



Date: April 6, 2018

To: Patrick H. West, City Manager *PW*

From: John Keisler, Director of Economic Development *JK*

For: Mayor and Members of the City Council

Subject: Economic Impact Study for 2017 Grand Prix of Long Beach

On August 8, 2017, after an extensive RFP process, the City Council authorized the City to enter into an Exclusive Negotiating Agreement with the Grand Prix Association of Long Beach, LLC (GPALB). One of the many deal points the City Council directed the City Manager to negotiate was the requirement that GPALB conduct an Economic Impact Study of the race. Staff successfully negotiated this provision into the subsequent agreement approved by City Council on December 5, 2017.

GPALB engaged Beacon Economics to analyze the economic, fiscal, and social impacts of the 2017 Grand Prix of Long Beach to the City of Long Beach, as well as to the Southern California region (Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara, and Ventura Counties). Beacon Economics was tasked with identifying impacts in the areas of increased economic output, support of year-round jobs, increased labor income for workers, and additional tax revenues realized.

According to the Economic, Fiscal and Social Impacts of the 2017 Toyota Grand Prix of Long Beach report (attached), the 2017 event generated \$33.7 million in direct expenditures in Southern California. Overall, the three-day event:

- Increased economic output in Southern California by \$63.4 million, of which \$32.4 million was concentrated in Long Beach;
- Supported the equivalent of 606 year-round jobs, including 351 in Long Beach;
- Increased labor income for workers in Southern California by \$24.4 million, including \$12.9 million in Long Beach; and,
- Generated an estimated \$1.8 million in tax revenue for local governments, including \$700,000 in Long Beach.

Please contact me at (562) 570-5282 or john.keisler@longbeach.gov with any questions.

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ECONOMIC, FISCAL AND SOCIAL IMPACTS OF THE

2017 TOYOTA GRAND PRIX OF LONG BEACH





EXECUTIVE SUMMARY

This report presents the economic impact of the 2017 Toyota Grand Prix of Long Beach on the City of Long Beach and Southern California. Through this report, Beacon Economics will show that the Grand Prix Association of Long Beach, event attendees, exhibitors and race teams greatly affected the regional economy.

Based on expenditure data from the Grand Prix Association, along with a comprehensive survey of event attendees, exhibitors and race teams, the 2017 event generated \$33.7 million in direct expenditures in Southern California. Overall, the three-day event:

¹ Southern California here refers to Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara and Ventura counties.



Increased economic output in Southern California by **\$63.4 million**, of which **\$32.4 million** was concentrated in Long Beach

Supported the equivalent of **606 year-round jobs**, including **351 in Long Beach**

Increased labor income for workers in Southern California by **\$24.4 million**, including **\$12.9 million** in Long Beach

Generated an estimated **\$1.8 million** in tax revenue for local governments, including **\$700,000** in Long Beach

Southern California Economic Impact Summary

	EMPLOYMENT	LABOR INCOME (\$)	OUTPUT (\$)
DIRECT EFFECT	423	\$14,180,967	\$33,654,841
INDIRECT EFFECT	76	\$4,739,481	\$13,437,397
INDUCED EFFECT	106	\$5,497,602	\$16,271,834
TOTAL	606	\$24,418,050	\$63,364,073

City of Long Beach Economic Impact Summary

DIRECT EFFECT	284	\$9,077,855	\$21,651,311
INDIRECT EFFECT	28	\$1,745,633	\$4,873,594
INDUCED EFFECT	40	\$2,046,427	\$5,911,278
TOTAL	351	\$12,869,916	\$32,436,183





ABOUT THE TOYOTA GRAND PRIX OF LONG BEACH

Since 1975, the streets of Long Beach have been home to some of the world's greatest racing. The street circuit showcases some of the most attractive parts of the City, and its location in the heart of downtown allows visitors to experience the City's beautiful coastline, urban waterfront, restaurants, hotels and recreational facilities.

The 2017 Toyota Grand Prix of Long Beach took place April 7 to 9 and marked the 43rd year of the event. The event included five racing series: Verizon IndyCar Series, Stadium Super Trucks, Bubba burger Sports Car Grand Prix at Long Beach, Pirelli World Challenge and two nights of the Motegi Racing Super Drift Challenge. In addition, the 2017 event introduced the Can-Am Challenge, which included 1,000-horsepower classics that ruled sports car racing in the 1960s and 1970s.

The event offered experiences beyond racing. Attendees could explore the Lifestyle Expo and Family Fun Zone, which included model car racing, video games, dance masters, bubble rollers, driver autograph sessions and the K1 Speed Go-Kart track. Admission to two concerts was included with each ticket. Tecate Light's Fiesta Friday concert starred Mexican rock band Moderatto. Saturday night, SMG Presents Kings of Chaos featured Billy Idol, Billy Gibbons of ZZ Top and Chester Bennington of Linkin Park.



PARTICIPANTS

To estimate the local economic impact, Beacon Economics considered spending by all participants at the 2017 event: the Grand Prix Association, exhibitors and race teams, and attendees.

Attendees

Attendees were responsible for most of the economic impact. Beacon administered an online survey to attendees six months after the event, requesting spending data from their time in the Long Beach area.

The Grand Prix Association of Long Beach

The Grand Prix Association's expenditures were extensive. Expenses included event-related expenditures such as equipment rental, security detail, safety, transportation, food and beverages, and insurance, as well as expenditures related to the year-round operations of the association. The association provided spending data for this study.

Exhibitors

Expenditures by exhibitors were also significant at the 2017 event. Like attendees and race teams, exhibitors were surveyed six months after the event about their spending in the Long Beach area. Their expenses included food and beverages, lodging, transportation and other goods purchased from the local economy to support their exhibit.

Race Teams

These participants also incurred substantial expenditures and were surveyed six months after the event. Race teams are large-scale operations that require their members to arrive well ahead of the event to prepare. In turn, though they may not spend significant money on race days, they spend more than most attendees before and after the event.



EXPENDITURES

As with any economic impact analysis, the first step of this study assesses all spending associated with the 2017 Toyota Grand Prix of Long Beach. These expenditures form the basis of the study because they represent initial demand for goods and services in the local economy. In turn, this spending creates job opportunities for residents as local firms expand to meet the additional demand. Some if not much of the additional labor income associated with these jobs will then be spent in the local economy, creating secondary impacts. The sum of expenditures by attendees, the Grand Prix Association, exhibitors and race teams is used to determine the total economic impact of the event.



Distinguishing between local and visiting attendees is key to determining the economic impact”

Attendees Two pieces of information are required to determine the direct expenditures made by attendees: the proportion of local (Southern California) attendees and spending per person. Using Zip codes from transaction records of 2017 ticket buyers, Beacon determined attendees’ home cities and the number of tickets bought or handed out each day. Eighty-one percent of ticket purchases were from residents of Southern California, and 19% were from other parts of California, other states or other countries.

Distinguishing between local and visiting attendees is key to determining the economic impact of an event, because visiting attendees spend more on average than their local counterparts. Beacon Economics accounted for this distinction by using two spending patterns, local and visitor, based on its survey findings. As expected, visiting attendees did spend more on average than locals at the event and at nearby businesses and attractions, with much of the difference coming from accommodations costs. Many local attendees did not require lodging.



Survey respondents were specifically asked to exclude money spent on tickets, because revenue from ticket purchases would not necessarily be spent in Southern California or the City of Long Beach. Although some ticket revenue would have been used to produce the event, a portion might have been paid to sanctioning bodies or other entities outside the Southern California economy. Therefore, ticket revenue was omitted from the economic impact analysis.

Using total attendance (183,000+) figures, the proportion of local and visiting attendees, and the average daily expenditures by each group of attendees, Beacon Economics estimated total attendee expenditures before, during and after the 2017 event. Residents of Southern California spent an estimated \$12.5 million, while visiting attendees spent an estimated \$7.4 million, for a total of \$19.9 million. Of this, \$16.7 million was spent in the City of Long Beach.

The Grand Prix Association

The Grand Prix Association's expenditures were a significant contributor to the regional and Long Beach economy directly. The association's expenditures for the 2017 Toyota Grand Prix of Long Beach totaled \$9.5 million in Southern California, of which \$2.3 million represented expenditures at businesses in the City of Long Beach. The association spent a large amount in the regional and Long Beach economy on equipment rental, security, advertising, track preparation, track removal and cleanup, among other expenditures. Because this report quantifies only the economic impact of the event on the local economy, expenditures outside Southern California, such as any sanctioning fees, were excluded. Yet to the extent that some of these excluded expenditures would have a local impact, the association's portion of the overall economic impact represents a conservative estimate.



Race Teams

Grand Prix Association data showed that 10% of the race teams came from Southern California and 90% from outside the area. Beacon Economics surveyed teams to determine average spending by category and number of days spent in town. Race teams and exhibitors tended to spend more days in town than attendees.

Using dollars spent by category, the proportion of local and visiting race teams, and the average daily expenditures by each group of teams, Beacon Economics estimated spending by Southern California race teams to be \$100,000 and spending by visiting race teams to be \$3.0 million, for a total of \$3.1 million. Of this, \$2.1 million was spent in the City of Long Beach.

Total Direct Expenditures

Analyzing expenditure data for each group that participated in or attended the 2017 event, Beacon found that the event generated a total of \$33.7 million in spending in Southern California, with \$21.7 million of this occurring directly in the City of Long Beach.



ECONOMIC AND FISCAL IMPACTS

Direct, Indirect and Induced Effects

Direct expenditures by the Grand Prix Association and each type of event attendee or participant formed the basis of the economic impact of the 2017 Toyota Grand Prix of Long Beach. That spending moved throughout the economy of Southern California, from businesses to other businesses, from businesses to workers, and from workers to other businesses. This is known as a multiplier effect, in which initial spending reverberates through the economy, generating more spending than would have occurred if not for the event having taken place. In particular, the 2017 Toyota Grand Prix of Long Beach was responsible for generating millions of dollars of economic activity that would not have otherwise come to Southern California, as visitors brought money in from other areas.

“The 2017 Toyota Grand Prix of Long Beach was responsible for generating millions of dollars of economic activity that would not have otherwise come to Southern California”



To detail this multiplier effect, Beacon Economics used IMPLAN models, which enable researchers to estimate the total economic impact of an event by modeling direct, indirect and induced effects of expenditures for various geographies, in this instance, Southern California and Long Beach.

Indirect economic effects refer to spending that occurs down the supply chain from the Grand Prix Association and its participants and visitors at other businesses. For example, indirect economic activity includes local restaurants' using dollars from event attendees to buy menu ingredients from local suppliers. The restaurants buy some of the ingredients used to make a pizza, for instance, from local suppliers, generating an indirect impact.

Induced economic effects begin with additional income earned by employees in the course of producing the event that is then spent at local businesses. For example, an attendee who buys a slice of pizza from a local restaurant generates a direct impact.

The employees working at the restaurant and the employees working at suppliers earn additional income through the direct and indirect expenditures, eventually spending some of these earnings in the local economy on goods and services, thereby generating an induced impact.

The same principle applies to jobs. The direct employment impact refers both to direct hires required to host the 2017 Toyota Grand Prix of Long Beach and any contracted hiring either by the hosts or businesses that receive spending in connection to the event. The indirect employment impact refers to any hiring that takes place because of business-to-business spending down the supply chain. The induced employment impact refers to any hiring that takes place because of worker-to-business spending in connection with the event.

The combined direct (initial expenditure or hire), indirect and induced impacts form the total economic impact of the event.



SUMMARY OF ECONOMIC AND FISCAL IMPACTS

Beginning with adjusted direct spending amounts shown above and using the IMPLAN model, Beacon Economics arrived at the overall increase in local output or economic activity — the total economic impact of the 2017 Long Beach event. In all, the race generated:

\$63.4 MILLION

in economic output in Southern California

606 JOBS

in Southern California

\$32.4 MILLION

generated in the City of Long Beach

351 JOBS

in the City of Long Beach



\$24.4 MILLION

in labor income in
Southern California

\$12.9 MILLION

in the
City of Long Beach

\$1.8 MILLION

in tax revenue for local governments
in Southern California

\$700,000

generated in the
City of Long Beach



Economic Output

Using estimates of total expenditures in Southern California, Beacon found that the 2017 Toyota Grand Prix of Long Beach generated \$63.4 million in output across the region. Of this total, \$33.7 million represents direct spending and \$29.7 million represents secondary spending. Of this secondary spending, \$13.4 million came from indirect effects down the supply chain, and about \$16.3 million came from induced effects — spending by individuals who received an increase in income because of event-related spending.

A variety of industries, such as Restaurants, Hotels, Retail and Real Estate (workforce housing), enjoyed a substantial increase in output as a result of the event. That is, the impacts of event-related spending rippled through many parts of the Southern California economy.

The event generated its economic impact primarily in Long Beach, with some spillover effects across other parts of Southern California. In other words, regional impacts were slightly larger than citywide impacts because some expenditures leaked out from the City into other parts of Southern California. The event generated an estimated \$32.4 million in economic activity in Long Beach, of which \$10.8 million represented secondary economic effects.

Employment

Because the 2017 Toyota Grand Prix of Long Beach occurs only once each year, the employment effect is a result of a temporary increase in demand for goods and services in the local economy. The increase in demand at local businesses such as hotels is temporary, so local businesses are more likely to hire additional staff on a short-term basis, or allow current employees to work longer shifts, than to hire permanent, full-time employees. The thousands of short-term hires stemming from the 2017 race, plus hires by firms down the supply chain, equates to hundreds of jobs that would last across a full year.

The event supported an estimated 606 jobs in Southern California overall. Of this total, 423 were direct jobs, 76 were supported through indirect effects, and 106 jobs were supported through induced effects. The 2017 Toyota Grand Prix of Long Beach directly supported dozens of event-related jobs, such as security and ticketing, but its secondary impact spanned a range of industries. Real Estate (workforce housing) received the largest secondary benefit, with 11 jobs supported through indirect and induced effects. In total, both Restaurants (202 jobs) and Miscellaneous Retail (87 jobs) received a substantial boost to payrolls. In addition, Other Amusement (37 jobs) and Hotels (36 jobs) were each big beneficiaries of the event last year.

In Long Beach specifically, the event supported an estimated 284 jobs directly, 28 jobs through indirect effects and 40 jobs through induced effects.





Labor Income

In general, the industries benefiting most from the event were labor-intensive. Much of the output that the event generated flowed to workers as labor income, and workers then spent much of that additional income throughout Southern California. Some of the industries that generated substantial labor income impacts, such as Restaurants, have a relatively high share of lower-wage workers. Because such workers on average spend a higher percentage of their income than higher-wage workers, their income windfalls from an event like the 2017 Toyota Grand Prix of Long Beach tend to have a larger economic impact than that of higher-wage workers in total.

\$24.4 million of the output generated by the event represented income for Southern California workers. Of this, \$4.7 million came from indirect effects and \$5.5 million from induced effects. In the City of Long Beach, the event generated \$9.1 million in labor income directly, \$1.7 million through indirect effects and \$2.0 million through induced effects.



Tax Revenue

Spending by the Grand Prix Association, attendees, participants, businesses and workers contribute substantially to the tax revenue base of Southern California. The \$63.4 million in economic output the event generated throughout Southern California produced tax revenue of \$1.8 million. This revenue came primarily in the form of sales taxes (\$379,000), property taxes (\$1.17 million) and a range of other taxes such as motor vehicle license taxes and dividends.

In Long Beach in particular, the event generated an estimated \$32.4 million in economic output. This economic output in turn generated an estimated \$722,000 in municipal tax revenue, including \$252,000 in sales taxes and \$357,000 in property taxes. Thus, the direct and indirect tax payments made by businesses and individuals in support of the event contributed a significant amount of revenue to local governments in Southern California, much of which is concentrated in Long Beach. This serves as an important source of revenue for public services. As demonstrated in the social impact section below, this is only one of the ways that the 2017 Toyota Grand Prix of Long Beach and its various activities reach the wider community each year.



SOCIAL IMPACTS

Off the track, the Toyota Grand Prix benefits the City of Long Beach year-round by integrating its events into and providing support to the community. The Grand Prix Association has been a regular supporter and participant in organizations such as the local Boys & Girls Club, the Long Beach Convention and Visitors Bureau, and the Chamber of Commerce. The association provides affordable tickets, with discounts from 20% to 35%, to each year's event to local organizations, including Long Beach City

Employees, the Port of Long Beach, Long Beach Transit, Disney and Cal State Long Beach. The association offers a Free Friday voucher program each year to sponsors, who distributed more than 32,000 of these vouchers for the 2017 event alone. In 2017, the association arranged for students at several Long Beach elementary schools to meet drivers and learn about racing and the cars in the event.



The Grand Prix Association has been a regular supporter and participant in organizations such as the local Boys & Girls Club, the Long Beach Convention and Visitors Bureau, and the Chamber of Commerce.”

The association hosts free community events, including Roar in the Shore, Thunder Thursday at the Pike Outlets, the Miss Toyota Grand Prix of Long Beach Contest and Grand Prix View, which allows residents to walk, bike and skate along the racecourse. At the same time, the association participates in Long Beach events such as the Seal Beach, Belmont Shore, and Daisy Lane Christmas parades, the Belmont Shore car show, and the Martin Luther King Jr. Peace and Unity Parade. On top of its participation in local events, the association provides labor and materials to the Tour of Long Beach, the Shoreline Village Mardi Gras Parade and Ready Long Beach, free of charge.

Also, the association developed the Grand Prix Foundation of Long Beach, offering money and support to local charities. The foundation has contributed more than \$4 million to charities in the Long Beach area since its inception in 1991. Organizations it has supported include Ronald McDonald House, Women's Shelter Long Beach, Long Beach Area Special Olympics, Operation Jump Start, Long Beach Century Club and Short Stop. The foundation supports the Robert E. Leslie Scholarship Program for graduating high school seniors and donates race tickets and hospitality packages to charitable and civic organizations to assist in fundraising. Finally, the foundation organizes and assists in bringing physically or mentally challenged young people to a Day at the Races, serving as guides and hosts.

The sponsor and namesake of the Grand Prix, Toyota, has also been an important presence in the Long Beach community. Toyota's first manufacturing facility in the U.S. was, and remains, in the City of Long Beach, and the Port of Long Beach is a major entry point for products. To date, Toyota has invested more than \$2.2 billion in the local economy. This connection to the city has helped Toyota and the Grand Prix forge a 44-year relationship, the longest continuous race sponsorship in U.S. motorsports. Additionally, over the last 27 years, Toyota has donated more than \$2.4 million in conjunction with the national organization Racing for Kids to benefit children's hospitals in Long Beach and Orange County. In all of these ways, the Toyota Grand Prix of Long Beach has helped to improve quality of life in the community.



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CONCLUSION

The 2017 Toyota Grand Prix of Long Beach was a months-long undertaking for the Grand Prix Association and a weeks-long undertaking for many of the teams that participated, though the event itself spanned only April 7 to 9. As a result, the economic impacts of the event were not limited to the activities of those three days, but rather

generated economic activity before, during and after the event. Beacon Economics surveyed the attendees, exhibitors and race teams and gathered data from the Grand Prix Association to estimate the economic impact of the 2017 event. Beacon determined that the event:

INCREASED ECONOMIC OUTPUT

\$63.4 MILLION

in economic output in Southern California

\$32.4 MILLION

generated in the City of Long Beach

EQUIVALENT OF 606 YEAR-ROUND JOBS

606 JOBS

in Southern California

351 JOBS

in the City of Long Beach

Given the number of attendees and the fact that the event attracted attendees from outside Southern California, the event had a substantial economic impact on the economies of Southern California, particularly that of Long Beach.

Not only that, the event had a positive impact on the community from a social perspective, through sponsorships and support for local causes via the Grand Prix Association of Long Beach and the Grand Prix Foundation of Long Beach. Toyota, the event's main sponsor, has itself contributed over

\$2.4 million to the children's hospitals in Long Beach and Orange County by way of "Racing for Kids." Toyota also generates a substantial amount of economic activity in the local community through its manufacturing. Through both its social and economic impacts, the 2017 Toyota Grand Prix of Long Beach has become a staple of the regional economy and a contributor to improving quality of life in Southern California, particularly in Long Beach.

INCREASED LABOR INCOME

\$24.4 MILLION

in labor income in Southern California

\$12.9 MILLION

in labor income in the City of Long Beach

ESTIMATED \$1.8M IN TAX REVENUE

\$1.8 MILLION

in tax revenue for local governments in Southern California

\$700,000

generated in the City of Long Beach

APPENDIX



Table A1

Attendee Spending Summary (\$)

CATEGORY	LOCAL	VISITORS	TOTAL
CITY OF LONG BEACH			
City (non-event site) Accommodations	1,540,396	1,367,106	2,907,502
City (non-event site) Entertainment	491,008	288,098	779,106
City (non-event site) Food & Beverage	2,725,082	1,464,554	4,189,636
City (non-event site) Retail	337,309	227,693	565,003
Event Site Food & Beverage	3,974,115	1,597,151	5,571,266
Event Site Retail	1,640,009	734,109	2,374,118
Transportation Cost	210,614	127,906	338,520
City of Long Beach Total	10,918,533	5,806,617	16,725,151
REST OF SOUTHERN CALIFORNIA			
Other (outside Long Beach) Accommodations	318,249	420,176	738,425
Other (outside Long Beach) Entertainment	294,007	280,921	574,928
Other (outside Long Beach) Food & Beverage	799,414	685,126	1,484,540
Other (outside Long Beach) Retail	172,376	176,206	348,582
Rest of Southern California Total	1,584,046	1,562,429	3,146,475
Total	12,502,580	7,369,045	19,871,624

Table A2

Exhibitors Spending Summary (\$)

CATEGORY	LOCAL	VISITORS	TOTAL
CITY OF LONG BEACH			
City (non-event site) Accommodations	32,543	37,174	69,718
City (non-event site) Entertainment	32,543	31,007	63,550
City (non-event site) Food & Beverage	83,949	69,209	153,159
City (non-event site) Retail	8,384	4,656	13,039
Event Site Food & Beverage	71,869	23,473	95,342
Event Site Retail	14,557	5,889	20,446
Transportation Cost	51,330	30,475	81,805
City of Long Beach Total	295,175	201,884	497,059
REST OF SOUTHERN CALIFORNIA			
Other (outside Long Beach) Accommodations	6,211	9,493	15,705
Other (outside Long Beach) Entertainment	37,192	37,211	74,403
Other (outside Long Beach) Food & Beverage	40,279	42,278	82,557
Other (outside Long Beach) Retail	7,736	12,408	20,143
Supplies	386,937	124,378	511,315
Rest of Southern California Total	478,355	225,768	704,122
Total	773,530	427,651	1,201,181



Table A3

Race Teams Spending Summary (\$)

CATEGORY	LOCAL	VISITORS	TOTAL
CITY OF LONG BEACH			
City (non-event site) Accommodations	11,256	367,097	378,353
City (non-event site) Entertainment	11,256	306,193	317,449
City (non-event site) Food & Beverage	29,036	683,441	712,476
City (non-event site) Retail	2,900	45,977	48,876
Event Site Food & Beverage	24,857	231,794	256,652
Event Site Retail	5,035	58,158	63,192
Transportation Cost	17,753	300,938	318,692
City of Long Beach Total	102,092	1,993,597	2,095,690
REST OF SOUTHERN CALIFORNIA			
Other (outside Long Beach) Accommodations	2,148	93,745	95,893
Other (outside Long Beach) Entertainment	12,864	367,455	380,319
Other (outside Long Beach) Food & Beverage	13,931	417,492	431,424
Other (outside Long Beach) Retail	2,676	122,525	125,200
Rest of Southern California Total	31,619	1,001,217	1,032,836
Total	133,711	2,994,815	3,128,526



ECONOMIC IMPACT METHODOLOGY

The IMPLAN modeling system combines the U.S. Bureau of Economic Analysis' Input-Output Benchmarks with other data to construct quantitative models of trade flow relationships between businesses, and between businesses and final consumers. Using this data, we examine the effects of a change in one or several economic activities to predict its effect on a specific regional or local economy (impact analysis). The IMPLAN input-output accounts capture all monetary market transactions for consumption in a given period. The IMPLAN input-output accounts are based on industry survey data collected periodically by the U.S. Bureau of Economic Analysis and follow a balanced account format recommended by the United Nations.

IMPLAN's Regional Economic Accounts and the Social Accounting Matrices were used to construct region-level multipliers that describe the response of the relevant regional economy to a change in demand or production as a result of the activities and expenditures related to the 2017 Toyota Grand Prix of Long Beach. Each industry that produced goods or services generates demand for other goods and services, and this demand was multiplied through a particular economy until it dissipated through "leakage" to economies outside the specified area. IMPLAN models discern and calculate leakage from local, regional and state economic areas based on workforce configuration, the inputs required by specific types of businesses, and the availability of both inputs in the economic area. Consequently, economic impacts that accrue

to other regions or states as a consequence of a change in demand are not counted as impacts within the economic area.

The model accounts for substitution and displacement effects by deflating industry-specific multipliers to levels well below those recommended by the U.S. Bureau of Economic Analysis. In addition, when estimating the impact of household spending, multipliers are applied only to personal disposable income to obtain a more realistic estimate of the multiplier effects generated by increased demand. Importantly, IMPLAN's Regional Economic Accounts exclude imports to an economic area, so the calculation of economic impacts identifies only those impacts specific to the economic impact area, as determined by the purchasing patterns of the industries where changes in output are occurring. IMPLAN calculates this distinction by applying the area's economic characteristics described in terms of actual trade flows within the area. The current version of IMPLAN identifies not only what proportion of inputs are bought locally, but also determines where inputs are sourced from that are not obtained within the local economic area. This enables a researcher to estimate the impact of a spending increase in one economy on other nearby economies and how increased economic activity in those areas in turn affect the original study area.

Impact studies operate under the basic assumption that any increase in spending has three effects: First, there is a direct effect on that industry itself, resulting from the additional output



of goods or services. Second, there is a chain of indirect effects on all the industries whose outputs are used by the industry under observation. These are the impacts generated by a business' supply chain. Third, there are induced effects that arise when employment increases and household spending patterns are expanded. These impacts follow from the additional income that is earned in the course of producing this output, both by employees in the target industry and in those supplying it.

There are several components to the overall economic impact. First, there is an impact on local employment, with the single largest share of jobs created from the event itself, and the others spread throughout the study area's economy. Second is the increase in output, which includes the costs of intermediate inputs. Labor income — the total amount of income accrued to workers connected to the event — is a component of output.

Expenditures made on different types of goods or services can lead to different multipliers. A sector can have a large multiplier if it induces economic activity in industries whose employees have a high propensity to spend from take-home pay. Also, if the sector does not import many materials from abroad or from

out of state, its multiplier effect on the local economy is high.

In essence, some of the spending in the local economy may "leak out" into other states and countries. If raw materials are imported, a change in a local sector's level of production will result in a commensurate change in economic activity abroad. The same is true if a California business buys inputs from firms in other states.

Our analysis using input-output accounts is based on three important assumptions. First, there are constant returns to scale. This means that a 10% cut in spending will be 10 times as severe — across every sector in the economy — as a 1% cut. Second, there are no supply constraints. This means that any marginal increase in output can be produced without having to worry about bottlenecks in labor markets, commodity markets or necessary imports. This assumption is quite realistic in a free-market economy like California's where there is some unemployment. Third, the flow of commodities between industries is fixed. This means that it is not possible to substitute in the short-run the many different inputs that go into the target industry.

