

THE ECONOMIC IMPACT OF REPUBLIC SERVICES IN THE STATE OF TEXAS, 2014



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EXECUTIVE SUMMARY

- This report measures the economic impact of Republic Services (Republic) operations on employment, gross state product (GSP), labor income and tax revenues in the State Texas and the United States in 2014.
- Estimated impacts include both the direct effects of Republic’s operations in the State of Texas and the United States, and the multiplier effects that arise when income is recycled within these economies. An IMPLAN input-output model is employed to estimate statewide and national multiplier effects. Impacts and data supplied by Republic Services are for the year 2014.
- Primary data provided by Republic includes a complete record of payments made to suppliers for goods and services; a directory of their business units and subsidiaries by facility type and location; taxes paid to federal, state and local governments; and company employment and payroll for the State of Texas and for all their facilities in the United States.¹

Nationwide Operations in the United States

- Republic Services is a major contributor to the U.S. economy. The company supports 106,452 jobs as of December 31, 2014 and contributes \$9.5 billion in Gross Domestic Product (GDP) to the U.S. economy. The total impacts consist of the direct impact, indirect and induced multiplier impacts and revenue contributions. Detailed figures are discussed in Section 3.

TOTAL ECONOMIC IMPACT - UNITED STATES
<i>\$9.5 Billion in Gross Domestic Product</i>
<i>106,452 Jobs Supported</i>
<i>\$6.5 Billion Wages and Benefits</i>
<i>\$1.4 Billion Federal, State and Local Tax Revenues</i>

Source: IMPLAN model results and authors’ calculations

¹ Payroll data includes total wages and salaries, bonus, stock payout and company health contributions and 401K match.

Direct Impacts

- Republic employs a total of 32,588 workers at all their facilities in the United States. The total wages and salaries of Republic's employees in 2014 is over \$2 billion². If health and retirement benefits are included, the total compensation of these employees is approximately \$2.3 billion.³
- Republic's total procurement of services, parts and maintenance from its suppliers across the United States amounts to \$2.5 billion in 2014. This includes \$374 million in capital expenditures for the construction of non-residential buildings (cell development).
- The direct impacts associated with the \$2.5 billion in vendor payments nationwide are \$1.2 billion Gross Domestic Product (GDP) and 13,824 jobs.

Indirect Impacts

- Nationwide vendor purchases also contribute an additional \$782.8 million GDP and 8,002 jobs in indirect economic impacts as they generate subsequent rounds of additional spending when other businesses make their own purchases and hire employees to meet vendor demand.
- The spending of Republic employees, and also the workers involved in the production of goods and services purchased from the company's nationwide suppliers, generates induced impacts. These effects are substantial. As measured by employment, a total of 32,893 jobs are generated from the additional rounds of consumer spending, generating \$2.9 billion in additional Gross Domestic Product.
- Another important indirect economic impact of Republic is the effects of the spending of new tax revenues. Republic generates an estimated \$1.4 billion in federal, state and local taxes which in turn generates 19,145 jobs in the U.S. economy. Republic and its full-time (or equivalent) workforce pay on average \$28,689 per employee in direct federal, state and local taxes in 2014.

² Wages and salaries include bonuses and stock payouts.

³ The term 'employee compensation' in IMPLAN refers to the total payroll cost of employees paid by the employer. These includes wages and salaries, all benefits (such as health and retirement) and payroll taxes (both sides of social security, unemployment taxes, etc.).

Total Impact

- The total economic impact of Republic’s operations in the United States is estimated at 106,452 jobs and \$9.5 billion in Gross Domestic Product.
- The total employment impact also means that for every 1 FTE job year of direct employment at Republic’s countrywide facilities, a further 2.3 direct and induced jobs are created elsewhere in the United States economy in 2014.

State of Texas

- The total economic impact of Republic’s operations in the State of Texas in 2014 is 8,636 direct, indirect and induced jobs, and \$771.3 million Gross State Product (GSP). In addition, Republic contributes \$118.3 million in state and local tax revenues to Texas. Details are provided in Section 4.

TOTAL ECONOMIC IMPACT - STATE OF TEXAS
<i>\$771.3 Million in Gross State Product</i>
<i>8,636 Jobs Supported</i>
<i>\$531.3 Million Wages and Benefits</i>
<i>\$118.3 Million State and Local Tax Revenues</i>

Source: IMPLAN model results and author’s computations

Direct Impacts

- Republic Services employs a total of 4,043 workers in sites located all over the State of Texas. The total wages and salaries of Republic employees residing in Texas is estimated at \$227 million in 2014. If health and retirement benefits are included, the total compensation of these employees is approximately \$262 million.
- Republic’s purchases from Texas-based suppliers and vendors amounts to \$222.4 million in 2014. These include \$49.7 million in capital expenditures for waste disposal plant construction and cell development.
- The direct impacts associated with all Texas-based vendor purchases are 1,109 jobs and \$108.5 million in Gross State Product.

Indirect Impacts

- Texas-based vendor purchases also account for 349 jobs and \$34 million GSP as they generate subsequent rounds of additional spending when other businesses make their own purchases and hire employees to fulfil vendor orders.
- Spending by Republic's employees in Texas, and also the employees of its Texas-based suppliers, generates induced impacts. These effects are substantial. As measured by employment, a total of 1,857 jobs are generated from the additional rounds of consumer spending, or \$153.6 million in additional Gross State Product.
- The total employment impact means that for every 1FTE job year of direct employment at Republic in Texas, a further 1.13 indirect and induced jobs are created elsewhere in the state in 2014. Average wages paid by Republic to its Texas workers is \$56,136. This is lower than the company's national average of \$62,485 in 2014 and industry average of \$58,083.⁴
- Another important indirect economic impact is the effect on the Texas economy of the spending of new tax revenues. Republic is estimated to generate, both direct and indirect, a total of \$118.4 million in state and local tax revenues which in turn generate new jobs for the economy of Texas. The spending of these tax dollars is responsible for 1,279 jobs and 93.2 million in total income in the state.

Total Impact

- The total economic impact of Republic Services operations in the State of Texas in 2014 is 8,636 direct, indirect and induced jobs, and \$771.3 million GSP.

⁴ Computed by Seidman using data provided by Republic Services and from the Bureau of Labor Statistics *Quarterly Census of Employment and Wages*, private-sector employment, 2014, web site: <http://www.bls.gov/data/> accessed February 1, 2016.

1.0 INTRODUCTION

Republic Services

Republic Services (Republic) is an industry leader in the United States in non-hazardous solid waste collection, transfer, recycling, disposal and oilfield exploration and production (E&P) waste services. Incorporated in Delaware in 1996, the company today is the second largest provider of services in the domestic non-hazardous solid waste industry, as measured by revenues.⁵

Today, Republic provides waste management services to residential, municipal, commercial and industrial customers located in 39 states and Puerto Rico.⁶ Republic's brand tagline "We'll handle it from here" reflects its strong commitment to its customers. The day-to-day business operations of Republic are conducted at the local level through its subsidiaries and affiliates. The company operates 200 transfer stations, 193 active solid waste landfills, and 66 recycling centers. Republic Service Inc. engages safe and sustainable solutions in its operations. The company operates 69 land fill gas and renewable energy projects estimated to generate enough energy to power over 400,000 households. Its 66 recycling centers contribute to reducing the carbon emission footprint, handling millions of tons of recyclable materials each year. In addition, close to 15% of the company fleet of over 16,000 trucks are powered by compressed natural gas (CNG).⁷

Republic is a major player in the economy of Texas and the United States. While the company's headquarters are located in Phoenix, Arizona, Republic Services has operations in major metropolitan areas in Texas, including Houston, Fort Worth, Dallas, Austin, San Antonio, and Corpus Christi.

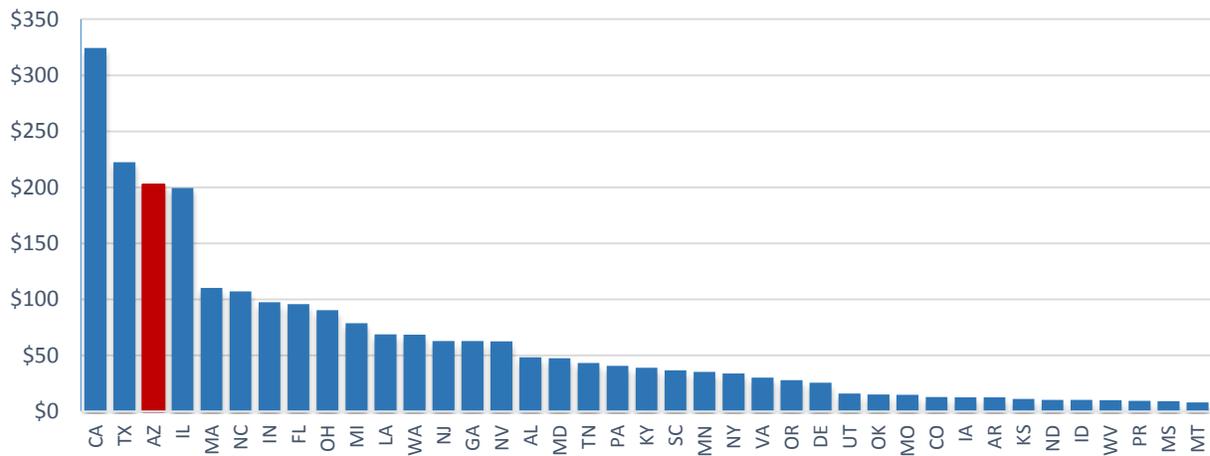
California, Texas and Arizona respectively are the states with the largest operations by Republic as measured by the value of procurement of services, parts and maintenance from suppliers.

⁵ Republic Services Inc. December 31, 2014 Form 10-K filings. United States Securities and Exchange Commission.

⁶ Republic Services Inc. website accessed January 11, 2016.

⁷ Republic Services, Inc. December 31, 2014 Form 10-K filings. United States Securities and Exchange Commission.

Figure 1: Republic Services' Total Vendor Purchases by State, 2014



Source: Republic Services

The company has recently expanded its operations in California and Texas. In February 2015, Republic acquired Tervita, an oilfield exploration and production (E&P) waste service company located in Texas. New waste management contracts include the Sonoma County Landfill management and operation agreement signed in April 2015, and the City of San Angelo Landfill in Texas agreement signed in August 2014.⁸

Study Overview

The purpose of this report is to measure the economic impact of Republic's operations in the State of Texas and the United States for calendar year 2014.

Estimated impacts include both the direct effects of Republic's operations from its employment compensation and purchases from suppliers, and the multiplier effects from the inter-industry transactions and local spending that arise when income is recycled within the economy.

Section 2 of the report reviews the economic impact methodology and the primary data used in the analysis.

⁸ Republic Services, Inc. 2014 Securities and Exchange Commission 10K filings.

Section 3 provides estimates of the impact of Republic's operations on the United States economy.

Section 4 provides estimates of the impact of Republic's operations on the State of Texas.

Within each of the geography-specific sections listed above, the estimates of operational impacts include state and local tax revenues from three sources:

- a) Taxes paid directly by Republic.
- b) Taxes associated with the income and spending of Republic employees.
- c) Taxes generated when Republic purchases good and services from its local suppliers.

All estimated economic impacts are expressed in 2014 dollars.

2.0 DATA AND METHODOLOGY

Primary data provided by Republic includes a complete record of payments to suppliers associated with services and parts or maintenance activities by procurement categories and geographical location; a directory of their business units and subsidiaries by facility type and location;⁹ and company employment and total payroll costs for the State of Texas and for all their facilities in the United States.¹⁰ All data supplied by Republic is for the calendar year 2014.

Information from the company's 2014 Securities and Exchange Commission 10K filings is used to provide context and detail on the procurement categories provided by Republic.

In economic impact analysis, estimates of the effects of a company's operations on the local economy are not limited to the direct spending or jobs/income associated with the company or the jobs/income supported by first-tier suppliers. The estimated impacts also include indirect and induced (multiplier) effects. Indirect effects arise when a business' immediate suppliers place upstream demands on other producers. Induced effects occur when workers directly or indirectly associated with the company operations spend a portion of their income earned in the local economy, and when governments spend new tax revenues.

Estimates of multiplier effects are made using the IMPLAN® "input-output" model – a system of linear equations which describes the interindustry relationships in an economy.¹¹ IMPLAN is a widely-used and commercially-licensed regional input-output software model developed by the University of Minnesota. IMPLAN models how a dollar spent in a sector ripples through other sectors of the economy, generating subsequent waves of economic activity or multiplier effects.¹² The IMPLAN model generates impact effects for a finite period in time (typically one full calendar year) in terms of:

⁹ Facility types include office, central landfill facility (CLF), landfills (LF), transfer stations (TS), selling, general and administrative (SG&A) facility, materials recovery facility (MRF), exploration & production landfills (E&P LF), closed sites (CS), among others. Location provided was by city and state.

¹⁰ Payroll costs include wages and salaries of workers paid by Republic Services, as well as benefits such as health and life insurance and retirement payments.

¹¹ IMPLAN® is an acronym for IMPact analysis for PLANning.

¹² *Overview of IMPLAN, Appendix E.* in Point Molate Land Use Alternatives, City of Richmond, California.

- **Gross State product (GSP):** This is synonymous with total valued added, total income or income-based GSP. GSP represents the dollar value of all goods and services produced for final demand in the modeled economy, usually county, state or national. National level GSP is referred to as Gross Domestic Product. GSP can also be defined as the sum of employment compensation, proprietor income, property income, and indirect business taxes.
- **Employment:** This is the number of full-time and half time employees needed to support the economic activity in the economy. It is a head count, rather than full-time positions, and is based on the average output per employee for a given industry.
- **Labor income:** This is the sum of proprietor income (income of self-employed) and the total compensation of payroll employees. Employment compensation consists of wages, salaries benefits and proprietor income.
- **Tax revenues:** These are local, state and federal taxes paid as social insurance tax, tax on production and imports, corporate profit tax, and all personal taxes.

Two input-output models or systems of equations have been generated in this study using 2014 data; a national IMPLAN model and a Texas-specific IMPLAN model.

In addition to providing estimates of multiplier effects, IMPLAN has a detailed database of the economy modeled which makes it possible to estimate the direct jobs and incomes associated with any given dollar amount of vendor purchases.

All estimated economic impacts are expressed in 2014 dollars.

3.0 ECONOMIC IMPACT OF REPUBLIC’S 2014 OPERATIONS IN THE UNITED STATES

Republic Services. employs a total of 32,588 workers in all its business sites located throughout the United States.

The total wages and salaries for Republic employees is over \$2 billion per year. If health and retirement benefits are included, the total compensation of these employees is approximately \$2.3 billion.

Table 1: Republic Services’ Employment and Payroll Expenditures, 2014

CY 2014	TEXAS	UNITED STATES
Employees	4,043	32,588
Total Wages and Salaries ¹³ (Millions \$)	\$227.0	\$2,036.3
Total Payroll Expenditures, Including Benefits (Millions \$)	\$262.1	\$2,287.2

Source: Republic Services

Average wages paid by Republic to its workers nationwide is \$62,485 which is above the industry average of \$58,083.¹⁴

The total procurement of services, parts and maintenance by Republic from its United States suppliers amounts to \$2.5 billion in 2014. This includes \$374 million in capital expenditures on non-residential buildings. The capital expenditure is primarily spent on cell development.¹⁵ Excluding the capital expenditure, the three most important categories of vendor payments by major economic sectors, in terms of dollars spent, are Waste Management and Remediation Services (59%), Merchant Wholesalers (11.7%) and Repair and Maintenance (10.4%). Details are provided in Table 2.

¹³ Total wages and salaries include bonus and stock payout to employees.
¹⁴ Computed by Seidman using data provided by Republic Services and from the Bureau of Labor Statistics *Quarterly Census of Employment and Wages*, private-sector employment, 2014, web site: <http://www.bls.gov/data/> accessed February 1, 2016.
¹⁵ See Appendix A for details on supplier purchase categories.

Table 2: Republic’s National Supplier Purchases by Major Economic Sector, 2014

	EXCLUDING CAPEX		INCLUDING CAPEX	
	Amount Millions 2014 \$	Percent of Total	Amount Millions 2014 \$	Percent of Total
Waste Management and Remediation Services	\$1,229.5	59.0%	\$1,229.5	50.0%
Construction of Buildings (Cell Development)	\$0.0	0.0%	\$374.4	15.2%
Merchant Wholesalers, Durable Goods	\$244.5	11.7%	\$244.5	9.9%
Repair and Maintenance	\$216.7	10.4%	\$216.7	8.8%
Professional, Scientific, and Technical Services	\$190.3	9.1%	\$190.3	7.7%
Administrative and Support Services	\$100.4	4.8%	\$100.4	4.1%
Utilities	\$49.5	2.4%	\$49.5	2.0%
Rental and Leasing Services	\$48.9	2.3%	\$48.9	2.0%
Rail Transportation	\$3.4	0.2%	\$3.4	0.1%
Total¹⁶	\$2,083.1	100.0%	\$2,457.5	100.0%

Source: Republic Services

Table 3 estimates the contribution of Republic’s company-wide operations to the economy of the United States in 2014.

The first line of Table 3 shows the **direct** contribution of Republic’s company-wide operations in the United States. This is estimated at over \$3 billion Gross Domestic Product (GDP), 32,588 jobs, and almost \$2.3 billion labor income. The labor income figure is a broad measure of compensation paid to employees, all of whom are assumed to live in the state. In addition to labor income, the GDP figure includes \$727.4 million of property, excise, corporate income and sales business taxes paid directly by Republic to federal, state and local governments. Details are provided in Table 4. Any capital income accrued by Republic’s shareholders is excluded from the GDP column.

The second line of Table 3 shows the **direct** impacts that are generated in the United States economy through Republic’s vendor/supplier purchases nationwide. In purchasing \$2.5 billion goods and services from its nationwide suppliers (including \$374.4 million in capital expenditure with local construction vendors), Republic directly supports 13,824 jobs and contributes \$1.2 billion in GDP and \$849 million in

¹⁶ Figures may not sum up due to rounding.

labor income to the United States economy. Realized business or property income is included in this and all subsequent GDP figures in Table 3. Also included in Table 3 line 2's calculations, local business owners and their employees are assumed to receive only 15¢ for every \$1 spent by Republic on purchases from wholesalers and retailers. This is because the value added impacts in wholesale and retail trade only equate to the margin.

Table 3: Impact of Republic's Operations on the Economy of the United States, 2014

	GROSS DOMESTIC PRODUCT <i>Millions 2014 \$</i>	EMPLOYMENT <i>Job Years</i>	LABOR INCOME <i>Millions 2014 \$</i>
Direct Effects from Republic's Company-wide Operations	3,014.6	32,588	2,287.2
Direct Effects from Supplier Purchases	1,224.9	13,824	849.0
Indirect Effects from Consumer Spending of Republic's Employees	1,819.5	20,794	1,036.5
Indirect Effects related to Supplier Purchases	1,840.7	20,101	1,089.7
Indirect Effects from Spending out of New State and Local Tax Revenues	1,609.1	19,145	1,217.5
Total Economic Impact ¹⁷	9,508.8	106,452	6,479.9

Source: Authors' Calculations

Notes:

1. Labor income equals employee compensation plus proprietor (self-employed) income.
2. GDP equals labor income, property (capital) income, and indirect business taxes (property, corporate and sales).
3. The capital income which accrues to Republic's shareholders worldwide is excluded from GDP in the first line.

The third and fourth lines of Table 3 estimate the **multiplier effects** associated with consumer spending of both Republic's employees, and the production of goods and services purchased from United States-based vendors. These effects are substantial. As measured by employment, for example, the total of the two multiplier effects is 40,895 jobs, or 88% of the sum of the two direct effects.

¹⁷ Figures may not sum up due to rounding.

The fifth line of Table 3 estimates the economic impacts of Republic's state and local government tax revenues. Republic is estimated to generate, both directly and indirectly, at least \$1,378.2 million in total state and local government tax revenues for the states in which it has operations.¹⁸ The spending of these tax dollars is indirectly responsible for over \$1.6 billion GDP, 19,145 jobs and \$1.2 billion labor income in the United States. These impacts are large, as the number of jobs supported by the spending of new tax revenues is equivalent to almost 58.7% of Republic's full-time and part-time workforce in the United States. It also reflects the quality and high remuneration of Republic's workforce.

The **total impact** of Republic's company-wide operations on the economy of the United States is estimated at \$9.5 billion GDP, 106,452 supported jobs, and almost \$6.5 billion labor income. To put this into perspective, Republic's direct and indirect employment impacts represent about 0.1 % of total non-farm employment in the United States for 2014.¹⁹ This is also 0.1% of all United States civilians aged 16 and over in employment in 2014.²⁰ The total employment impact also means that for every 1 FTE job year of direct employment at Republic, a further 2.3 indirect and induced jobs are created elsewhere in the United States economy in 2014.

Republic also makes an important contribution to the financing of government services through the payment of direct business taxes, any taxes associated with the income and spending of its employees, and the economic activity of its local suppliers. Table 4 reports key business taxes paid directly by Republic to federal, state and local governments nationwide. Total tax payments to state and local governments, excluding corporate income tax which includes federal and foreign corporate income tax payments, is \$345 million. The table shows that the company's total federal, state and local tax bill in 2014 is at least \$727.4 million.

¹⁸ Excludes indirect impacts of corporate income taxes of the amount of \$382.4 million as data provided by Republic did not separate federal and foreign corporate income tax payments from state and local corporate income tax payments.

¹⁹ Computed based on 2014 private-sector employment data from the U.S. Bureau of Labor Statistics *Quarterly Census of Employment and Wages*.

²⁰ Computed based on 2014 Bureau of Labor Statistics, *Local Area Unemployment Statistics* civilian employment data, Source: Arizona Department of Administration, website: <https://laborstats.az.gov/database-query>, accessed February 1, 2016.

Table 4: Taxes Paid by Republic to Federal, State and Local Governments in the United States, 2014

	TAX PAYMENTS <i>Millions 2014 \$</i>
Corporate Income Taxes ²¹	\$382.4
State Franchise Taxes	\$4.6
Excise Taxes	\$115.4
Highway Taxes	\$3.9
Property Taxes	\$55.8
Sales & Use Taxes on Purchases	\$71.9
Gross Sales Tax on Sales	\$93.4
Total Estimated Taxes	\$727.4

Source: Republic Services

Public service delivery at the state and local level is driven by population. To appreciate the role Republic plays in paying for these services, it is useful to compare Republic’s state and local business tax payments per employee with a nationwide average for an employed worker. Republic’s 2014 state and local business taxes paid from Republic’s nationwide operations amounts to \$10,587 per employee compared to an estimated \$6,000 per worker for all businesses in the United States.²² Republic’s property tax payments per employee is \$1,712 – that is, 76% of the national average for all businesses in 2014.²³

However, this does not convey the real fiscal value of Republic in the United States – specifically the significant quality of, and high remuneration demanded by, the company’s highly-skilled workforce. In 2014, Republic’s 32,588 full-time (or equivalent) employees in the United States account for \$207.5 million in direct state and local payments. If these direct employee tax payments are added to Republic’s direct business taxes of \$727.4 million, this suggests that Republic companywide operations in the United States (including its workforce) pay on average \$28,689 per employee in federal, state and local direct taxes in 2014.

²¹ Includes federal, state, city, and foreign corporate income taxes.

²² Computed using Republic’s business taxes payments excluding corporate income taxes which include federal corporate income tax payments - See Table 4 for details. National average state and local business taxes per worker obtained from the Ernst & Young, *Total State and Local Business taxes: State-by-State Estimates for Fiscal Year 2014*, October 2015 report.

²³ National average computed based on property tax data from Ernst & Young, *Total State and Local Business taxes: State-by-State Estimates for Fiscal Year 2014*, October 2015 report and the U.S. Bureau of Labor Statistics *Quarterly Census of Employment and Wages* private-sector employment data.

Table 5: Impact of Republic’s Operations on Tax Revenues in the United States, 2014

	TOTAL TAX <i>Millions 2014 \$</i>
Property, sales, excise and corporate income taxes paid by Republic ²⁴	\$727.4
Taxes paid directly by Republic employees	\$207.5
Taxes paid indirectly by Republic employees through spending	\$165.1
Taxes generated directly and indirectly by Republic companywide vendor purchases	\$278.2
Total Tax Impact ²⁵	\$1,378.2

Source: Republic Services and Authors’ Calculations

Table 5 estimates the total direct and indirect impact of Republic’s operations on state and local tax revenues in the United States. These figures encompass all of the taxes generated throughout the economic impact process, including taxes associated with the incomes and spending of Republic employees, and the taxes generated when suppliers produce goods and services for use by the company. The total federal, state and local tax impact of Republic and its affiliates nationwide is estimated at \$1.4 billion.

²⁴ Includes federal, state, local and foreign corporate income taxes amounting to \$382.4 million. Data provided by Republic Services

²⁵ Figures may not sum up due to rounding.

4.0 ECONOMIC IMPACT OF REPUBLIC'S 2014 OPERATIONS IN THE STATE OF TEXAS

Republic employs a total of 4,043 workers at its business facilities located in cities and towns in the State of Texas. Total wages and salaries for these Republic employees is over \$227 million per year. If health and retirement benefits are included, the total compensation of these employees is approximately \$262 million.

Total Republic local purchases from Texas-based vendors amount to \$172.6 million in 2014, plus a further \$49.7 million in capital expenditure on non-residential buildings. Excluding the capital expenditure, the three most important categories of vendor payments, in terms of dollars spent, are Waste Management and Remediation Services (45.6%), Repair and Maintenance (21.2%), and Merchant Wholesalers (12.2%). Table 6 lists Republic's local vendor payments in the State of Texas in 2014 by major economic sector.

Table 6: Republic's In-State Vendor Payments by Major Economic Sector in the State of Texas, 2014

	EXCLUDING CAPEX		INCLUDING CAPEX	
	Amount Millions 2014 \$	Percent of Total	Amount Millions 2014 \$	Percent of Total
Waste Management and Remediation Services	\$78.7	45.6%	\$78.7	35.4%
Construction of Buildings (Cell Development)	\$0.0	0.0%	\$49.7	22.4%
Repair and Maintenance	\$36.5	21.2%	\$36.5	16.4%
Merchant Wholesalers, Durable Goods	\$21.1	12.2%	\$21.1	9.5%
Administrative and Support Services	\$15.0	8.7%	\$15.0	6.8%
Professional, Scientific, and Technical Services	\$8.3	4.8%	\$8.3	3.7%
Rental and Leasing Services	\$7.4	4.3%	\$7.4	3.3%
Utilities	\$5.5	3.2%	\$5.5	2.5%
Total²⁶	\$172.6	100.0%	\$222.4	100.0%

Source: Republic Services

Table 7 provides a summary of the total economic impact of Republic's operations in Texas in 2014.

²⁶ Figures may not sum up due to rounding.

Table 7: Impact of Republic Operations on the Economy of the State of Texas, 2014

	GROSS STATE PRODUCT <i>Millions 2014 \$</i>	EMPLOYMENT <i>Job Years</i>	LABOR INCOME <i>Millions 2014 \$</i>
Direct Effects from Republic's Texas Operations	\$343.7	4,043	\$262.1
Direct Effects from In-State Supplier Purchases	\$108.5	1,109	\$70.1
Indirect Effects from Consumer Spending of Republic's Texas Employees	\$113.0	1,366	\$62.7
Indirect Effects related to In-State Supplier Purchases	\$74.6	840	\$43.2
Indirect Effects from Spending out of New State and Local Tax Revenues	\$131.5	1,279	\$93.2
Total Economic Impact ²⁷	\$771.3	8,636	\$531.3

Source: Authors' Calculations

Notes:

1. Labor income equals employee compensation plus proprietor (self-employed) income.
2. GSP equals labor income, property (capital) income, and indirect business taxes (property, corporate and sales).
3. The capital income which accrues to Republic's shareholders worldwide is excluded from GSP in the first line.

The first line of Table 7 shows the **direct** contribution of Republic's operations in the State of Texas. This is estimated at \$343.7 million Gross State Product (GSP), 4,043 jobs, and \$262.1 million labor income. The labor income figure is a broad measure of compensation paid to employees, all of whom are assumed to live in the state. In addition to labor income, the GSP figure includes \$81.6 million of corporate, property and sales business taxes paid directly by Republic to state and local governments. Details are provided in Table 8. Any capital income accrued by Republic's shareholders is excluded from the GSP column for the State of Texas, as the benefits are global, rather than state-specific.

The second line of Table 7 shows the **direct** impacts that are generated in the State of Texas economy through Republic's in-state vendor/supplier purchases. In purchasing \$222.4 million goods and services from Texas-based suppliers (including \$49.7 million capital expenditure with local construction vendors), Republic directly supports \$108.5 million GSP, 1,109 jobs, and \$70.1 million labor income in the state.

²⁷ Figures may not sum up due to rounding.

Realized business or property income is included in this and all subsequent GSP figures in Table 7. Also included in Table 7 line 2's calculations, local business owners and their employees are assumed to receive only 17¢ for every \$1 spent by Republic on purchases from wholesalers and retailers. This is because the value added impacts in wholesale and retail trade only equate to the margin.

The third and fourth lines of Table 7 estimate the **multiplier effects** associated with the consumer spending of Republic's employee, and the production of goods and services purchased from Texas-based vendors. These effects are substantial. As measured by employment, for example, the total of the two multiplier effects is 2,206 jobs, or approximately 42.8% of the sum of the two direct effects.

The fifth line of Table 7 estimates the economic impacts of Republic's state and local government tax revenues. Republic is estimated to generate, both directly and indirectly, at least \$118.3 million in state and local government tax revenues in the State of Texas. The spending of these tax dollars is indirectly responsible for \$131.5 million GSP, 1,279 jobs and \$93.2 million labor income in the State of Texas. These impacts are substantial, as the number of jobs supported by the spending of new tax revenues is equivalent to 31.6% of Republic's full-time and part-time workforce in the state.

The **total impact** of Republic's operations on the State of Texas economy is estimated at \$771.3 million GSP, 8,636 jobs, and \$531.3 million labor income. To put this into perspective, Republic's direct and indirect employment impacts represent 0.1% of all State of Texas civilians aged 16 and over in employment in 2014.²⁸ The total employment impact also means that for every 1 FTE job year of direct employment at Republic in Texas, a further 1.4 indirect and induced jobs are created elsewhere in the state in 2014.

Republic also makes an important contribution to the financing of government services through the payment of direct business taxes, any taxes associated with the income and spending of its employees, and the economic activity of Republic's local suppliers. Table 8 reports the types of business taxes paid directly by Republic in the State of Texas – corporate income, excise, property, and sales taxes. The table shows that Republic's total state and local tax bill in 2014 is \$81.6 million in the State of Texas.

²⁸ This is based on a CY2014 civilian employment figure of 12,447,551. Source: Bureau of Labor Statistics, (2016). *Local Area Unemployment Statistics database – 2014 Annual Averages*, downloaded February 1, 2016, from: <http://www.bls.gov/data/>

Table 8: Taxes Paid by Republic to Governments in the State of Texas, 2014

	TAX PAYMENTS <i>Millions 2014 \$</i>
Corporate Income Tax ²⁹	\$6.3
Excise Taxes	\$4.1
Property Taxes	\$9.1
Sales & Use Taxes	\$10.9
Gross Sales Tax on Sales ³⁰	\$51.2
Total	\$81.6

Source: Republic Services

Public service delivery at the state and local level is driven by population. To appreciate the role Republic plays in paying for these services, it is useful to compare Republic's corporate income, property, and sales business tax payments per employee with a statewide average for an employed worker. Republic's 2014 property and sales taxes in the State of Texas amount to \$20,182 per employee, compared to an estimated state average of \$7,400 per worker for all businesses.³¹ Republic's state and local business tax payments per employee are more than 2.7 times greater than the state average. Republic's corporate income payment per Texas-based employee is more than 5 times greater than the state average for all businesses. However, Republic's property tax is \$2,252 per worker - that is, 74% of the average in Texas.

The direct impact of Republic from a tax perspective in the State of Texas is even greater if corporate direct state and local tax payments of \$81.6 million are added to the \$17.3 million tax payments made by its 4,043 full-time (or equivalent) skilled workforce in 2014. This suggests that Republic Texas and its full-time workforce pay on average \$24,450 per employee in state and local direct taxes in 2014, compared to a Texas-wide average of \$9,279 per employee in 2013 and an estimated \$11,763 statewide average in 2014.³² The presence of Republic in the State of Texas therefore results in an average state and local direct tax payment per employee that is 208% higher than the estimated average contribution made by all workers in the state in 2014.

²⁹ Includes federal, state, city, and foreign income tax

³⁰ Sales tax collected on customer sales and remitted by Republic Services, Inc. & Affiliates

³¹ Source: EY, (2014). *Total State and Local Business Taxes: State-by-State Estimates for Fiscal Year 2014*, downloaded February 1, 2016, from: <http://www.cost.org/WorkArea/DownloadAsset.aspx?id=91531>

³² Source: The 2013 state and local tax figure of 102,372,906,000 in the State of Texas is the latest available (U.S. Census Bureau. 2013 Annual Survey of State and Government Finances, Table SFL003.

Table 9 estimates the total direct and indirect impact of Republic’s operations on state and local tax revenues in the State of Texas in 2014. These figures encompass all of the taxes generated throughout the economic impact process, including taxes associated with the incomes and spending of Republic employees, and the taxes generated when suppliers produce goods and services for use by Republic. The total tax impact of the company is estimated to be \$118.3 million in 2014.

Table 9: Impact of Republic’s Operations on Texas’ State and Local Tax Revenues, 2014

	TOTAL TAX <i>Millions 2014 \$</i>
Property, sales and corporate income taxes paid by Republic Texas	\$81.6
Taxes paid directly by Republic Texas employees	\$17.3
Taxes paid indirectly by Republic Texas employees through spending	\$7.4
Taxes generated directly & indirectly by Republic Texas’s in-state vendor purchases	\$12.1
Total Tax Impact	\$118.3

Source: Republic Services and Authors’ Calculations

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APPENDIX: NAICS TO IMPLAN CROSSWALK

NAICS CODE AND DESCRIPTION	IMPLAN CODE AND DESCRIPTION	REPUBLIC SERVICES PROCUREMENT CATEGORY
22 Utilities	41 Electric Power Generation	Utilities
236 Construction of Buildings	58 Construction of Other New Nonresidential Structures	Cell Development
423 Merchant Wholesalers, Durable Goods	395 Wholesale Trade (Truck, Fleet, and Machinery Parts)	Parts & Maintenance
532 Rental and Leasing Services	445 Commercial and Industrial Machinery and Equipment Rental and Leasing	Lease/Rent Expense
541 Professional, Scientific, and Technical Services	457 Advertising, Public Relations and Related Services 449 Architectural, Engineering, and Related Services 460 Marketing Research and All Other Miscellaneous Professional, Scientific and Technical Services	Advertising, Market Development, LF Engineering Costs
561 Administrative and Support Services	464 Employment Services 468 Services to Buildings 467 Investigation and Security Services	Contract Labor, Building Maintenance, Security
562 Waste Management and Remediation Services	471 Waste Management and Remediation Services 62 Maintenance and Repair Construction of Nonresidential Structure	Third Party Hauling, Subcontract Hauling, Third Party Disposal

Source: Republic Services, IMPLAN 2014 Database, North American industry Classification System, United States Census Bureau.

TECHNICAL APPENDIX: DATA, CALCULATIONS, AND ECONOMIC IMPACT METHODOLOGY

TA.1 Republic Services Employment and Payroll

Republic provided data on number of employees for their operations in the State of Texas and for all their company-wide operations in the United States. Employment totals provided represent employment by place of residence. Wages and salaries totals reported include bonuses and stock payout. Totals for the State of Texas and company total nationwide were provided by Republic.

Total employment compensation or payroll includes wages and salary payments, health and life insurance and retirement benefits. Employment compensation refers to all labor income paid to workers. Total employment and employment compensation are subsumed within Republic direct impacts to the economies of Texas and the United States as a whole.

TA.2 Consumer Spending by Republic Services Employees

The indirect and induced personal income impacts of spending by Republic employees are generated when employees spend a portion of their income on goods and services produced within the local economy.

In the economic analysis, Type SAM multipliers are used to estimate the impacts of Republic employment compensation. SAM multipliers allow for employment compensation leakages to federal, state and local government for social security and to 'domestic trade' for workers who in-commute. Labor income portion paid to workers is distributed to households through IMPLAN's nine income levels developed using Personal Consumption Expenditure (PCE) profiles.

TA.3 Vendor Purchases

The company makes significant contributions to the local economy through its purchases of goods and services from local suppliers. To accurately estimate the impacts of these purchases, Republic provided procurement expenditures by major category type, supplier and state. The company's annual vendor

purchases are extrapolated using data from January through July 2015. This data is used to estimate the company's 2014 calendar year vendor purchases.

Additional information provided includes a directory of all its legal entities identified by state. Each record includes the name of vendor, the amount, the vendor city, and county of location. To incorporate this information into IMPLAN, vendor purchases were aggregated by major company-provided procurement categories and by state. A detailed North American Industry Classification System (NAICS) three-digit code is assigned to each transaction category. These NAICS codes are matched with IMPLAN codes to calculate the economic impacts.

TA.4 The IMPLAN Model

IMPLAN is maintained and licensed by the IMPLAN Group LLC. IMPLAN was originally developed by the USDA Forest Service to assist the Forest Service in land and resource management planning. The USDA Forest Service partnered with the University of Minnesota in 1984 to expand and update IMPLAN. IMPLAN Group Inc. was formed to privatize the development of IMPLAN data and software. IMPLAN data and accounts closely follow the conventions used in the "Input-Output Study of the U.S. Economy" by the Bureau of Economic Analysis (1980).

The specific model used was based on IMPLAN's 2014 economic database. Type SAM multipliers were used with to generate indirect and induced effects of employment compensation and industry sector spending. Sales and local tax revenues generated during the economic impact process are reported. All monetary impacts are expressed in 2014 dollars.

TA.5 Estimating Tax Revenues

One of the objectives of this report was to estimate the total impact of Republic operations on the state and local tax revenues for the states of Texas. Republic provided information on the taxes paid directly by the company – property, severance, sales, etc. Much more difficult to estimate are the taxes paid by Republic employees and any of the other taxes connected with the economic impact process. Many important taxes are local - for example, the property taxes paid to school districts or sales taxes paid to cities. In theory, to estimate these, one would need to have and utilize information with a high degree of

geographic granularity on the incomes and spending of employees, suppliers and anyone else connected with the multiplier process. Such an analysis is beyond the scope of this project.

To make the calculations meaningful, yet manageable, tax revenues generated at any phase of the economic impact process (apart from the business taxes paid directly by Republic) are estimated by multiplying the income attributed to production in that phase by the economic-wide ratio of state and local taxes to gross state product (value added). The most recent year for which this data is available from the Census Bureau is Fiscal Year 2013. In that year, total state and local taxes in Texas represented 6.6 percent of gross state product. In other words, on average, income generated from production in Texas was taxed by state and local governments at a combined rate of 6.6 percent. With these figures in mind, taxes connected with the income earned and spent by Republic employees was estimated by taking 6.6 percent of their labor income in Texas.

Taxes associated with the production of goods and services that Republic purchased from Texas suppliers were estimated by taking 6.6 percent of the income generated from that production. Taxes associated with the multiplier process were also estimated in this way.

Inherent in our methodology is the inability to separate state taxes from taxes accruing to local governments. Estimates of tax impacts are reported at the state level only.

TA.6 Spending of Tax Revenues

One channel worthy of recognition in the economic impact process is Republic's effect on the State of Texas' economy via the spending of new revenues by state and local governments. This also cannot be estimated at local levels of government as all revenues are rolled to the state level. Estimates of tax impacts are reported at the state level only.

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