

# **The Big Bay Boom**

## **A Study of Its Economic Impact**

**November 2012**



**Fermanian Business &  
Economic Institute at PLNU**

**business & economics** *in action*



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## EXECUTIVE SUMMARY

- San Diego's Big Bay Boom fireworks show, conducted each July 4th, generates approximately \$6.0 million in incremental sales for the local area's hotels, restaurants, retail shops, tour operators, museums, charter cruise firms, boat rental companies, and other businesses.
- Adding the various ripple or multiplier effects produced through the supply chain and additional consumer spending, the fireworks event creates an additional \$4.2 million in revenues for the local economy. Including the estimated \$370,000 value of media exposure, the Big Bay Boom thus delivers a total gross economic value of \$10.6 million.
- Netting out the cost of the show's production and expenses incurred to provide public safety, security, and other services, the Big Bay Boom yields a net economic value of an estimated \$10.3 million.
- Staged each year since 2001, the Big Bay Boom has a live audience of about 500,000 at the event's five staging events of four barges around Shelter Island, Harbor Island, and the North and South Embarcadero Marina Parks as well as off the Imperial Beach Pier. Funds raised from the show are donated to the San Diego Armed Forces YMCA, which serves families of the military in the San Diego region. The fireworks provides the charity with over \$50,000 per year and is the organization's largest single fund-raising event.
- Local businesses report sales increases due to the event ranging from over 30% for hotels to more than a six-fold gain for operators of boat charters and rentals. Whereas many businesses see their additional sales concentrated on July 4th, hotels typically realize an impact over three days, while restaurants experience higher revenues for 2 to 2-1/2 days.
- To accommodate the increase in business, local firms hire about 260 additional workers for the time impacted by the event. Although these are temporary positions, permanent staff members typically receive significant overtime pay. Additional hiring due to multiplier effects, which takes place over time, yields a total impact of nearly 300 jobs.
- Hotels see an average occupancy rate of 97% during the time of the July 4th event, with many properties experiencing 100% occupancies. In comparison, occupancy rates average about 90% during other days during the summer season.
- Local businesses indicate that typically more than half of their sales during the July 4th holiday comes from outside the local area (defined as a 5-10 mile radius of the fireworks display).
- Local tax revenue generated by the July 4th event equal close to \$650,000. Hotel taxes represent the largest part of this total, with the remainder produced by sales taxes.

## Impact of the Big Bay Boom July 4<sup>th</sup> Fireworks

|                                       |                    |
|---------------------------------------|--------------------|
| <b>Total Economic Benefits</b>        | <b>\$10.6 mil</b>  |
| Direct Sales Impact                   | \$6.0 mil          |
| Indirect Sales Effect                 | \$4.2 mil          |
| Media Exposure                        | \$0.4 mil          |
| <b>Net Economic Value After Costs</b> | <b>\$10.3 mil</b>  |
| <b>Taxes</b>                          | <b>\$645 thous</b> |
| <b>Jobs</b>                           | <b>290</b>         |

Source: FBEI



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# THE BIG BAY BOOM: A STUDY OF ITS ECONOMIC IMPACT

## Background

Since 2001, San Diego has hosted the Big Bay Boom fireworks show each year on July 4th. Four barges launch pyrotechnics around Shelter Island, Harbor Island, and the North and South Embarcadero Marina Parks. Fireworks also are set off at the Imperial Beach Pier. Approximately 500,000 viewers attend the annual show.

Funds raised from the show are donated to the San Diego Armed Forces YMCA, which serves families of the military in the San Diego region. This charity offers about forty different programs for the families of young enlisted men and women in addition to wounded warriors at the Balboa Naval Hospital.

Approximately 70 companies and agencies plus hundreds of private contributors supply funding for the annual show. The Port of San Diego is the title sponsor. Many of the sponsors, including hotels, restaurants, retail stores, and marina facilities, are Port tenants. Non-port tenant sponsors include the San Diego Commission for Arts & Culture, San Diego County, the City of Imperial Beach, as well as various corporations not located on the tidelands. Private donations from individuals and trusts account for about 10% of the total contributions raised.

## Study Purpose

After over a decade of gaining national and international prestige as one of the largest and logistically difficult pyrotechnics displays to stage, a computer malfunction caused the 2012 fireworks to explode prematurely and simultaneously. Although no one was hurt, questions have emerged as to the event's overall and net benefits. The Port of San Diego, for example, contributes significant funds to the effort as do other municipalities, agencies, businesses, and individuals.

This study attempts to provide an objective analysis of the net economic benefits in terms of sales, income, jobs, and tax receipts to the local San Diego area. Analysis is also made of the return on investment (ROI) for the Port of San Diego in particular.

The total economic benefits are analyzed not only in terms of the direct impact on sales activity of hotels, restaurants, and other businesses but also the various "ripple" or multiplier effects which accrue due to supply chain effects and additional consumer spending caused by increases in employment and income. The value of media exposure is also included. Costs of the show are calculated to include not only the cost of producing the fireworks themselves but also the expenses incurred for public safety as well as emergency and other services.

## Methodology

The most difficult, but also important, aspect of analyzing the impact of various economic events (e.g., concerts or sports events) or venues (e.g., football stadiums or tourist attractions) is to understand how much is truly new, additional, or outside money to the region as opposed to a reshuffling or redistribution of expenditures among different businesses. For example, if there were no Big Bay Boom fireworks on July 4th in San Diego, would visitors find other activities in the local area and spend the same amount of dollars in hotels, restaurants, stores, and other venues?

To assess the impact of the Big Bay Boom, surveys were sent to a representative sample of hotels, restaurants, retail establishments, recreational facilities, tour operators, and marina businesses within the geographic scope of the fireworks displays. Surveys were also sent to various organizations, including the San Diego Convention & Visitors Bureau, the San Diego Port Tenants Association, and the Port of San Diego.

The questionnaires sent via e-mail are included in the Appendix. The survey was customized according to three segments: Hotels; restaurants, retail stores, and other businesses; and trade and other organizations.

The questionnaire was designed to gain information and insights on several different issues, including:

- The number of days affected by the fireworks show
- The increase in revenue or sales as a result of the event relative to a typical non-holiday day during the summer season
- The share (percentage) of visitors estimated to come from outside of a 5-10 mile radius of the fireworks display
- The impact on staffing or employment
- The impact on hotel occupancy rates vis-à-vis a typical non-holiday summer day
- Perspectives of the general impact of the Big Bay Boom on business and operations

To gauge the economic value of media exposure through TV, radio, the internet, and in newspapers and magazines, the services of Stitch Marketing Research were retained along with data based on Nielsen ratings and Quantcast tracking of web viewings.

Costs were calculated based on the production expenses of the five pyrotechnic displays together with the other services provided including public safety and security.

To analyze the incremental impact of the Big Bay Boom show, the geographic area was defined as encompassing a 5-10 mile radius of the July 4th event. The types of businesses analyzed were divided into several different categories: hotels; restaurants; grocery and food stores; clothing, jewelry, art, souvenir, and other retail shops; tour and transportation companies; museums and other venues; cruise and charter facilities; and boat rental operations.

For each type of business, an estimate was made of the total sales taking place over the period impacted by the July 4th event. This was based on the data received from survey respondents on sales and the number of days affected by the Big Bay Boom celebration. An estimate of the total market for each category was then calculated based on an assessment of the market share represented by the survey sample.

For each business category, estimates were then made of how much of the sales indicated as emanating from outside the area (defined in the survey within a radius of 5-10 miles) would not take place if there were no major fireworks in San Diego. In most cases, all of these revenues were assumed to be lost to other venues, such as in La Jolla.

For the revenues generated on the July 4th holiday from residents in the local area, calculations were then derived for each class of spending of how much money would be still be spent locally, how much would leave the area, and how much would not be spent at all. These estimates were guided by the survey responses comparing sales with those on a typical day, comments from survey respondents, and other surveys conducted in the past.

For example, based on the current and previous surveys, 75% of hotel visitors were assumed to be in San Diego hotels for the fireworks display. This is an important finding since hotels and other venues would not have the revenues from business and convention travelers during a holiday period.

For restaurants, some survey respondents indicated they would not stay open if there were no major fireworks display. Some patrons might leave the area for other fireworks displays, while others might stay at home and watch fireworks from other sites around the country on TV or attend barbeques with family and friends. Including the loss of business from clients estimated by survey respondents to come from outside the area, a total of 80% of the local area's restaurant business is estimated to be linked to the fireworks activity on July 4th.

Estimates on the amount of revenues that can be ascribed primarily to the fireworks were calculated for the various retail groups, museums, tour operators, charter boats, transportation companies, and boat rental firms. These shares were generally around 95% since many of these remain open only to cater to July 4th fireworks attendees and/or report that the preponderance of their sales that day derive from those clients.

## Research Model & Tools

The IMPLAN® Version 3.0 model was used to analyze the total economic impact of the fireworks event. This is a widely used model to evaluate the various ripple or multiplier effects of an increase in spending on a region's sales, output, income, and employment. These ripple effects encompass two stages: supply chain and consumer effects. The supply chain effects reflect the effect on other businesses when a local hotel or retailer has to purchase additional goods or services to support its own increase in sales or activity. The consumer effects refer to the increase in household outlays due to the gain in jobs and income created by the direct impact of the fireworks event as well the effects along the supply chain.

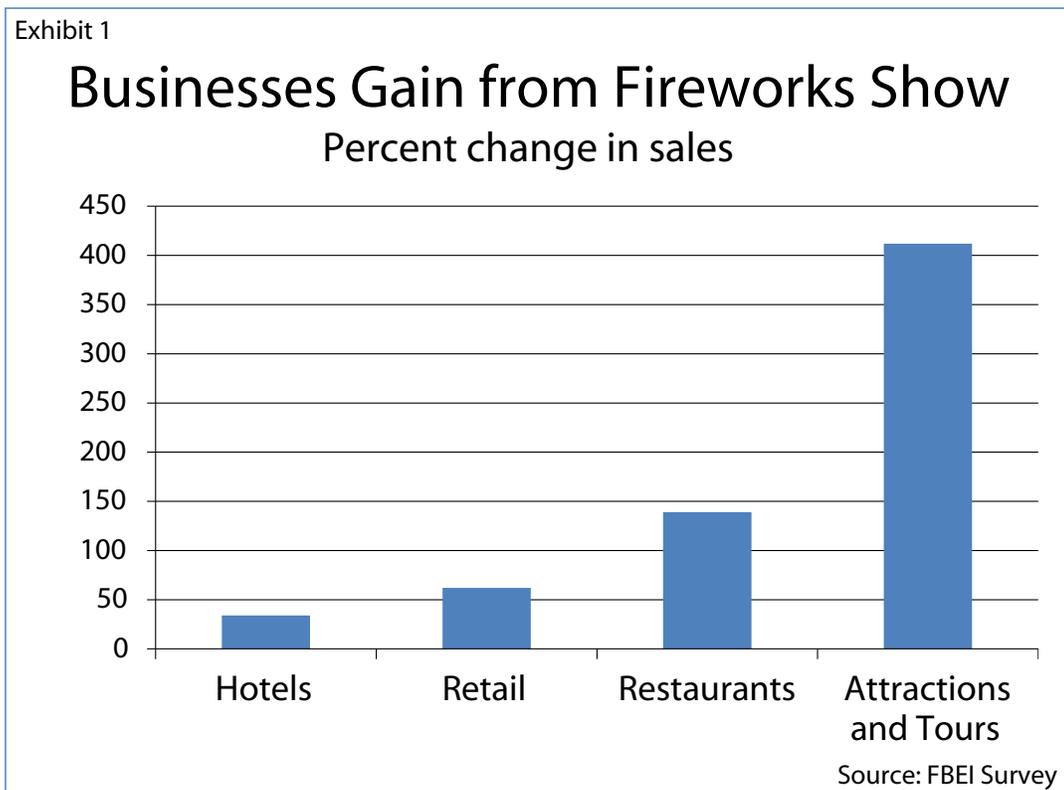
For the purpose of modeling, the incremental effect on sales due to the July 4th event was divided into various industry categories. These included hotels, restaurants, various retailers, grocery stores, transportation, and other relevant categories. Adjustments were made to account for inflation and convert the results into current dollars. Simulations were then run to obtain the direct, indirect, and total impact of the Big Bay Boom on the area’s jobs, income, and total revenue.

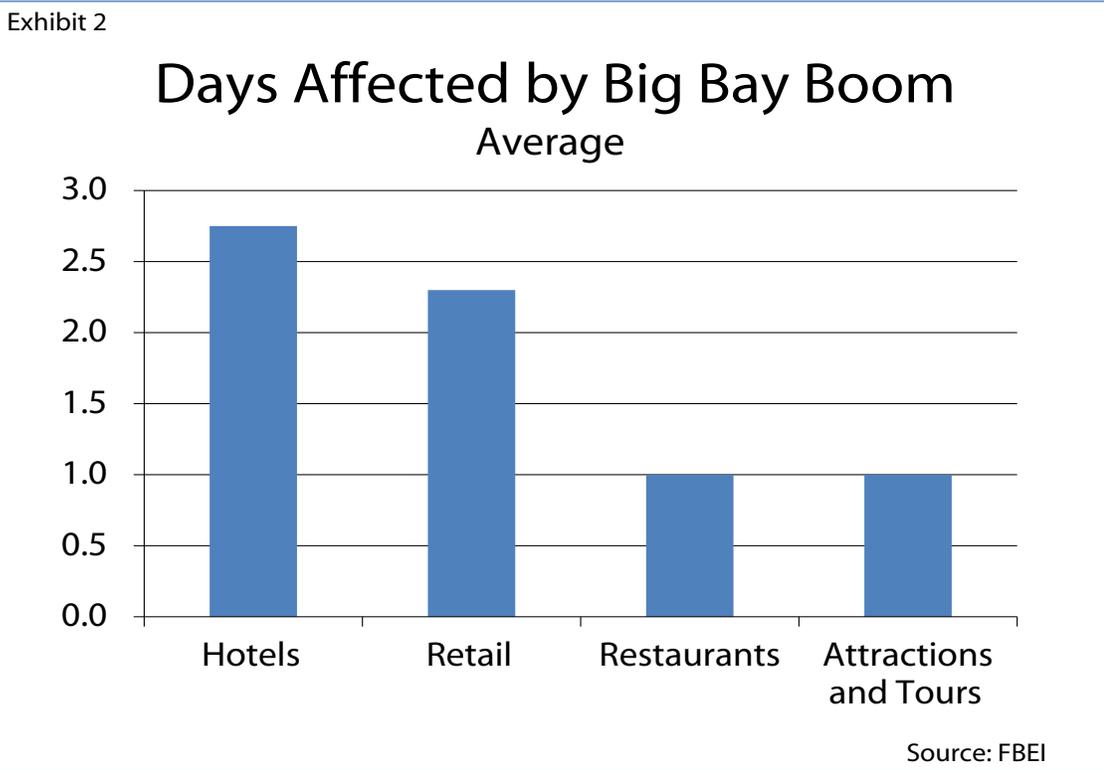
Sales taxes were calculated using the current tax rate in the City of San Diego of 7.75%. For hotels, total taxes were based on the current transient occupancy tax (TOT) rate of 10.5% plus the 2.0% tax (assessed on properties within the city with a minimum of 70 rooms) for the Tourism Marketing District (TMD).

## Survey Results

Respondents to the survey indicate substantial increases in their business due to the fireworks. Relative to a typical day during the summer season (excluding holidays), sales increases range from a gain of 34% for hotels to over 400% for various attractions and tour operators. Charter and boat companies report a six-fold jump in their sales. (See Exhibit 1.)

Survey respondents suggest that the impact of the fireworks display primarily affects their business for July 4th. Hotels indicate a longer period, averaging about three days, including the “shoulder” days before and after the July 4th holiday itself. Restaurants report effects lasting 2 to 2-1/2 days. (See Exhibit 2.)





According to the survey, generally one half or more of the increase in sales during the July 4th holiday derives from outside the area (defined as beyond a 5-10 mile radius of the fireworks show). For hotels, the preponderance of guests, or 94% of them, come from outside the area. (See Exhibit 3.)

Hotels realize high rates of occupancy during the July 4th event. Survey respondents indicate an average occupancy rate of 97% during the time of the July 4th event, with many properties experiencing 100% occupancies. In comparison, occupancy rates average about 90% during other days during the summer season.

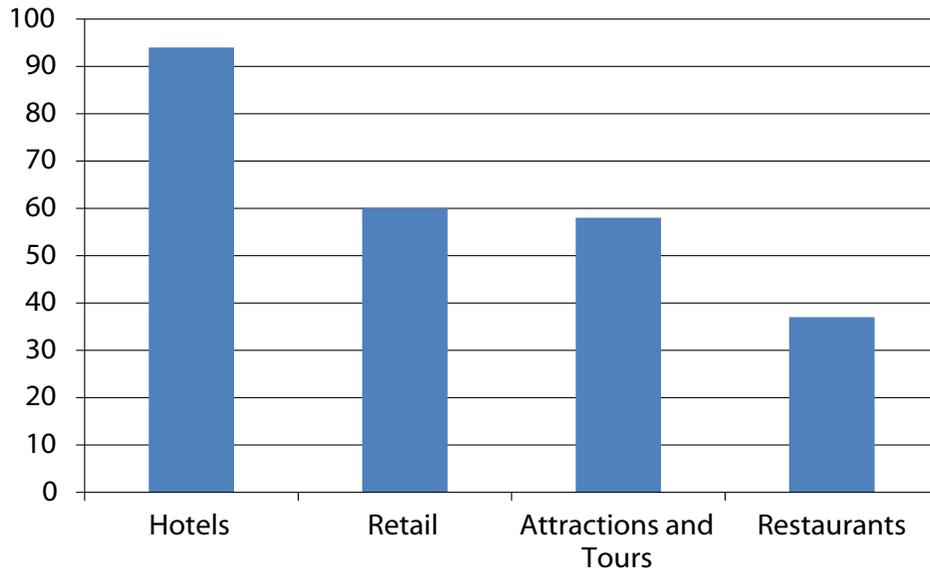
## Economic Effects

Using the assumptions and inputs discussed in the Methodology section, the Big Bay Boom is estimated to generate \$6.0 million in revenues for the local area’s hotels, restaurants, retail shops, tour operators, museums, charter cruise business, boat rental companies, and other businesses. (See Exhibit 4.)

Tracing through the ripple or multiplier effects yields an estimate of the indirect impact on sales at another \$4.2 million. Approximately one-half or \$2.15 million of this amount represents the impact on sales of various businesses along the supply chain as recipients of the dollars spent by customers acquire necessary goods and services. The other half or \$2.05 million reflects the additional spending of employees hired as a result of the business generated either directly because of the fireworks or because of the supply chain effects.

Exhibit 3

### Most People Come from out of the Area Average, percent



Source: FBEI Survey

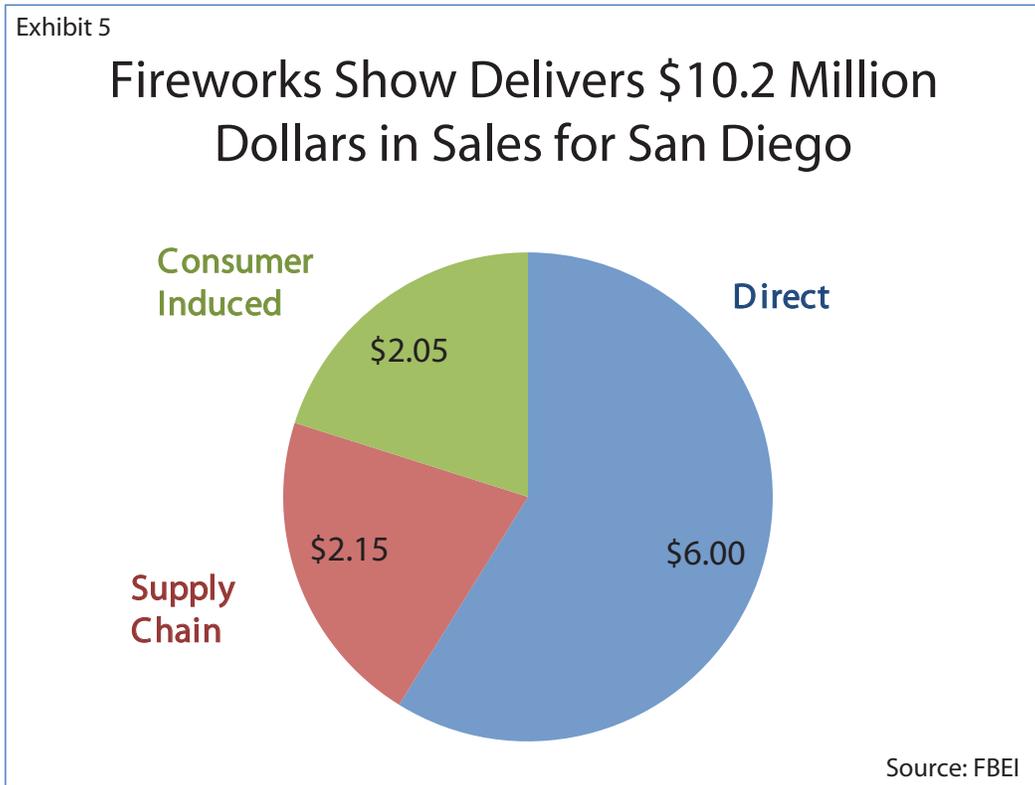
Exhibit 4

### Business Sales due to Big Bay Boom Thousands

| Business Type         | Additional Revenue Generated |
|-----------------------|------------------------------|
| Hotels                | \$4,782                      |
| Attractions and Tours | \$578                        |
| Retail                | \$334                        |
| Restaurants           | \$311                        |
| <b>Total</b>          | <b>\$6,005</b>               |

Source: FBEI

The total impact on business sales linked either directly or indirectly to the July 4th fireworks event is thus estimated at \$10.2 million. (See Exhibit 5.) The part of this amount attributed to the direct effect of the event will be spent in the timeframe immediately surrounding the fireworks, whereas the indirect effects will be disbursed over a longer time. The implicit “multiplier” or the ratio of total to direct spending is about 1.7, which means that every dollar of sales generated directly by the event yields another 70 cents in spending along the supply chain or in “induced consumption”.

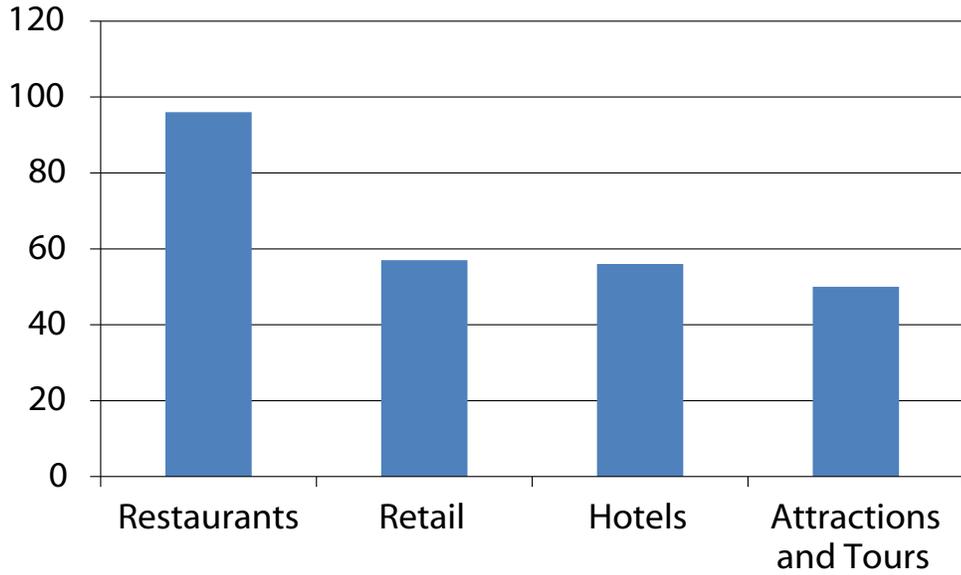


Based on the surveys conducted and modeling of the impacts of the increases in sales for the various types of businesses, local firms hire an estimated 259 additional workers for the time impacted by the July 4th event. Restaurants account for the largest share of the additional jobs. (See Exhibit 6.) Most of the positions added by different establishments will be short-term or temporary jobs. However, many regular or full-time employees receive extra pay for over-time because of the additional work during the holiday. Additional hiring due to multiplier effects, which takes place over time, yields a total impact of the Big Bay Boom of 290 or close to 300 jobs. (See Exhibit 7.)

Exhibit 6

## Local Firms Hire More Staff

Additional employees

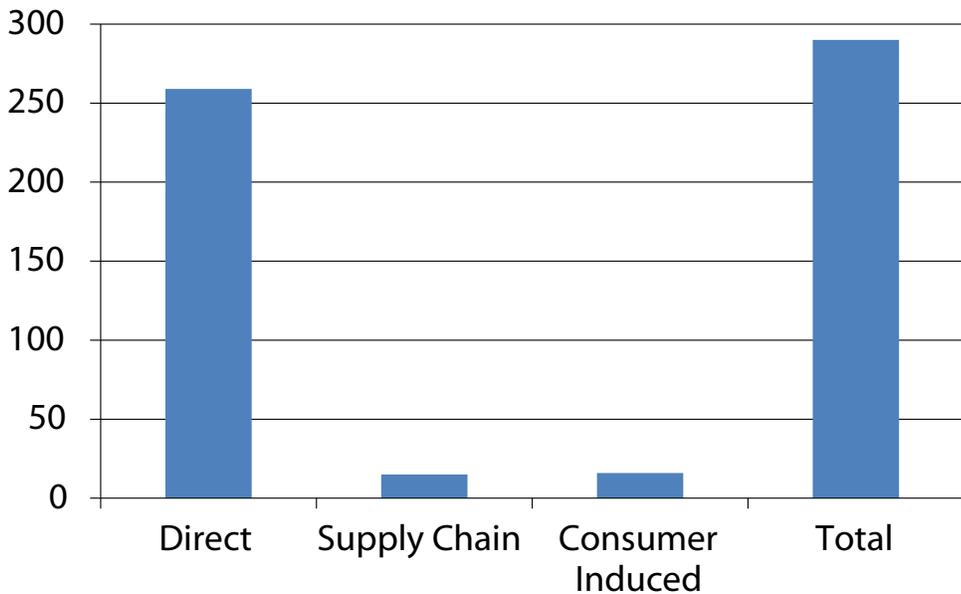


Source: FBEI

Exhibit 7

## Big Bay Boom Creates New Jobs

Number



Source: FBEI

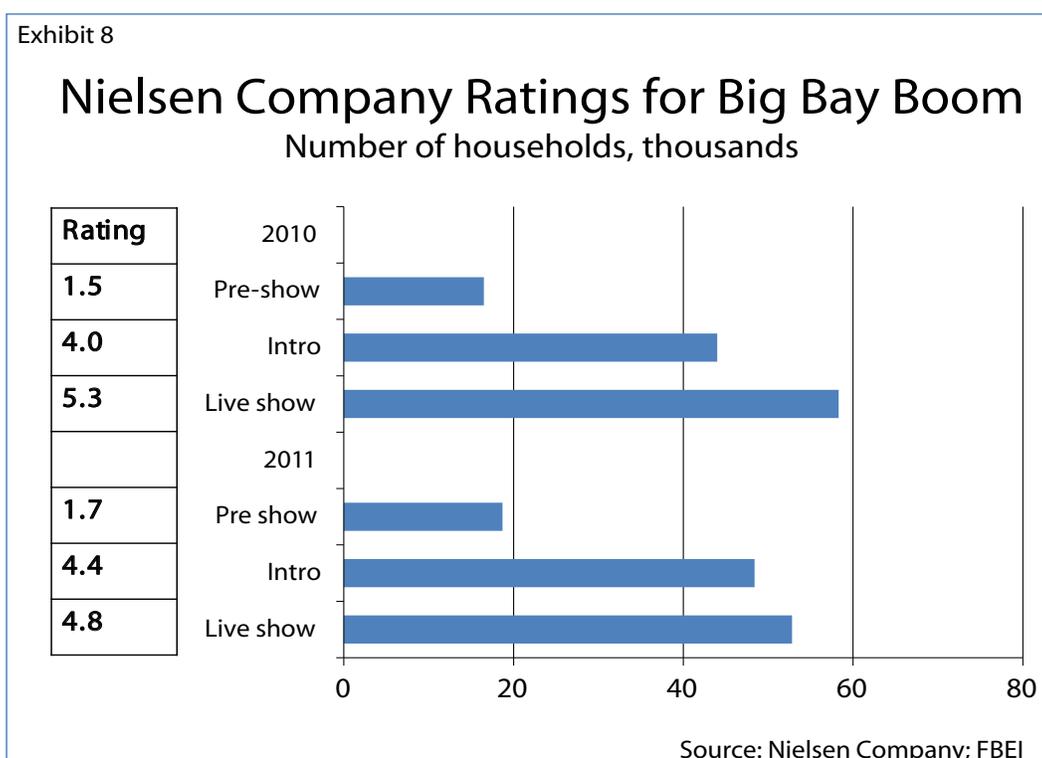
## Media Impact<sup>1</sup>

The Big Bay Boom generates significant media exposure on TV, radio, and the web as well as in various magazines and newspapers. The following data provides insights on some of the tangible and intangible effects.

Fox 5 San Diego has broadcast the Big Bay Boom for 60 minutes from 8:30 pm to 9:30 pm on July 4. Because the station does not sell the time for advertising, the only precise value that can be placed on the broadcast is the cost of production, which is approximately \$50,000.

However, the viewing by a large number of households (58,300 in 2010 and 52,800 in 2011) has considerable additional potential economic value. Sponsorships or advertising space could be sold to benefit from the exposure to a large audience, although the spot's value is constrained by the need to make a pronounced one-time positive impression. This is in contrast to the purchase of a series of spots on regular or recurring shows, such as a weekly series, where the advertising has the opportunity to build brand awareness over time. At the same time, the benefit of the association with and contribution to the Armed Forces YMCA would likely be substantial.

Nielsen ratings and typical cost figures of \$6,000 to \$10,000 for 17 minutes of 30-second advertising spots in prime time can be applied to obtain a theoretical estimate of what the economic value of the hour broadcast might be. (See Exhibit 8 for viewership and Nielsen ratings.) These calculations yield an estimate of about \$280,000, with a range of \$204,000 to \$340,000.



<sup>1</sup> Stitch Marketing Research assisted with some of the estimates and analysis of this section.

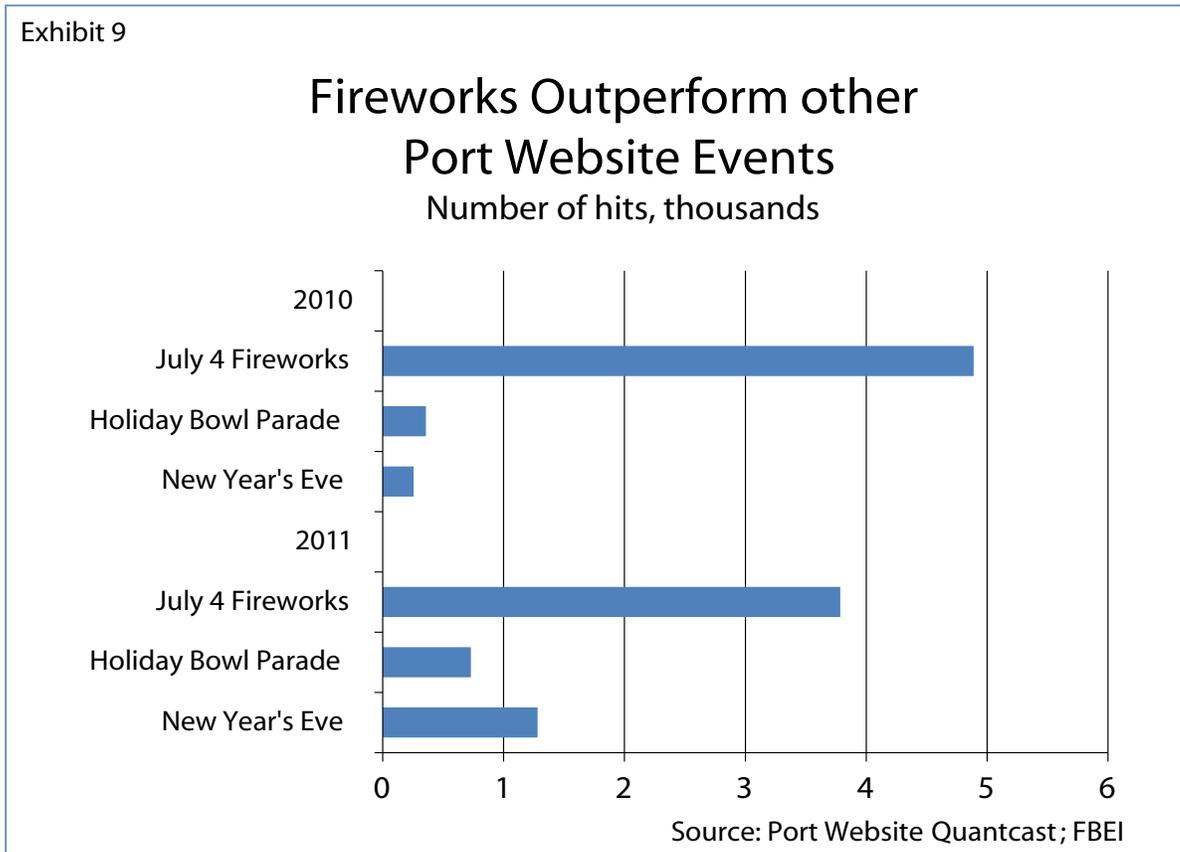
The value of high media exposure can also be gauged by the experience of other events around the country which typically benefit from TV, radio, and web broadcasts. For example, the Bank of America Memorial Day concert and fireworks celebration of 2012 offered inclusion in TV spots and radio announcements in its top \$50,000 sponsorship packages. The Seattle Gasworks Park South at Lake Union garnered pledges totaling \$500,000 for its 2011 July 4th fireworks, including \$125,000 from both Starbucks and Microsoft and \$50,000 from Nordstrom.

The \$305,000 in top level sponsorships (ranging from \$3,000 to \$145,000) for San Diego’s 2012 fireworks reflect in part the value of media exposure. The partnership with the Broadcast Company of the Americas, which broadcasts into Mexico with sponsor mentions, is part of this value.

The Port Website also has a large volume of traffic associated with the Big Bay Boom. (See Exhibit 9.) According to Port Website Quantcast data, the July 4, 2010 fireworks saw nearly 4,900 hits, which compared with about 360 hits for the Holiday Parade that year and 255 hits for New Year’s Eve. In 2011, the July 4, 2011 fireworks delivered approximately 3,800 hits compared with 730 hits for the Holiday Bowl Parade and 1,280 hits for New Year’s Eve. The Big Bay Boom also continues to far surpass other events on the web, which achieved an average number of about 150 hits during 2010 and 2011.

To assess the media value of the Big Bay Boom, two approaches can therefore be used. The first, which is based on the hypothetical value of sales of spot time on TV plus an

Exhibit 9



estimated value of radio, web, and print exposure, is estimated at about \$380,000. The second takes the cost of the production cost of the TV and other broadcasts and adds the potential for sponsorships for a total value of about \$360,000. For the purpose of this study, the value of the media exposure is placed at \$370,000.

## Total and Net Economic Benefits

The economic benefits of the Big Bay Boom are estimated based on the above analysis at \$10,570,000. This sum reflects direct sales for businesses due to the event, the multiplier or ripple effects, and the value of media exposure.

Costs are estimated at \$245,000. These represent the sum of producing the fireworks at the five sites including pyrotechnics, barges, and tugs (\$165,000) plus \$80,000 in service costs related to the event, including public safety and security. The Port of San Diego pays \$50,000 of these service costs, with the remainder borne by the City of Imperial Beach.

The net economic benefits thus amount to an estimated \$10,325,000. (See Exhibit 10.) The over \$10 million of net benefits thus represents a significant return on investment (ROI) for the Port of San Diego relative to an investment of \$195,000.

Exhibit 10

### Economic Impact of Big Bay Boom Thousands of dollars

| <u>Benefits</u>                               |                         |
|---|-------------------------|
| Direct sales gains                            | \$ 6,000                |
| Multiplier effects                            | \$ 4,200                |
| Media Exposure                                | \$ 370                  |
| <b>Total Benefits</b>                         | <b>\$ 10,570</b>        |
| <u>Costs of Fireworks</u>                     |                         |
| Production                                    | \$ 165                  |
| Services including public safety and security | \$ 80                   |
| <b>Total Costs</b>                            | <b>\$ 245</b>           |
| <b><u>Net economic value</u></b>              | <b><u>\$ 10,325</u></b> |

Source: FBFI

## Tax Effects

The Big Bay Boom generates a significant amount of tax receipts based on the analysis presented above. Sales taxes generated by restaurants and various retailers are estimated at about \$47,000 in the timeframe immediately surrounding the event. Additional taxes would also be produced over time depending on the spending patterns of employees hired as a result of business linked to the fireworks show.

Hotel taxes attributed to the Big Bay Boom are estimated at \$598,000. This amount is comprised of \$502,000 of the Transient Occupancy Tax (TOT) and \$96,000 for the Tourism Marketing District (TMD).

The total value of local tax receipts produced by the July 4th fireworks show thus amount to approximately \$645,000. (See Exhibit 11.)

Exhibit 11

### Taxes Generated by the Big Bay Boom Thousands of dollars

|                                  |                     |
|----------------------------------|---------------------|
| Sales Taxes                      | \$47                |
| Hotel Transient Occupancy Tax    | \$502               |
| Tourism Marketing District       | \$96                |
| <b><u>Total Tax Receipts</u></b> | <b><u>\$645</u></b> |

Source: FBEL

## Conclusion

This study documents a significant incremental economic value of the fireworks event of \$10.3 million. This represents a significant rate of return (ROI) relative to the \$195,000 investment of the Port, the event's largest sponsor, as well as to other contributors. Loss of the fireworks would also deprive its primary beneficiary, the San Diego Armed Forces YMCA, of more than \$50,000 each year, which is the charity's single biggest fund-raising event.

## APPENDIX A

### Big Bay Boom Questionnaire: Restaurants, Retail, and other Businesses

1. How many days are affected by the fireworks show? \_\_\_\_\_ (July 4th plus shoulder days)
2. What is the average daily increase in revenue (sales) you expect to come from the event?  
\$ \_\_\_\_\_/day
3. What is the average daily revenue (sales) on a typical non-holiday day during the summer season? \$ \_\_\_\_\_/day
4. What percentage of people are estimated to come from outside of a 5-10 mile radius to the fireworks show? \_\_\_\_\_%
5. How much is staffing increased for this event? \_\_\_\_\_ (number of people)
6. Are there any other comments or insights that you would like to provide? \_\_\_\_\_

# APPENDIX B

## Big Bay Boom Questionnaire: Hotels

1. How many days are affected by the fireworks show? \_\_\_\_\_ (July 4th plus shoulder days)
2. What is the average daily increase in revenue (sales) you expect to come from the event?  
\$ \_\_\_\_\_/day
3. What is the average daily revenue (sales) on a typical non-holiday day during the summer season? \$ \_\_\_\_\_/day
4. What is the average occupancy rate during the July 4th event? \_\_\_\_\_%
5. What is the average occupancy rate on a typical non-holiday during the season? \_\_\_\_\_%
6. What percentage of people are estimated to come from outside of a 5-10 mile radius to the fireworks show? \_\_\_\_\_%
7. How much is staffing increased for this event? \_\_\_\_\_ (number of people)
8. Are there any other comments or insights that you would like to provide? \_\_\_\_\_

## APPENDIX C

### Big Bay Boom Questionnaire: Other Establishments and Organizations

1. How many days are affected by the fireworks show? \_\_\_\_\_ (July 4th plus shoulder days)
2. What is the average daily increase in revenue (sales) you expect to come from the event? \$\_\_\_\_\_/day
3. What is the average daily revenue (sales) on a typical non-holiday day during the summer season? \$\_\_\_\_\_/day
4. What percentage of people are estimated to come from outside of a 5-10 mile radius to the fireworks show? \_\_\_\_\_%
5. How much is staffing increased for this event? \_\_\_\_\_ (number of people)
6. Does this event have a positive monetary effect on your business in any way? If so, how much? \_\_\_\_\_
7. Does this event positively effect businesses in your community? If so how? \_\_\_\_\_
8. Are there any other comments or insights that you would like to provide? \_\_\_\_\_





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