

ECONOMIC IMPACT ANALYSIS

Long Beach Transit's Economic Impact
on the State of California and on the
Counties of Los Angeles and Orange





LONG BEACH

TRANSIT

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About the Office of Economic Research

Overview

Long Beach Transit (LBT) is a public transportation agency that provides fixed-route bus, water taxi, and paratransit services to those who live, work, and play in the greater Long Beach metropolitan area. More than 23 million customers board LBT vehicles each year.

LBT operates about 250 buses in 14 cities throughout Los Angeles and Orange counties, covering a service area of 100 square miles. All LBT buses are accessible by mobility devices such as wheelchairs. And almost 90 percent are alternatively-fueled, including 125 that run on compressed natural gas, 88 hybrid-electric buses, and 10 fully electric buses.

With an annual operating budget of over \$100 million and more than 800 employees, LBT has a significant impact on the regional and state economies. Every dollar spent by LBT annually generates \$2.25 in economic output for California. And each LBT employee creates enough economic value to support 1.78 jobs in the state each year.



This report measures those economic impacts in terms of jobs, income, and economic value created. Of course, LBT's contributions to the region and state are far more extensive. LBT provides access to communities and employment centers, often for those who are socioeconomically disadvantaged, thereby contributing to the equity, inclusivity, and diversity of the region.

Highlights

In the California economy, Long Beach Transit annually supports:

- **\$224.8 million** in economic output
- **1,536** jobs
- **\$99.7 million** in labor income
- **\$225** in economic output for every \$100 it spends
- **178** jobs for every 100 people it employs

Long Beach Transit's Ridership is: ¹

- **62.7%** with annual household incomes below \$30,000
- **7.8%** unemployed and looking for work
- **41.9%** work commuters
- **37.3%** school commuters
- **51.4%** Latinx and **20.9%** African American

Expenditure Profile



The expenditures made by LBT on its operations and capital equipment generate economic activity that propagates and multiplies throughout the region and state. Because economic impact analysis is driven by expenditures, an overview of LBT’s expenditures helps to understand LBT’s recurring economic impact on the region and state.

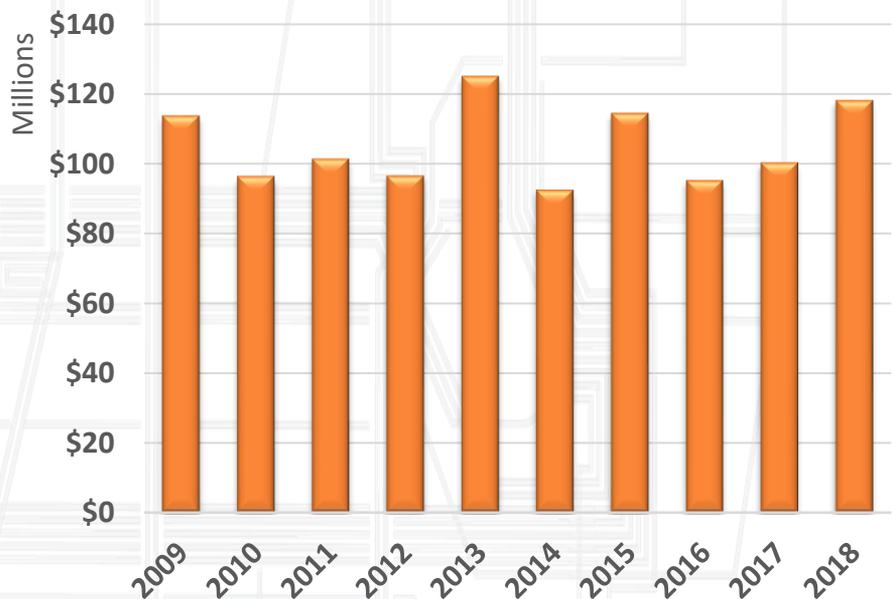
Here we summarize LBT’s operating and capital expenditures in recent years, including its spending outside of California. Operating expenditures include payroll, fuel, supplies, business services, and other regular purchases. Capital expenditures include vehicles, land, buildings, facilities, equipment, and other durable assets.

Total Operating & Capital Expenditures

Figure 1 provides a history of LBT’s total expenditures since 2009, adjusted for inflation (in 2018 dollars).

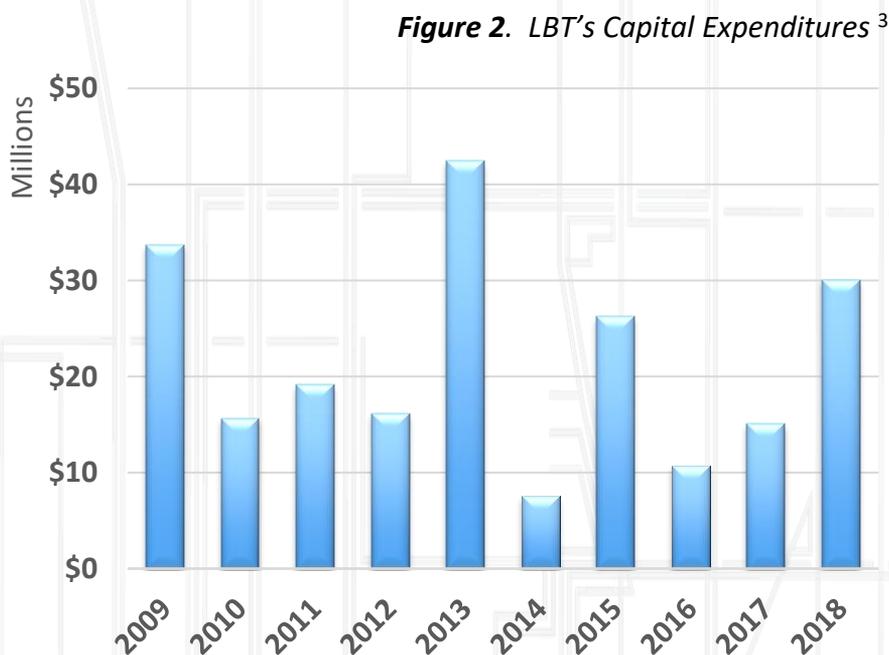
Note that LBT’s inflation-adjusted expenditures only increased by about 3.9% from 2009 through 2018.

Figure 1. LBT’s Total Operating & Capital Expenditures ²



Capital Expenditures

LBT is a capital-intensive operation as it requires recurring investments in buses, bus stops, maintenance facilities, and other durable assets. **Figure 2** shows a history of LBT’s capital expenditures since 2009, adjusted for inflation (in 2018 dollars).



LBT’s capital expenditures vary substantially from year-to-year based on vehicle depreciation and the availability of capital grants, among other factors. That explains much of the variation in the total operating and capital expenditures shown in **Figure 1** on the previous page.

Expenditures and Economic Impact Analysis

In the economic impact analysis that follows, LBT’s Fiscal Year 2018 expenditures are used in estimating LBT’s annual economic impact on the combined economies of Los Angeles County and Orange County, and on California. Expenditures made outside of California are omitted to the extent that they would not impact the region or state.

The irregularity of capital expenditures implies that focusing on capital spending in just one year would result in mistating LBT’s annual economic impact. In the analysis that follows, a five-year average of LBT’s most recent capital expenditures is used to represent a “typical” capital-expenditure year for the agency.

Economic Impact Analysis

Long Beach Transit’s annual economic impact was estimated at three geographic levels:

1. The combined economies of Los Angeles County and Orange County (LA/OC)
2. California, excluding the counties of Los Angeles and Orange
3. All of California, including the counties of Los Angeles and Orange

Table 1. Regional Employment and Output ⁴

Table 1 summarizes the total employment and economic output in each region considered.

	Los Angeles & Orange Counties	Rest of California	All California
Jobs	8.7 million	6.2 million	14.9 million
Economic Output	\$1.6 trillion	\$1.2 trillion	\$2.8 trillion

Economic impacts were estimated using a specialized software system called IMPLAN, which employs sophisticated, data-driven economic models to determine how various types of expenditures are transmitted and multiplied throughout the region and state. For example, LBT’s employees spend their wages on housing, clothing, groceries, and other goods and services, which creates income for local businesses. Similarly, LBT’s spending on equipment and business services generates income for its suppliers and vendors. LBT’s spending thus creates income, which generates further spending that multiplies throughout the regional economy. IMPLAN can measure the size of that multiplier effect for many different types of originating expenditures.

LBT’s economic impacts were estimated by supplying IMPLAN’s economic models with all of LBT’s Fiscal Year 2018 expenditures, carefully and laboriously mapped to hundreds of spending categories and industry sectors. The resulting economic impact analyses estimate the full extent to which LBT’s operating and capital expenditures multiply throughout the regional and state economies.

Special attention was paid to the linkages between the LA/OC region and the rest of California. For example, some employees commute to LBT from outside the LA/OC region. The economic impact of their housing expenditures, therefore, occurs outside that region, whereas some of their consumption (e.g. gas for the commute home) creates an impact within the region. At the same time, some of their spending outside the region generates economic activity within the region (e.g. more gas purchased outside the region increases the demand for gas that is refined within the region).

Technically speaking, a “multi-regional input-output” (MRIO) model was employed to accommodate those interregional and intraregional linkages. Doing so also avoided “double-counting” economic impacts when estimating them at the state level.

LBT’s economic impacts are reported in three general categories: direct, indirect, and induced

Direct Impacts

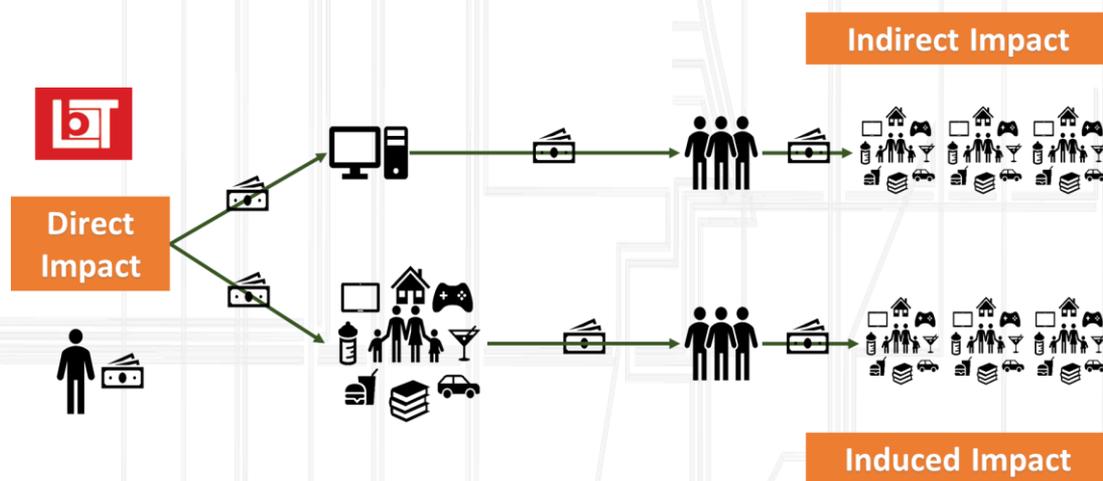
Reflect LBT’s direct expenditures, before considering how they multiply throughout the region and state

Indirect Impacts

Measure how LBT’s expenditures among its suppliers and vendors multiply throughout the region and state

Induced Impacts

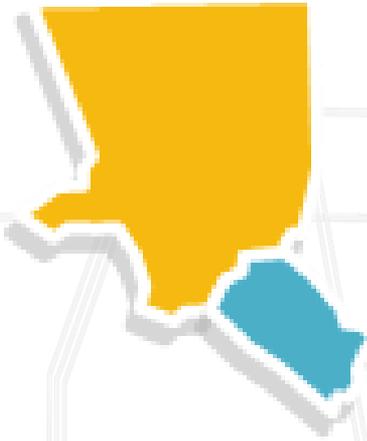
Measure how the spending of LBT’s employees on goods and services multiply throughout the region and state



Those impacts are presented in three key economic dimensions for each region:

- **Employment:** Number of jobs supported or created by LBT
- **Labor Income:** Dollar value of wages generated by LBT
- **Output:** Dollar value of the economic output generated by LBT

The top five industrial sectors in which LBT has the largest economic impacts are reported for each regional analysis. Also reported are LBT’s fiscal impacts in each region, measured by federal, state, and local tax revenues that result from the economic activity generated by LBT in that region.



Economic Impacts on Los Angeles County and Orange County

Table 2 summarizes LBT’s economic impact on the combined economies of Los Angeles County and Orange County, in terms of employment, labor income, and economic output.

Table 2. *LBT’s Economic Impacts on the LA/OC Region* ⁵

	Employment	Labor Income	Economic Output
Direct Impact	815	\$52,423,905	\$91,402,376
Indirect Impact	264	\$20,044,736	\$55,907,720
Induced Impact	340	\$19,430,524	\$56,123,955
Total Impact	1,419	\$91,899,164	\$203,434,052

LBT has 815 employees who live in the region, earning over \$52 million in the most recent fiscal year.⁶ Combining that with all other LBT expenditures within the region yields a total expenditure (i.e. direct output) of over \$91 million.

The Economic Output column in **Table 2** shows that LBT’s \$91 million in direct spending creates an **additional** \$55.9 million in economic output from their spending with suppliers and vendors (indirect impact), and an **additional** \$56.1 million from their employees’ consumption of goods and services (induced impact). In total, the estimated annual economic impact of LBT’s operations on the region is \$203.4 million.

The Employment column of **Table 2** shows that LBT annually creates or sustains an **additional** 604 jobs in the region when summing the indirect and induced impacts of its operations. Adding the 815 workers directly employed by LBT implies that LBT’s total employment impact in the region is 1,419 jobs each year. That employment generates \$91.9 million labor income each year, as indicated in the table’s Labor Income column.

Table 3 shows the top five industrial sectors impacted by LBT in terms of creating or sustaining **additional jobs** in the region. For instance, LBT’s expenditures with suppliers and vendors (indirect impact) leads to an additional 30.4 jobs each year in the “Other financial investment activities” sector. Spending by LBT’s employees (induced impact) leads to an additional 8.1 jobs each year in that sector.

Table 3. LBT Employment Impacts: Top 5 Sectors Impacted in LA/OC Region ⁷

Industry Sector Impacted	Indirect Employment Impact	Induced Employment Impact	Total Employment Impact
Other financial investment activities	30.4	8.1	38.5
Funds, trusts, and other financial vehicles	30.6	2.2	32.8
Insurance agencies, brokerages, and related activities	21.6	4.6	26.2
Retail - Gasoline stores	20.8	1.5	22.2
Full-service restaurants	2.2	19.3	21.4

Table 4 shows the top five industrial sectors impacted by LBT in terms of creating **additional economic output** in the region. The table shows LBT’s substantial impacts in sectors related to financial investments, real estate, home ownership, and insurance. LBT annually generates over \$38 million in additional economic activity in those sectors alone.

Table 4. LBT Output Impacts: Top 5 Sectors Impacted in LA/OC Region

Industry Sector Impacted	Indirect Output Impact	Induced Output Impact	Total Output Impact
Funds, trusts, and other financial vehicles	\$11,571,589	\$845,687	\$12,417,275
Other financial investment activities	\$6,380,392	\$1,692,345	\$8,072,738
Owner-occupied dwellings	\$0	\$7,220,192	\$7,220,192
Real Estate	\$1,490,920	\$4,335,154	\$5,826,074
Insurance agencies, brokerages, and related activities	\$3,999,377	\$847,772	\$4,847,150

LBT also stimulates over \$9 million annually in federal tax revenues, and over \$6 million annually in state and local tax revenues. Note that LBT does not directly pay taxes.

Table 5. LBT Fiscal Impacts: Federal, State, & Local Tax Revenues Stimulated in LA/OC Region ⁸

Federal Tax Revenue	State & Local Tax Revenue	Total Tax Revenue
\$9,080,682	\$6,018,916	\$15,099,598



Economic Impacts on the Rest of California

This section describes LBT’s economic impacts on the economies of areas outside of the LA/OC region, referred to herein as the “rest of California”. It demonstrates how LBT’s operations create employment, income, and economic output well beyond its service area.

Table 6 summarizes LBT’s employment, labor income, and output impacts outside of the LA/OC region. LBT has 49 employees in the rest of California with a total payroll of \$3.2 million. Its total spending in the rest of California is \$8.7 million.

Table 6. LBT’s Economic Impacts on the Rest of California

	Employment	Labor Income	Economic Output
Direct Impact	49	\$3,219,349	\$8,658,928
Indirect Impact	40	\$2,934,551	\$7,911,276
Induced Impact	28	\$1,630,275	\$4,758,037
Total Impact	117	\$7,784,176	\$21,328,241

Table 6 shows that LBT annually creates an **additional** 68 jobs and an **additional** \$12.7 million in economic activity outside of the LA/OC region. LBT’s total economic impact on the rest of California is \$21.3 million.

Table 7 shows the top five industrial sectors impacted by LBT in terms of creating or sustaining **additional jobs** outside of the LA/OC region. The most impacted sector is “Insurance agencies, brokerages, and related activities,” in which LBT creates or sustains an additional 6.4 jobs per year.

Table 7. LBT Employment Impacts: Top 5 Sectors Impacted in the Rest of California

Industry Sector Impacted	Indirect Employment Impact	Induced Employment Impact	Total Employment Impact
Insurance agencies, brokerages, and related activities	6.06	0.36	6.42
Management consulting services	2.80	0.16	2.96
Services to buildings	2.39	0.50	2.89
Employment services	1.88	0.41	2.29
Real estate	0.96	1.28	2.24

Table 8 shows the top five industrial sectors impacted by LBT in terms of creating **additional economic output** in the rest of California. LBT’s largest impact is on “Insurance agencies, brokerages, and related activities,” generating an additional \$1.1 million in annual economic activity.

Table 8. LBT Output Impacts: Top 5 Sectors Impacted in the Rest of California

Industry Sector Impacted	Indirect Output Impact	Induced Output Impact	Total Output Impact
Insurance agencies, brokerages, and related activities	\$1,065,619	\$62,987	\$1,128,606
Petroleum refineries	\$650,815	\$37,139	\$687,954
Owner-occupied dwellings	\$0	\$684,331	\$684,331
Real estate	\$262,732	\$344,519	\$607,251
Wholesale trade	\$328,808	\$183,773	\$512,581

In the rest of California, LBT stimulates over \$1 million annually in federal tax revenues, and about \$700,000 annually in state and local tax revenues, as shown in **Table 9**.

Table 9. LBT Fiscal Impacts: Federal, State, & Local Tax Revenues Stimulated in Rest of California

Federal Tax Revenue	State & Local Tax Revenue	Total Tax Revenue
\$1,035,193	\$698,880	\$1,734,073



Economic Impacts on California

This section combines the economic impact analyses for the LA/OC region and the rest of California to describe LBT’s total economic impact on the State of California.

Table 10. *LBT’s Economic Impacts on California*

	Employment	Labor Income	Economic Output
Direct Impact	864	\$55,643,254	\$100,061,304
Indirect Impact	303	\$22,979,287	\$63,818,996
Induced Impact	368	\$21,060,799	\$60,881,993
Total Impact	1,536	\$99,683,340	\$224,762,293

Each year, Long Beach Transit creates a total economic impact of about \$225 million for the state, as shown in **Table 10**. Put differently, LBT’s \$100 million expenditure in the state contributes an **additional** \$124.7 million to the state’s economic output each year.

LBT also supports over 1,500 jobs state each year, including 671 **additional jobs** for those not employed by LBT. That additional employment annually generates an **additional** \$44 million in labor income. The average compensation for each additional job created or sustained by LBT is over \$65,000 per year.

Table 11 shows the top five industrial sectors impacted by LBT in terms of creating or sustaining **additional jobs** in California. In those five sectors alone, LBT creates or sustains an additional 151 jobs in California each year.

Table 11. *LBT Employment Impacts: Top 5 Sectors Impacted in California*

Industry Sector Impacted	Indirect Employment Impact	Induced Employment Impact	Total Employment Impact
Other financial investment activities	30.9	8.7	39.6
Funds, trusts, and other financial vehicles	30.6	2.4	33.0
Insurance agencies, brokerages, and related activities	27.7	4.9	32.7
Full-service restaurants	2.5	20.8	23.4
Retail - Gasoline stores	20.8	1.6	22.4

Table 12 shows the top five industrial sectors impacted by LBT in terms of creating **additional output** throughout California. In these five sectors alone, LBT annually generates an additional \$41.1 million in economic output in the state.

Table 12. *LBT Output Impacts: Top 5 Sectors Impacted in California*

Industry Sector Impacted	Indirect Output Impact	Induced Output Impact	Total Output Impact
Funds, trusts, and other financial vehicles	\$11,589,119	\$917,876	\$12,506,995
Other financial investment activities	\$6,478,054	\$1,817,455	\$8,295,508
Owner-occupied dwellings	\$0	\$7,904,522	\$7,904,522
Real estate	\$1,753,652	\$4,679,673	\$6,433,325
Insurance agencies, brokerages, and related activities	\$5,064,997	\$910,759	\$5,975,756

LBT’s fiscal impact on the California, in terms of the federal, state, and local tax revenues it stimulates, is shown in **Table 13**. Each year, LBT’s operations yield \$10.1 million in federal tax revenues, and \$6.7 million in state and local tax revenues, or \$16.8 million in total fiscal impact.

Table 13. *LBT Fiscal Impacts: Federal, State, & Local Tax Revenues Stimulated in California*

Federal Tax Revenue	State & Local Tax Revenue	Total Tax Revenue
\$10,115,875	\$6,717,796	\$16,833,671

People

Long Beach is the single city in which the largest concentration of Long Beach Transit employees live, although most live outside of the city, as shown in **Figure 3**. The geographic dispersion of LBT's employees illustrates the breadth of LBT's economic contributions to the Southern California economy.

In **Figure 4**, dots represent zip codes where LBT employees live. Dots with "hotter" centers indicate a greater concentration of employees. The "hottest" zip code is 90805 in North Long Beach, where 94 LBT employees live (11%).

Figure 3. LBT Employee Residential Cities ⁹

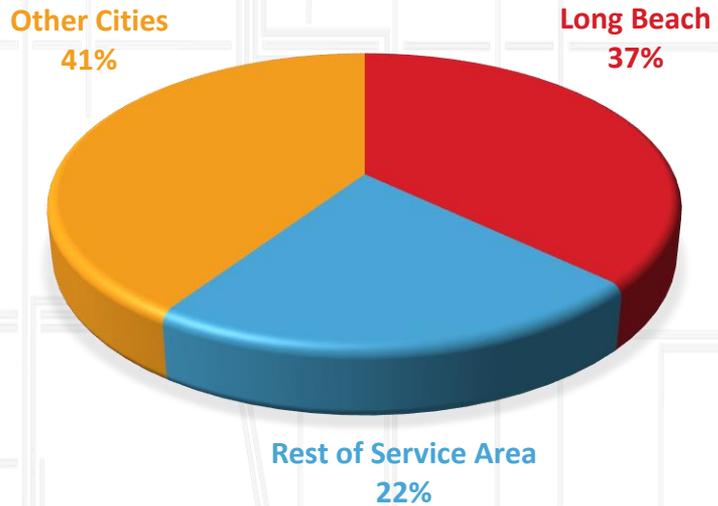
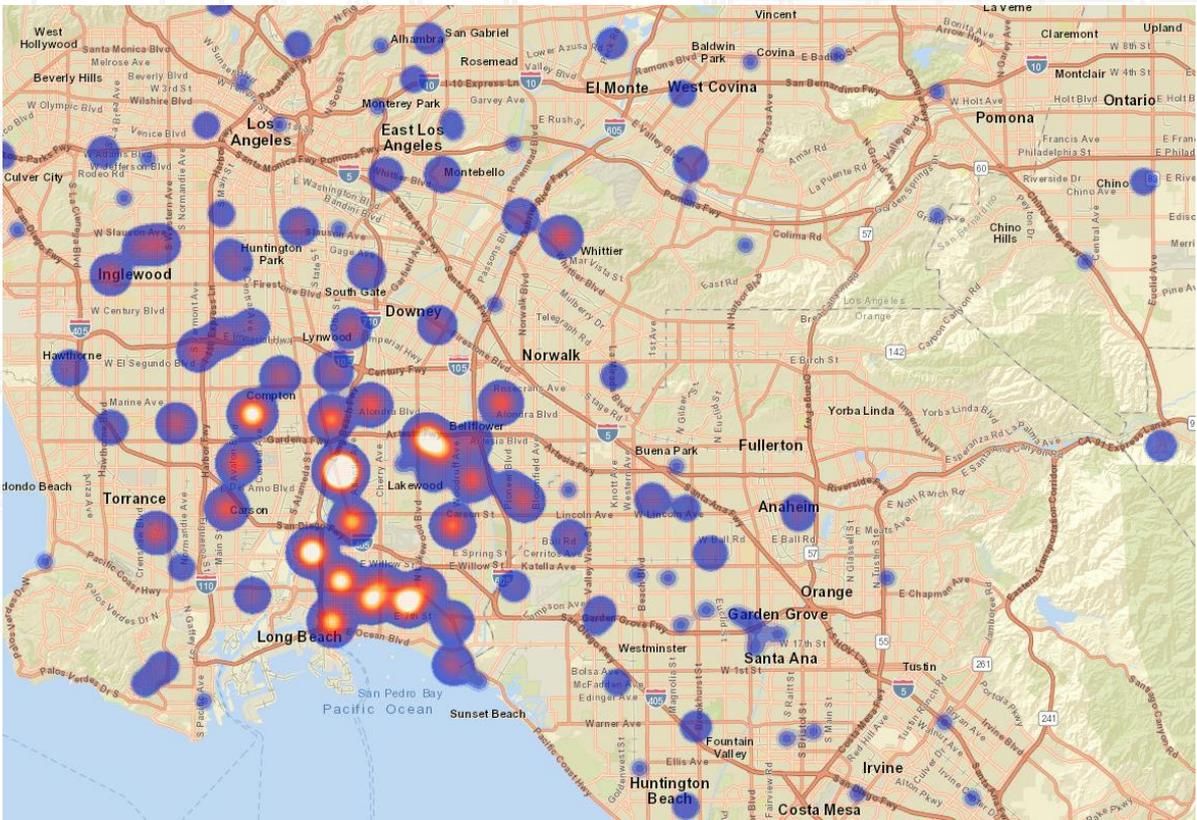


Figure 4. Heat Map of LBT Employee Residential Locations ¹⁰



Summary of Economic Impacts

Table 14 summarizes LBT’s annual economic impact in terms of economic output, employment, and tax revenues for each region considered. The output and employment impact measures are accompanied by “multipliers”, which demonstrate how LBT’s expenditures and employment multiply throughout the economy. For example, the “Output Multiplier” in the table for the “All California” column is 2.25, which means that each dollar of LBT’s operating expenditures leads to \$2.25 worth of economic output in the state each year. Similarly, the “Employment Multiplier” given in the table for “All California” indicates that each person employed by LBT generates enough economic activity to support 1.78 jobs in California each year.

Table 14. Summary of Long Beach Transit’s Economic Impacts by Region

	Los Angeles & Orange Counties	Rest of California	All California
Direct Output	\$91,402,376	\$8,658,928	\$100,061,304
Indirect & Induced Output	\$112,031,675	\$12,669,313	\$124,700,989
Total Output	\$203,434,052	\$21,328,241	\$224,762,293
Output Multiplier	2.23	2.46	2.25
Direct Employment	815	49	864
Indirect & Induced Employment	604	68	671
Total Employment	1,419	117	1,536
Employment Multiplier	1.74	2.39	1.78
Federal Tax Revenue	\$9,080,682	\$1,035,193	\$10,115,875
State & Local Tax Revenue	\$6,018,916	\$698,880	\$6,717,796
Total Tax Revenue	\$15,099,598	\$1,734,073	\$16,833,671

Appendix

Notes and Data Sources

1. Source: *2020 Long Beach Transit Customer and Potential Customer Evaluation Surveys*
2. Sources: *Long Beach Transit 2018 Comprehensive Annual Financial Report*; Long Beach Transit Finance and Budget Department
3. Sources: *Long Beach Transit 2018 Comprehensive Annual Financial Report*; Long Beach Transit Finance and Budget Department
4. IMPLAN 2018 Model Year
5. For the “Direct Impact” row of Table 2, employment, labor income, and economic output figures were gathered through extensive research with the Long Beach Transit Finance and Budget Department, including several on-site research sessions. Figures indicated in the “Indirect Impact” and “Induced Impact” rows were calculated by the California State University, Long Beach Office of Economic Research using IMPLAN’s multi-regional input-output modeling facility. A similar process was followed to develop Tables 6 and 10, but with expenditures and impacts corresponding to the region being analyzed. In Table 6, only employment, expenditures, and impacts occurring outside of Los Angeles County and Orange County, but within California, are reported. In Table 10, employment, expenditures, and impacts occurring throughout all of California are reported.
6. The number of LBT employees reported for each region reflect the total number of people employed across the fiscal year, including additions and separations. For example, 815 people were employed by LBT in LA/OC at some point during Fiscal Year 2018, which could differ from the number employed at a specific time during the year.
7. The indirect and induced employment impacts reported in Table 3 are derived from the **additional** economic output generated by LBT in the LA/OC region, as opposed to LBT’s direct output. For example, LBT does not operate any full-service restaurants. However, the wages paid to its employees are spent, in part, on restaurants, which support an additional 19.3 restaurant jobs in the two counties. Similarly, the employees of LBT’s vendors and suppliers also spend some of their wages on restaurants, supporting an additional 2.2 jobs in the region. The impacts in Table 4 are similarly generated, but in terms of additional economic output supported. For example, LBT operates buses that must be insured, creating or sustaining close to \$4 million of additional economic activity in the region’s “Insurance agencies, brokerages, and related activities” sector. The same process is used to develop the impacts reported in Tables 7, 8, 11, and 12, but with regard to the region being analyzed. Below are brief examples of activities occurring in the industry sectors featured in those tables:

Industry Sector	Example	Industry Sector	Example
Employment services	<i>Temporary staffing</i>	Owner-occupied dwellings	<i>Family houses</i>
Full-service restaurants	<i>Family restaurants</i>	Petroleum refineries	<i>Fuel manufacturing</i>
Funds, trusts, & other financial vehicles	<i>Health & Pension funds</i>	Real estate	<i>Apartment rental</i>
Insurance agencies, brokerages, & related	<i>Vehicle insurance</i>	Retail - Gasoline stores	<i>Gas stations</i>
Management consulting services	<i>Transportation consulting</i>	Services to buildings	<i>Building cleaning</i>
Other financial investment activities	<i>Invested benefits funds</i>	Wholesale trade	<i>Vehicle parts</i>

8. LBT does not directly pay taxes, so the tax revenues it stimulates are derived from the additional, taxable output of its suppliers and vendors, and the additional taxable income of its employees. Those tax revenues are reported for each region in Tables 5, 9, and 13. The bulk of federal tax revenues are generated from taxes on employee compensation and households. State and local tax revenues mostly comprise taxes on production and imports, and sales taxes paid by households.
9. Source: Long Beach Transit Finance and Budget Department. Note that all reported employment impacts are based on total employment and payroll expenditures in a given year, as opposed to the number of full-time-equivalent employees.
10. Sources: Long Beach Transit Finance and Budget Department; Esri ArcGIS; PolicyMap

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About the Office of Economic Research at the California State University, Long Beach

The Office of Economic Research, housed in the university's Department of Economics, conducts applied economic research that supports the mission of the university by tackling important problems facing the region, state, and nation. It integrates scholarship and learning through collaboration between faculty experts and promising students. Ongoing projects include the annual *Long Beach Regional Economic Forum*, the annual *Long Beach Latino Economic Report*, economic impact analyses for regional stakeholders, and data-driven community engagement efforts.

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