th="">         Lizh         <thlizh< th=""> <thli< td=""><td>44</td><td>Toyac</td><td>2.52/2</td><td>7700</td><td>22.3</td><td>2.23/8</td><td>2.4990</td></thli<></thlizh<></thlizh<>	44	Toyac	2.52/2	7700	22.3	2.23/8	2.4990
4.3. Gall         2.2.710         7.030         24.5         2.1827         2.5193           4.6. Vermont         1.9728         5.752         20.9         1.8493         2.0140           47. Virginia         2.2131         6.620         19.9         2.1816         2.2624           48. Washington         2.1415         6.635         18.8         2.0525         2.4452           49. Wist Virginia         1.7944         4.4999         18.6         1.7627         1.9573           50. Wisconsin         2.1990         .6708         21.1         2.0749         2.5063           51. Wyoming         1.6656         .5001         19.2         1.6487         1.8574           52. United States         3.1805         .9585         28.1         2.8879         3.1211	45	I DAD	2.0042	.7732	23.1	2.3355	2.4031
1.9128         5.752         20.9         1.8493         2.0140           2.2131         .6280         19.9         2.1286         2.626           48. Washington         2.2131         .6280         19.9         2.1286         2.6262           49. West Wrginia         1.7944         .4899         18.6         1.7627         1.9573           50. Wisconsin         1.7944         .4899         18.6         1.7627         1.9573           51. Wyoming         1.6656         .5C01         19.2         1.6487         1.8574           52. United States         3.1805         .9585         28.1         2.8879         3.1211	40.	Verment	2.2/10	.7030	24.0	2.1827	2.5199
47. vrginia	40.	Veningen,	1.9128	.5752	20.9	1.8493	2.0140
49. Washington	4/.	virginia	2.2131	.6280	19.9	2.1286	2.2624
49. West Virginia         1.7944         .4899         18.6         1.7627         1.9573           50. Wisconsin         2.1990         .6708         21.1         2.0749         2.503           51. Wyoming         1.6656         .5001         19.2         1.6487         1.8574           52. United States         .9585         28.1         2.8979         3.1211	48.	Washington	2.1415	.6635	18.8	2.0525	2.4452
50. Wisconsin.         2.1990         .6708         21.1         2.0749         2.5063           51. Wyoming.         1.6656         .5001         19.2         1.6487         1.8574           52. United States.         3.1805         .9585         28.1         2.8879         3.1211	49.	West Virginia	1.7944	.4899	18.6	1.7627	1.9573
51. Wyoming	50.	Wisconsin	2.1990	.6708	21.1	2.0749	2.5063
52. United States	51.	Wyoming	1.6656	.5001	19.2	1.6487	1.8574
	52.	United States	3.1805	.9585	28.1	2.8879	3.1211
	_					1.00 CT 1.00	

#### INDUSTRY 110800, OFFICE, INDUSTRIAL, AND COMMERCIAL BUILDINGS CONSTRUCTION

Each entry in column 1 measures the total dollar change in output in all row industries that results from a \$1 change in output delivered to final demand by the industry corresponding to the entry.
 Each entry in column 2 measures the total dollar change in earnings of households employed by all row industries that results from a \$1 change in output delivered to final demand by the industry corresponding to the entry.
 Each entry in column 3 measures the total change in number of jobs in all row industries that results from a \$1 million change in output delivered to final demand

by the industry corresponding to the entry. Because the employment multipliers are based on 1900 regional data and 1998 national data, the output delivered to final demand should be in 1900 dollars. 4. Each entry in column 4 measures the total dollar change in earnings of house-holds employed by all row industries that results from a \$1 change in carnings paid directly to households employed by the industry corresponding to the entry. 5. Each entry in column 5 measures the total change in number of jobs in all row industries that results from a change of one job in the industry corresponding to the entry.

the entry. Source: Bureau of Economic Analysis, U.S. Department of Commerce.

Source:

## Appendix

## Measuring the Economic Impact of Commercial Real Estate Development

(Loudoun County, Virginia)

From a Presentation Given to NAIOP Chapter Executives at the 2005 Chapter Leadership and Legislative Retreat, Washington, D.C.

## **Appendix I**

## What is Economic Impact?

Economic impact is the generation of new spending (\$s) within a locality as a result of investing in and operating new economic activity—in this case, office, retail and industrial buildings and related site improvements.

## **How is Economic Impact Measured?**

- Total contribution of the direct development outlay to the local economy—total output
- · New jobs supported
- · New personal earnings generated
- · Indirect and induced impacts
- Changes in local government revenues and expenditures—fiscal impact analysis

# What is the Scope of an Economic Impact Analysis?

### **Construction Phase**

- Site Improvements
- · Cost of Infrastructure (on- and off-site)
- Building Construction Outlays

Soft Costs

Hard Costs

**Tenant Improvements** 

### **Post-Construction Phase**

- Building Operating Costs
- Cost of Building Repairs
- Work Done in Buildings

Jobs Housed

Payroll of Workers

**Retail Sales** 

## What are the Data Requirements?

## **Total square feet of construction**

#### **Construction costs**

Site improvements (\$s per square foot, acre)

Infrastructure costs (on- and off-site)

Hard costs including TIs (per sf)

Soft costs (professional services, fees, taxes)

Land Value

#### Annual operating costs per sf (excluding taxes)

Annual repair costs per sf

Average square feet per job housed in building

Mean annual salaries for workers housed in the buildings being analyzed

Real estate tax rate

Sales tax rate

## What are the Data Sources?

### **Local Government**

Office of Permits and Inspections

Department of Finance (Budget)

Economic Development Authority

#### Industry

Local developers

NAIOP Chapter and National

BOMA, IREM

Land Institute

### Federal

Bureaus of Economic Analysis and Census

- U.S. Department of Commerce
- BLS, Department of Labor

## State

Employment Commission, Labor Department

### Proprietary

NPA Data Services, Inc.

## What are Economic Multipliers?

Economic multipliers measure the magnitude of total spending impacts within the local economy resulting from a new investment outlay—they reflect the accumulated benefits of the re-spending of payroll and other direct expenditures and purchases (direct and indirect/induced) within the local economy.

## **Select Loudoun County Multipliers**

Sector*	Total Output	Personal Earnings	New Jobs
Construction	1.36	0.182	5.51
Building Operations	1.36	0.247	15.49
Building Management	1.40	0.530	9.34
Retail	1.30	0.234	11.01
Professional Services	1.33	0.331	7.25
Restaurants	1.26	0.240	16.34
A&E Services	1.37	0.315	6.82

Source: U.S. Department of Commerce, BEA \*initial recipients of direct spending outlay

## **Economic Impact of Commercial Development**

In Loudoun County, 2004

Data Inputs			
Data Items	Office	Retail	Industrial
Total Square Feet	233,348	807,402	1,287,078
Hard Costs (sf)*	\$105.00	\$95.00	\$60.00
Soft Costs (sf)**	\$9.35	\$8.25	\$9.35
Site Development (sf)	\$11.00	\$10.00	\$15.00
Operating Costs (sf)***	\$6.50	\$3.50	\$2.50
Square feet per job	250	450	900
Mean annual salary	\$77,038	\$24,336	\$51,571
Real Estate Tax Rate			
Per \$100 assessed value	\$1.10	\$1.10	\$1.10
Retail Sales per square foot		\$224.00	

Sources: Loudoun County, GMU Center for Regional Analysis, NAIOP, BOMA, ULI, Virginia Employment Commission (1) square feet in thousands. \*includes tenant improvements; \*\* excludes taxes, loan origination fees and insurance costs; \*\*\*excludes local taxes

## **Economic Impact of Commercial Development** In Loudoun County, 2004

Construction Phase (1)			
Types of Impacts	Office	Retail	Industrial
Direct Outlays	\$24.502	\$76.703	\$77.225
Total Output*	\$33.379	\$104.492	\$105.204
New Personal Earnings**	\$4.5	\$14.1	\$14.2
Jobs Generated***	126	394	397

Sources: GMU Center for Regional Analysis, (1) in millions of current year dollars.

\*contribution to the County's gross regional product; \*\*new personal earnings accruing to County residents; \*\*\*new jobs generated within County, on- and off-site

## **Economic Impact of Commercial Development**

In Loudoun County, 2004

Post-Construction Phase, (1)			
Types of Impacts	Office	Retail	Industrial
Jobs Housed	933	1,794	1,430
Total Payroll	\$71.9	\$43.6	\$73.7
Retail Sales		\$180.8	
Building Operations			
Direct Outlays	\$1.517	\$2.826	\$3.218
Total Output*	\$2.093	\$3.900	\$4.441
New Income**	\$0.589	\$1.098	\$1.250
New Jobs***	17.6	32.7	37.2
Assessed Value****	\$38.036	\$137.258	\$150.588
Per square foot \$s	\$163.00	\$170.00	\$117.00
Real Estate Tax Revenues	\$0.418	\$1.510	\$1.656
Local Share Sales Tax		\$1.80	

Sources: GMU Center for Regional Analysis, (1) in millions of current year dollars; recur annually \*contribution to the County's gross regional product; \*\*new personal earnings accruing to County residents; \*\*\*new jobs generated within County, on- and off-site; \*\*\*\*reflects on-site development costs

## **Economic Impact of Commercial Development**

In Loudoun County, 2004

Summary of Construction and Post-Construction Impacts (1)		
Sources and Types of Impacts	Economic Impact Values	
Construction Phase		
Direct Outlays	\$178.4	
Indirect Impacts	64.7	
Total Output Value* \$243.1		
New Personal Earning	s** \$32.8	
New Jobs Generated*	** 917	
Post-Construction Phase		
Jobs Housed	4,157	
New Payroll	\$189.2	
Real Estate Tax Reven	ue \$3.6	
Building Operations		
Direct Outlays	\$7.6	
Total Output*	\$10.4	
Personal Earnings	** \$2.9	
New Jobs***	87.5	
New Local Retail Sale	s Taxes \$2.0	

Sources: GMU Center for Regional Analysis, (1) in millions of current year dollars ; recur annually \*contribution to the County's gross regional product; \*\*new personal earnings accruing to County residents; \*\*\*new jobs generated within County, on- and off-site, in actual numbers

## **Economic Impacts Post-Construction Phase** (Existing Projects)





## **Resources**

A PowerPoint presentation for this project, explaining how to gather and analyze the data, as well as a PowerPoint template for your use, are available on the NAIOP Research Foundation Web site at www.naioprf.org.

The presentation and templates are also in PDF form.