

# POTENTIAL ECONOMIC IMPACTS OF THE NATOMAS FLOOD ZONE REMAPPING

---

*Prepared for*

**North State Building Industry Association**

1536 Eureka Road  
Roseville, CA 95661  
916/677-5717  
FAX 916/677-5734

*Prepared by*

**Sacramento Regional Research Institute,  
A Joint Venture of SACTO and Sacramento State**

400 Capitol Mall, Suite 2500  
Sacramento, CA 95814-4436  
916/491-0444  
FAX 916/441-2312

## Executive Summary

The proposed flood zone designation for the Natomas Basin could have a considerable impact on the Sacramento Region's economy. Any decrease in the timing to complete necessary levee work and reclassify the Natomas Basin could significantly decrease these impacts for the designation period, especially those that accumulate over time.

*The proposed designation would create a development shut-down. If not for this shut-down, there are several residential and commercial projects that are planned for development between 2009 and 2011, even taking soft market conditions into account.*

If none of these projects completed planned construction, the Region could see a total loss of around 8,300 jobs and \$1.1 million output from the direct, indirect, and induced effects of the construction activity.

If the Region does not capture the industry employment that could have been housed within the planned commercial space, the ripple effect could generate a total 2009-2011 cumulative loss of 17,000 jobs and \$1.6 billion output.

2009—2,700 jobs and \$246 million output  
 2010—6,900 jobs and \$648 million output  
 2011—7,500 jobs and \$718 million output

Should the Region lose the residents that could have occupied the planned housing units, the economy could experience a total cumulative impact of 2,600 jobs and \$305 million output as a result of household consumption activities through 2011.

2009—440 jobs and \$51 million output  
 2010—900 jobs and \$107 million output  
 2011—1,200 jobs and \$147 million output

*With the flood zone remap, homeowners will be required to carry flood insurance. Some of the money that owners would otherwise be spending under typical consumption patterns would need to be directed to insurance premiums.*

As current homeowners' spending is diverted to purchasing flood insurance, the Region's economy could see a total loss of between 500 and 1,100 jobs and \$59 million and \$124 million output, if the designation lasts through 2011, due to the multiplier effect of forgone consumption.

Every year the insurance requirements are in effect, total regional impacts could equate to between 170 and 350 jobs and between \$20 million and \$41 million output.

## EXECUTIVE SUMMARY

*If the flood zone designation lasts through 2011, the total loss to the Sacramento Region's economy could equate to 28,000 jobs and \$3.1 billion of output accounting for the full range of economic impacts.\* In addition, the flood zone remap could have notable repercussions for the Natomas Basin's housing market, economic development, and local government revenue generation.*

### 2009 THROUGH 2011 CUMULATIVE ECONOMIC IMPACTS OF THE NATOMAS FLOOD ZONE REMAPPING ON THE SACRAMENTO REGION'S ECONOMY

<i>Measure</i>	<i>Employment</i>	<i>Output</i>	<i>Value Added</i>	<i>Employee Compensation</i>
Planned Residential and Commercial Construction	8,287	\$1,144,698,252	\$583,460,597	\$342,785,500
Industry Employment within Planned Commercial Space	17,094	\$1,611,314,833	\$937,553,852	\$547,655,170
Household Consumption within Planned Housing Units	2,589	\$304,832,124	\$189,713,729	\$87,110,188
Household Spending Diverted to Required Insurance*	503	\$59,446,164	\$36,900,711	\$17,078,631
<b>Total of Full Range of Economic Impacts*</b>	<b>28,474</b>	<b>\$3,120,291,373</b>	<b>\$1,747,628,889</b>	<b>\$994,629,489</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Differences due to rounding.

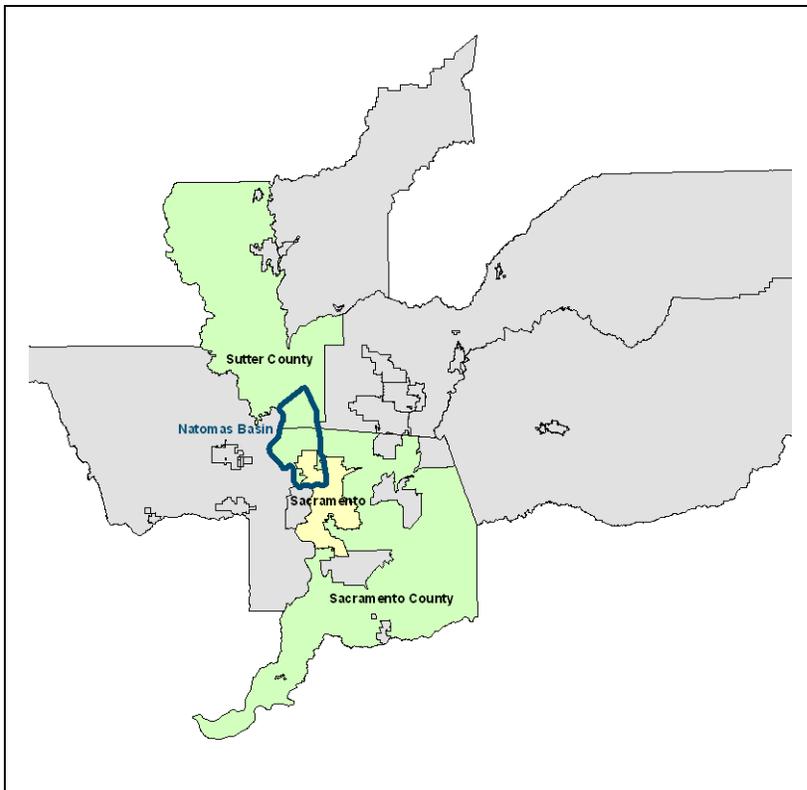
Figures in table represent total economic impacts including direct, indirect, and induced effects.

\* Reflects low range cumulative impacts of required insurance. The 2009 through 2011 cumulative high range of insurance impacts are as follows: 1,051 jobs; \$123,954,126 of output; \$76,943,475 added value; and \$35,611,497 employee compensation. The total of the full range of economic impacts, reflecting the high range of insurance impacts, would therefore equal 29,021 jobs; \$3,194,799,335 of output; \$1,787,671,653 added value; and \$1,013,162,355 employee compensation.

## Introduction

The Natomas Basin (as outlined in the map below) covers the northwestern portions of the City of Sacramento and unincorporated Sacramento County as well as south Sutter County. In 1998, the U.S. Army Corps of Engineers (USACE) certified the levees surrounding the Natomas Basin as meeting the 100-year flood protection standard. The Natomas Basin was designated by the Federal Emergency Management Agency (FEMA) as a Zone X for flood risk, which classifies it as a moderate flood hazard area, thus opening it for new development. Over the last 10 years, new large residential developments such as Natomas Park and Westlake and commercial developments like the Natomas Marketplace and the Promenade at Natomas have been added to the previously developed areas around South Natomas and Arco Arena.

### NATOMAS BASIN MAP



Sacramento Regional Research Institute, April 2008

Sources: City of Sacramento, Sacramento Area Council of Governments, and U.S. Census Bureau

In December 2008, FEMA is expected to redesignate this area as an AE zone when they update the regional floodplain maps. The revised designation is the result of new studies and related decisions made in 2006 and 2007 by the USACE to decertify the levees that surround and protect the Natomas Basin, as they were determined to only meet a 30-year flood protection standard. This represents a significant increase in flood risk for the Natomas Basin and will designate it as a Special Flood Hazard Area (SFHA), the highest flood risk for any major metropolitan area in the United States.

## INTRODUCTION

In order to reduce the risk of flood, the Sacramento Area Flood Control Agency (SAFCA) has undertaken the Natomas Levee Improvement Project (NLIP). This project must increase the height of several levees, strengthen these levees to protect against underseepage, and control levee bank erosion for a desired level of flood protection to be achieved. The NLIP has a short-term priority to raise the flood protection for the Natomas Basin to 100-year flood protection, thus meeting federal requirements to reclassify this area as a moderate flood hazard area.

The Central Valley Flood Protection Act of 2008 states that the federal goal of 100-year flood protection is inadequate for heavily-populated areas that are at risk from flood. This law established a new standard for any urban area which is defined as a developed area with a population of 10,000 or more. California's "urban level of flood protection" is 200-year flood protection. Therefore, the long term goal for the NLIP is to provide 200-year flood protection to meet new state goals for flood protection. The cost of completing the necessary repairs to meet the federal requirement of 100-year flood protection is estimated by federal inspectors at \$260 million with completion of the NLIP estimated at \$300 million.

These improvements have begun, but estimates for the completion date of this project are varied. SAFCA currently estimates that the project will extend through 2010, and the Office of the Mayor of Sacramento states that the project could be completed by 2010 or 2011. Various factors exist that could either delay or expedite completion, including the availability of funds, compliance with environmental regulations, creation of incentives for developers to work faster, and streamlined response time at all levels of government. Mayor Heather Fargo has stated that the project could be completed as early as 2009 if financing is made available immediately. Governor Schwarzenegger has budgeted \$49 million in voter-approved bond money for the NLIP in California's 2007-2008 budget and has prioritized levee improvement projects by releasing the funds through an early-implementation process. Both Governor Schwarzenegger and U.S. Representative Doris Matsui are urging the federal government to increase the \$58 million allocated to Sacramento area flood control projects in the 2009 federal budget.

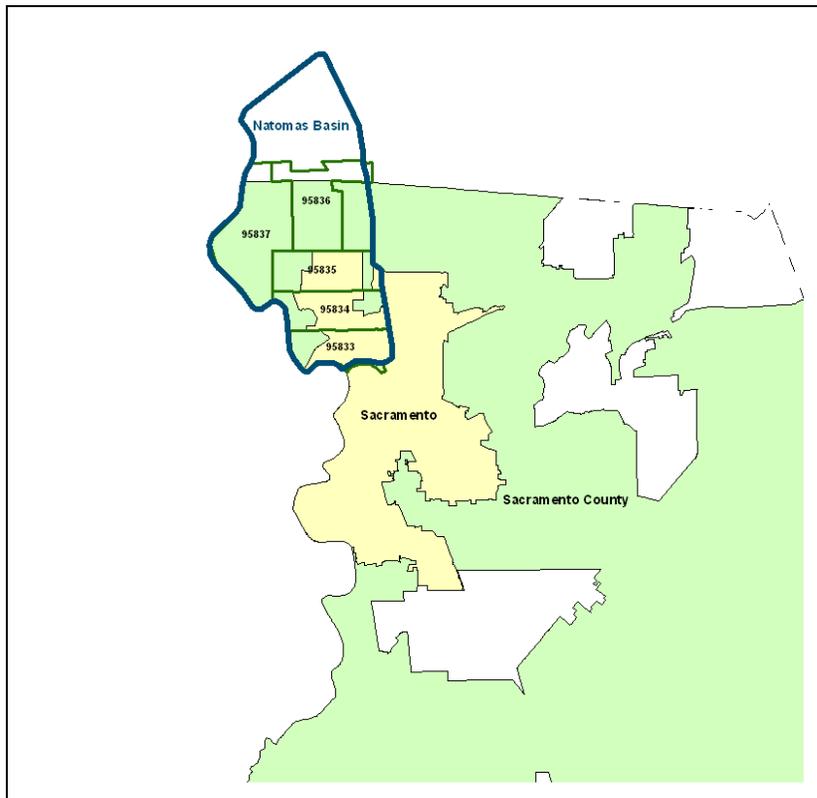
The proposed designation would create a development shut-down in the Natomas Basin from 2009 through possibly 2011 (or later) until the 100-year flood protection level is achieved and the area is reclassified. Existing economic conditions in the Sacramento Region have created a soft market for commercial space and housing units, especially in the Natomas Basin, that is having an impact on development decisions—these conditions are not expected to improve until 2009 or 2010. However, the shut-down will certainly affect projects that have been planned for development even with the market conditions. In addition, the new flood zone designation will force many homeowners to purchase flood insurance, which could ultimately affect household spending patterns. Both of these elements could have a considerable impact on the Sacramento Region's economy during a time in which it could be struggling to rebound from the most recent economic downturn.

## INTRODUCTION

In order to estimate the potential economic effects of the Natomas Basin flood zone remapping during the designation period of 2009 through 2011, the North State Building Industry Association commissioned the Sacramento Regional Research Institute (SRRI), a joint venture of the Sacramento Area Commerce and Trade Organization (SACTO) and California State University, Sacramento (Sacramento State), to conduct an economic impact analysis. The objective of this analysis is to quantify the full range of probable impacts associated with the development shut-down and flood insurance requirements on the six-county Sacramento Region and highlight other potential effects.<sup>1</sup>

In this project, SRRI focused on the Natomas Basin areas specifically in the City of Sacramento and Sacramento County where new developed has occurred and planned projects mainly are housed. This study area is represented in the map below and roughly corresponds to zip codes 95833, 95834, 95835, 95836, and 95837. This area will henceforth be referred to as the “Natomas Basin” in this report. More than 79,000 residents currently live in this area with projections showing a population greater than 102,000 by 2012.<sup>2</sup>

### STUDY AREA MAP



Sacramento Regional Research Institute, April 2008

Sources: City of Sacramento, Sacramento Area Council of Governments, and U.S. Census Bureau

<sup>1</sup> Economic linkages would permit any local effects to spread through the regional economy, which includes El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba Counties.

<sup>2</sup> Population estimates based on Claritas Site Reports, 2007 Demographic Snapshot Report.

Currently, the area is close to the same size as the entire City of Chino with 2012 estimates around the same size as the City of Richmond.

## INTRODUCTION

Since the market is so dynamic, especially considering the economic conditions and the upcoming flood zone remap, SRRI relied on primary data, directly provided by developers, to study the development impacts. To obtain this data, SRRI asked Natomas Basin developers to respond to the following question: “Considering market conditions, but not the flood zone remap, how much new development were you expecting to complete in 2009, 2010, and 2011—specifically, how many single-family housing units, multi-family housing units, retail square feet, office square feet, and industrial square feet were you expecting to put on the market in each of these years?” These responses were used to estimate the level of planned development that could fall within the shut-down period. It is important to note that there are likely affected projects that SRRI did not capture in this study due to scope and timing, but the analyzed projects provide concrete examples of remap effects. In addition to the development impacts, SRRI worked with National Flood Insurance Program (NFIP) and SAFCA information to analyze the likely costs of flood insurance to Natomas Basin homeowners. The potential economic impacts of the proposed flood zone designation, however, do not end with the economic effects directly associated with the development projects and costs of flood insurance—they also produce a ripple effect in the Sacramento Region’s economy as a result of linkages that spread to suppliers of goods and services (indirect effects) and additional consumer spending (induced effects). SRRI measured the full range of economic impacts using the IMPLAN input-output model. To supplement the quantifiable effects, SRRI also studied economic literature and spoke with the Region’s business and economic development communities to draw out other potential effects of the flood zone remap.

It is important to note that this study does not include analyses of fiscal impacts (i.e. taxes and fees, local government revenue, state government revenue, etc.), any activities related to flood mitigation and protection enhancements, the effects of flooding, or implications of expedited projects. These aspects (along with others not listed here) are important to consider in the broader discussion of the flood zone remapping; however, the limited scope of this project primarily focused on providing information regarding the development and market aspects.

The report is broken into four main sections. The first section provides an analysis of the effects of constructing the planned commercial facilities and housing units. Section two discusses the impacts of employment within the planned commercial facilities. In section three, the effects of consumption tied to residents within the planned housing units is estimated. The final section analyzes the impacts of diverted homeowner spending to required flood insurance. In addition to the four main sections, an appendix is provided, which discusses the details of the economic impact methodology, including the effects and variables measured, as well as information for the specific planned development projects analyzed in this study.

## Residential and Commercial Construction

The studied projects showed plans for completing construction of around 2,700 housing units and about 1.4 million square feet of space for commercial uses such as office, retail, health, accommodation, and food services between 2009 and 2011. With the development shut-down, it is probable that plans could be abandoned and this space will not be constructed in this time period as developers need sufficient time and assurance to gear up for construction. All of these housing units and commercial facilities would demand a considerable level of direct construction activity—in total, residential and commercial construction costs could amount to almost \$660 million, which could then ripple through the Sacramento Region’s economy. The economic effects associated with this development would cease once the construction has been completed, making it a short-term impact.

SRRI developed construction cost assumptions using U.S. Census Bureau building permit and RSMeans Quick Cost Estimator data in order to quantify the level of construction activity supported by the dwelling units and commercial facilities planned in the Natomas Basin between 2009 and 2011. Single-family and multi-family dwelling unit costs were estimated using per unit construction valuations for the geographic area of Sacramento County. In the case of commercial development, square footages for the facilities were applied to the RSMeans models for similar types of uses for the Sacramento metropolitan area.

Residential and commercial construction assumptions:

- Almost 2,600 single-family housing units are planned to be completed between 2009 and 2011 at an average 2007 cost of \$198,735 per unit.<sup>3</sup>
- About 70 multi-family housing units are planned to be completed between 2009 and 2011 at an average 2007 unit cost of \$117,337.<sup>3</sup>
- Over 1 million square feet of retail space is planned for completed construction between 2009 and 2011 at an average 2008 cost of \$88.89 per square foot.<sup>4</sup>
- 277,000 square feet of office space is planned to be completed from 2009 to 2011 at an average 2008 square foot cost of \$117.17.<sup>4</sup>
- 95,000 square feet of hotel space could be completed between 2009 and 2011 at an average 2008 cost of \$153.78 per square foot.<sup>4</sup>
- Around 5,000 square feet of food services space could be completed between 2009 and 2011 at an average 2008 cost of \$253.98 per square foot.<sup>4</sup>

<sup>3</sup> Total dwelling units by type based on developer responses.  
Construction valuation based on U.S. Census Bureau, Annual 2007 Building Permits, cumulative year-to-date New Privately-Owned Residential Building Permits, Sacramento County, California.

<sup>4</sup> Total square footage by type based on developer responses.  
Construction costs based on RSMeans Quick Cost Estimator (<http://www.rsmeans.com/calculator/index.asp>) for the greater Sacramento market.

Real estate literature shows the strongest synergy in mixed use development between residential, retail, entertainment, and office uses; therefore, non-residential mixed use square footage was split between office, retail, accommodation & food services, and high-density residential uses and added to other development projects with similar designations (Schmitz & Brett, 2007, p. 208). It is important to note that a host of other potential uses may be included in developer plans.

## CONSTRUCTION IMPACTS

- Approximately 20,000 square feet of high-density residential space could be constructed between 2009 and 2011 at an average 2008 cost of \$183.67 per square foot.<sup>4</sup>

Figure 1 shows that planned construction of the residential dwellings and commercial facilities in the Natomas Basin from 2009 through 2011 could generate a total of about 8,300 jobs and \$1.1 billion output in the Sacramento Region. In addition to the approximate 4,200 jobs and \$660 million of output directly supported by Natomas Basin construction activities, the Region could see an additional 4,100 jobs and almost \$485 million of output due to the indirect and induced effects. Natomas Basin construction activities from 2009 through 2011 could also provide over \$583 million in total added value and about \$343 million in employee compensation, which equates to about \$41,000 per employee. If this construction activity does not occur in this time period, these are the levels of one-time losses the Region could experience with the development shut-down.

**Potential impacts of planned 2009-2011  
Natomas Basin construction on the  
Sacramento Region's economy:**

- ✓ **8,300 jobs**
- ✓ **\$1.1 billion output**
- ✓ **\$583 million value added**
- ✓ **\$343 million employee compensation**

**FIGURE 1  
TOTAL ECONOMIC IMPACTS OF TOTAL  
CONSTRUCTION**

<i>Impact</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
Employment	4,190	1,981	2,116	8,287
Output	\$659,549,504	\$235,442,393	\$249,706,355	\$1,144,698,252
Value Added	\$295,642,560	\$132,592,395	\$155,225,642	\$583,460,597
Employee Compensation	\$194,271,248	\$77,048,937	\$71,465,315	\$342,785,500

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Differences due to rounding.

In 2007 dollars.

## CONSTRUCTION IMPACTS

As shown in Figure 2, the Construction; Retail Trade; and Professional, Scientific & Technical Services sectors could see the greatest direct, indirect, and induced employment impacts from planned construction in the Natomas Basin from 2009 to 2011. Together, these sectors could account for around 70 percent of the Region's total employment impacts. The industry sector that could be most affected, Construction, is currently experiencing some of the greatest job declines in the Sacramento Region with the economic downturn. In addition, the effects of the current slump have bled into the Region's Retail Trade sector, which is also seeing negative job growth. Any further slowdowns in these sectors could impact the severity and timing of the regional downturn to some extent.

**FIGURE 2**  
**MAJOR SECTOR EMPLOYMENT IMPACTS**  
**FROM TOTAL CONSTRUCTION**

<i>Industry</i>	<i>Total</i>	<i>% Total</i>
Construction	4,214	50.8%
Retail Trade	1,094	13.2%
Professional, Scientific & Technical Services	465	5.6%
Health & Social Services	419	5.1%
Accommodation & Food Services	315	3.8%
Administrative & Waste Services	310	3.7%
Manufacturing	256	3.1%
Other Services	249	3.0%
Finance & Insurance	179	2.2%
Wholesale Trade	174	2.1%
Transportation & Warehousing	164	2.0%
Real Estate & Rental	132	1.6%
Arts, Entertainment & Recreation	85	1.0%
Educational Services	67	0.8%
Information	55	0.7%
Government	40	0.5%
Management of Companies	38	0.5%
Agriculture, Forestry, Fishing & Hunting	24	0.3%
Utilities	6	0.1%
Mining	3	0.0%
<b>Total</b>	<b>8,287</b>	<b>-</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Note: Differences due to rounding.

## CONSTRUCTION IMPACTS

Figure 3 shows that the Construction; Retail Trade; and Professional, Scientific & Technical Services sectors could see the greatest total output impacts (including direct, indirect, and induced effects) from planned construction activities in Natomas between 2009 and 2011, accounting for about 70 percent of the total.

**FIGURE 3**  
**MAJOR SECTOR OUTPUT IMPACTS FROM**  
**TOTAL CONSTRUCTION**

<i>Industry</i>	<i>Total</i>	<i>% Total</i>
Construction	\$662,660,676	57.9%
Retail Trade	\$81,821,460	7.1%
Professional, Scientific & Technical Services	\$58,612,899	5.1%
Manufacturing	\$57,702,841	5.0%
Government	\$44,653,945	3.9%
Health & Social Services	\$38,720,119	3.4%
Finance & Insurance	\$37,032,356	3.2%
Wholesale Trade	\$29,526,874	2.6%
Real Estate & Rental	\$26,228,778	2.3%
Transportation & Warehousing	\$18,057,908	1.6%
Accommodation & Food Services	\$17,542,884	1.5%
Administrative & Waste Services	\$16,989,344	1.5%
Information	\$15,742,901	1.4%
Other Services	\$15,575,529	1.4%
Management of Companies	\$6,837,181	0.6%
Arts, Entertainment & Recreation	\$4,504,093	0.4%
Agriculture, Forestry, Fishing & Hunting	\$4,158,303	0.4%
Utilities	\$4,015,848	0.4%
Educational Services	\$3,003,354	0.3%
Mining	\$1,310,959	0.1%
<b>Total</b>	<b>\$1,144,698,252</b>	<b>-</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Differences due to rounding.

In 2007 dollars.

## Industry Employment

The development shut-down could also affect ongoing employment in the Sacramento Region that would have fallen within the planned commercial facilities. Upon completion, the approximately 1.4 million square feet of commercial development would house a variety of businesses supporting a number of jobs in many major industry sectors. The facilities expected to be on the market in 2009 could encompass nearly 1,800 jobs without the shut-down—these same jobs would exist in 2010 plus around 2,700 would be added with new space built in 2010 and so on with nearly 270 jobs added in 2011 to the existing 2009 and 2010 employment. Cumulatively, direct ongoing employment supported by these facilities could total over 11,000 if the shut-down lasts through 2011. The multiplier effect of these jobs could create an even larger impact on the economy due to the linkages that occur between the businesses, suppliers of goods and services (indirect effect), and employee spending (induced effect). As long as businesses make use of the commercial facilities that are part of the planned development for the Natomas Basin, the Region would continue to see impacts from the related employment. If the Region does not capture these jobs or offer space other than what was already anticipated, the economy would be negatively impacted.

In order to estimate the full range of economic impacts, including the direct, indirect, and induced effects, SRRRI developed a set of assumptions for the types of businesses and level of employment in those firms that could potentially make use of the commercial facilities planned for completion from 2009 through 2011, as provided by developers. First, SRRRI allocated the land use categories to retail and office uses and identified the major industry sectors most likely to demand those uses. Next, California Employment Development Department industry employment data was used to calculate five-year averages for the geographic area of Sacramento County and determine employment distribution by industry for retail and office uses.<sup>5</sup> Third, recent retail and office vacancy rates for the Natomas market were calculated from CB Richard Ellis market reports and applied to the square footage totals to allow for vacant space levels in the current economic environment. Finally, square footage per employee values based on the Sacramento Area Council of Government's Blueprint Transportation and Land Use Study parameters were applied to occupied retail and office space and total jobs were allocated to specific industry sectors based on adjusted Sacramento County employment allocations.

Industry employment assumptions:

- Over 1.1 million square feet of retail space is planned for completion between 2009 and 2011 and about 8.6 percent will be vacant.<sup>6</sup>

<sup>5</sup> This reflects a timeframe when much of the related new development is reflected in measures of economic structure.

<sup>6</sup> Total square footage by type based on developer responses.

Vacancy rate based on CB Richard Ellis (retail and office) Market View reports for the fourth quarter of 2007.

## INDUSTRY EMPLOYMENT IMPACTS

- Retail space will be utilized at a level of 250 square feet per employee and serve the Retail Trade; Accommodation & Food Services; and Other Services sectors.<sup>7</sup>
- 277,000 square feet of office space is planned to be put on the market from 2009 to 2011 and 15.8 percent will be vacant.<sup>6</sup>
- Office space will be consumed at a level of 325 square feet per employee and serve the Construction; Information; Finance & Insurance; Real Estate, Rental, & Leasing; Professional, Scientific, & Technical Services; Management of Companies & Enterprises; Administrative & Support & Waste Services; Educational Services; and Health Care & Social Assistance sectors.<sup>7</sup>

If the development shut-down lasted through 2011 and none of the planned commercial space was put on the market and occupied during this period, as shown in Figure 4 (on the following page), the Sacramento Region could see a total cumulative impact of over 17,000 jobs and \$1.6 billion of output including all direct, indirect, and induced effects. This breaks down to approximately 2,700 jobs and \$246 million of output in 2009, 6,900 jobs and \$648 million of output in 2010, and 7,500 jobs and \$718 million of output in 2011.<sup>8</sup> Direct impacts in the cumulative period (2009-2011) equals around 11,000 jobs and \$844 million of output, but due to indirect and induced impacts, about 6,000 more jobs and an additional \$767 million of output could be generated in linked activities. On average, every job or dollar of output lost as a direct result of the development shut-down could impact another 0.5 jobs or 90 cents of output in the Region's economy due to the multiplier effect. Moreover, a cumulative total of \$938 million of added value (the amount produced over and above cost of inputs) and \$548 million of employee compensation (equating to around \$32,000 per employee) could be lost if the Region did not capture the employment potentially housed in the planned commercial space.

### Potential impacts of Natomas Basin industry employment on the Sacramento Region's economy:

#### 2009:

- ✓ 2,700 jobs
- ✓ \$246 million output
- ✓ \$144 million value added
- ✓ \$84 million employee compensation

#### 2010:

- ✓ 6,900 jobs
- ✓ \$648 million output
- ✓ \$377 million value added
- ✓ \$220 million employee compensation

#### 2011:

- ✓ 7,500 jobs
- ✓ \$718 million output
- ✓ \$416 million value added
- ✓ \$243 million employee compensation

#### 2009-2011 Cumulative:

- ✓ 17,000 jobs
- ✓ \$1.6 billion output
- ✓ \$938 million value added
- ✓ \$548 million employee compensation

<sup>7</sup> Square feet per employee based on the Sacramento Area Council of Government's Blueprint Transportation and Land Use Study parameters.

Industry allocation based on California Employment Development Department Current Employment Statistics for Sacramento County from 2001 to 2006; background materials from the Sacramento Area Council of Government's Blueprint Transportation and Land Use Study; and professional experience.

<sup>8</sup> Limiting these impacts to the geographic area of Sacramento County shows a total cumulative 2009-2011 impact of 16,628 jobs and \$1,562,692,793 of output including direct, indirect, and induced effects. This relates to the effects on the County's economy if the jobs are not captured in this geographic area versus the entire six-county Sacramento Region. The breakdown by year is as follows: 2,622 jobs and \$238,713,727 of output in 2009; 6,746 jobs and \$628,204,293 of output in 2010; and 7,260 jobs and \$695,774,773 of output in 2011.

## INDUSTRY EMPLOYMENT IMPACTS

**FIGURE 4**  
**TOTAL ECONOMIC IMPACTS OF INDUSTRY**  
**EMPLOYMENT FROM 2009 THROUGH 2011**

<i>Year / Impact</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
<b>2009</b>				
Employment	1,767	355	570	2,693
Output	\$129,302,827	\$50,622,315	\$66,153,649	\$246,078,791
Value Added	\$77,672,762	\$27,093,537	\$39,057,588	\$143,823,887
Employee Compensation	\$45,584,516	\$14,582,198	\$23,777,334	\$83,944,048
<b>2010</b>				
Employment	4,491	942	1,501	6,933
Output	\$339,644,555	\$134,031,619	\$174,044,430	\$647,720,604
Value Added	\$202,928,169	\$71,677,688	\$102,757,113	\$377,362,970
Employee Compensation	\$119,213,978	\$38,651,269	\$62,556,116	\$220,421,363
<b>2011</b>				
Employment	4,756	1,052	1,660	7,468
Output	\$375,387,462	\$149,583,077	\$192,544,899	\$717,515,438
Value Added	\$222,765,354	\$79,921,674	\$113,679,967	\$416,366,995
Employee Compensation	\$130,890,783	\$43,193,254	\$69,205,722	\$243,289,759
<b>2009-2011 Cumulative</b>				
Employment	11,014	2,350	3,731	17,094
Output	\$844,334,844	\$334,237,011	\$432,742,978	\$1,611,314,833
Value Added	\$503,366,285	\$178,692,899	\$255,494,668	\$937,553,852
Employee Compensation	\$295,689,277	\$96,426,721	\$155,539,172	\$547,655,170

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Differences due to rounding.

In 2007 dollars.

## INDUSTRY EMPLOYMENT IMPACTS

Figure 5 shows that the Sacramento Region's Retail Trade; Accommodation & Food Services; and Other Services sectors could benefit the most from the total impacts produced by the Natomas Basin's potential industry employment in 2009 through 2011. These sectors combined account for approximately 67 percent of total impacts in the cumulative period.

**FIGURE 5**  
**MAJOR SECTOR EMPLOYMENT IMPACTS FROM INDUSTRY**  
**EMPLOYMENT FROM 2009 THROUGH 2011**

Industry	2009		2010		2011		2009-2011 Cumulative	
	Total	% Total	Total	% Total	Total	% Total	Total	% Total
Retail Trade	947	35.2%	2,337	33.7%	2,380	31.9%	5,664	33.1%
Accommodation & Food Services	626	23.2%	1,546	22.3%	1,576	21.1%	3,747	21.9%
Other Services	326	12.1%	807	11.6%	825	11.0%	1,958	11.5%
Health & Social Services	118	4.4%	344	5.0%	424	5.7%	885	5.2%
Administrative & Waste Services	110	4.1%	313	4.5%	377	5.0%	800	4.7%
Professional, Scientific & Technical Services	107	4.0%	305	4.4%	367	4.9%	779	4.6%
Government	90	3.3%	237	3.4%	261	3.5%	588	3.4%
Finance & Insurance	65	2.4%	196	2.8%	252	3.4%	513	3.0%
Real Estate & Rental	59	2.2%	160	2.3%	184	2.5%	403	2.4%
Construction	30	1.1%	107	1.5%	153	2.0%	289	1.7%
Transportation & Warehousing	38	1.4%	100	1.4%	110	1.5%	248	1.5%
Manufacturing	37	1.4%	97	1.4%	107	1.4%	241	1.4%
Wholesale Trade	33	1.2%	86	1.2%	94	1.3%	212	1.2%
Information	25	0.9%	76	1.1%	101	1.3%	202	1.2%
Arts, Entertainment & Recreation	27	1.0%	71	1.0%	79	1.1%	176	1.0%
Management of Companies	25	0.9%	69	1.0%	79	1.1%	172	1.0%
Educational Services	23	0.8%	66	1.0%	80	1.1%	169	1.0%
Agriculture, Forestry, Fishing & Hunting	5	0.2%	12	0.2%	13	0.2%	30	0.2%
Utilities	2	0.1%	5	0.1%	5	0.1%	12	0.1%
Mining	1	0.0%	3	0.0%	3	0.0%	7	0.0%
<b>Total</b>	<b>2,693</b>	<b>-</b>	<b>6,933</b>	<b>-</b>	<b>7,468</b>	<b>-</b>	<b>17,094</b>	<b>-</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Sorted by 2009-2011 total employment.

Differences due to rounding.

## INDUSTRY EMPLOYMENT IMPACTS

Around 48 percent of the Sacramento Region's total output impacts resulting from the Natomas Basin's potential employment in the cumulative period 2009 through 2011 could fall within the Retail Trade; Accommodation & Food Services; and Other Services sectors, as shown in Figure 6.

**FIGURE 6**  
**MAJOR SECTOR OUTPUT IMPACTS FROM INDUSTRY EMPLOYMENT FROM 2009 THROUGH 2011**

Industry	2009		2010		2011		2009-2011 Cumulative	
	Total	% Total	Total	% Total	Total	% Total	Total	% Total
Retail Trade	\$73,122,289	29.7%	\$180,533,068	27.9%	\$183,886,016	25.6%	\$437,541,373	27.2%
Accommodation & Food Services	\$34,679,251	14.1%	\$85,671,562	13.2%	\$87,334,473	12.2%	\$207,685,286	12.9%
Other Services	\$21,631,734	8.8%	\$53,527,810	8.3%	\$54,751,091	7.6%	\$129,910,635	8.1%
Manufacturing	\$18,647,153	7.6%	\$49,012,156	7.6%	\$54,158,240	7.5%	\$121,817,549	7.6%
Finance & Insurance	\$13,734,535	5.6%	\$41,655,127	6.4%	\$53,406,654	7.4%	\$108,796,316	6.8%
Professional, Scientific & Technical Services	\$13,249,264	5.4%	\$37,713,039	5.8%	\$45,432,420	6.3%	\$96,394,723	6.0%
Health & Social Services	\$11,424,045	4.6%	\$33,267,120	5.1%	\$40,986,982	5.7%	\$85,678,147	5.3%
Real Estate & Rental	\$11,732,138	4.8%	\$31,670,448	4.9%	\$36,357,947	5.1%	\$79,760,533	5.0%
Government	\$10,875,828	4.4%	\$28,567,901	4.4%	\$31,554,191	4.4%	\$70,997,920	4.4%
Information	\$7,592,488	3.1%	\$23,153,529	3.6%	\$30,552,902	4.3%	\$61,298,919	3.8%
Administrative & Waste Services	\$6,236,825	2.5%	\$17,707,812	2.7%	\$21,323,715	3.0%	\$45,268,352	2.8%
Construction	\$4,384,256	1.8%	\$15,416,551	2.4%	\$22,061,843	3.1%	\$41,862,650	2.6%
Wholesale Trade	\$5,546,572	2.3%	\$14,523,322	2.2%	\$15,977,433	2.2%	\$36,047,327	2.2%
Management of Companies	\$4,526,114	1.8%	\$12,243,101	1.9%	\$14,036,353	2.0%	\$30,805,568	1.9%
Transportation & Warehousing	\$4,055,057	1.6%	\$10,621,931	1.6%	\$11,692,412	1.6%	\$26,369,400	1.6%
Arts, Entertainment & Recreation	\$1,373,548	0.6%	\$3,619,394	0.6%	\$4,017,996	0.6%	\$9,010,938	0.6%
Utilities	\$1,265,486	0.5%	\$3,275,647	0.5%	\$3,554,006	0.5%	\$8,095,139	0.5%
Educational Services	\$1,003,843	0.4%	\$2,931,178	0.5%	\$3,565,791	0.5%	\$7,500,812	0.5%
Agriculture, Forestry, Fishing & Hunting	\$602,649	0.2%	\$1,568,910	0.2%	\$1,713,513	0.2%	\$3,885,072	0.2%
Mining	\$395,716	0.2%	\$1,040,998	0.2%	\$1,151,460	0.2%	\$2,588,174	0.2%
<b>Total</b>	<b>\$246,078,791</b>	<b>-</b>	<b>\$647,720,604</b>	<b>-</b>	<b>\$717,515,438</b>	<b>-</b>	<b>\$1,611,314,833</b>	<b>-</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Sorted by 2009-2011 total output.

Differences due to rounding.

In 2007 dollars.

## Household Consumption

Ongoing consumption activities of the residents that would have been housed in the single- and multi-family dwelling units could also be affected by the development shut-down. Should development occur as planned, a total of about 2,700 dwelling units could be built in the Natomas Basin between 2009 and 2011. In the absence of the shut-down, residents occupying the units planned to be completed in 2009 could support about \$50 million of consumption activity—these same residents would exist in 2010 plus another \$54 million of spending would be added with the new housing built in 2010 and this would continue with just over \$39 million of consumption added in 2011 to the levels supported by the existing 2009 and 2010 occupants. Cumulatively, the direct ongoing level of consumption supported by the planned housing units could total over \$297 million if the flood zone designation remains through 2011. The direct household consumption could also create a ripple effect throughout the Sacramento Region's economy through indirect and induced impacts. The Region would continue to experience these impacts as long as residents occupy the units that are encompassed in the planned development for the Natomas Basin. Should the Region lose the residents that could have occupied the planned housing units or not push to develop housing other than what was already planned, the Region would see lost economic activity supported by household consumption.

SRRI estimated household consumption first by calculating the proportion of households within each income range of the Natomas Basin's household income distribution. The proportions were applied to the planned total dwelling units (with a vacancy rate applied) to estimate the number of households in each range. Finally, the lowest value in the income range was multiplied by the number of households to determine the aggregate total household income for each income range.<sup>9</sup>

Household consumption assumptions:

- Close to 2,700 dwelling units are planned to be completed in the Natomas Basin between 2009 and 2011 and around 11.4 percent will be vacant.<sup>10</sup>
- The Natomas Basin will maintain the current household income distribution.<sup>11</sup>

---

<sup>9</sup> The low value of the income range was used to maintain a conservative estimate in the housing units.

<sup>10</sup> Total dwelling units by type based on developer responses and allocated portion of multi-use development to high-density residential.

Vacancy rate based on Claritas Site Reports, 2007 Demographic Snapshot Report.

<sup>11</sup> Income distribution based on Claritas Site Reports, 2007 Demographic Snapshot Report.

## HOUSEHOLD CONSUMPTION IMPACTS

If the development shut-down were in effect through 2011 and none of the planned housing units were built and occupied in this time period, the Sacramento Region's economy could feel a total cumulative impact of close to 2,600 jobs and \$305 million of output, as shown in Figure 7 (on the next page). This total encompasses the full range of direct, indirect, and induced effects and breaks down to nearly 440 jobs and \$51 million of output in 2009, around 900 jobs and \$107 million of output in 2010, and about 1,200 jobs and \$147 million of output in 2011.<sup>12</sup>

The household consumption generated by residents of the new housing units could directly support a cumulative total of nearly 1,700 jobs and \$192 million of output through 2011.<sup>13</sup> As a result of the ripple effect, another 900 jobs and \$112 million of output could also be removed from the Region's economy through the indirect and induced effects of the lost spending. The multiplier effect shows that, on average, for every dollar of household spending, an additional 60 cents of output could be generated in the Sacramento Region—for every one direct job supported by the consumption, another 0.5 jobs could be affected. The lost household consumption activities of new residents in the Natomas Basin could also generate a cumulative total of about \$190 million in added value and \$87 million of employee compensation (roughly \$34,000 per employee) inclusive of direct, indirect, and induced impacts.

### Potential impacts of Natomas Basin new resident household consumption on the Sacramento Region's economy:

#### 2009:

- ✓ 440 jobs
- ✓ \$51 million output
- ✓ \$32 million value added
- ✓ \$15 million employee compensation

#### 2010:

- ✓ 900 jobs
- ✓ \$107 million output
- ✓ \$66 million value added
- ✓ \$30 million employee compensation

#### 2011:

- ✓ 1,200 jobs
- ✓ \$147 million output
- ✓ \$91 million value added
- ✓ \$42 million employee compensation

#### 2009-2011 Cumulative:

- ✓ 2,600 jobs
- ✓ \$305 million output
- ✓ \$190 million value added
- ✓ \$87 million employee compensation

<sup>12</sup> If the impacts are limited to the geographic area of Sacramento County, a cumulative 2009-2011 impact of 2,458 jobs and \$296,100,628 of output could be expected including direct, indirect, and induced effects. This reflects the effects on the County's economy if the residents and related household spending are not captured in this geographic area rather than the entire six-county Sacramento Region. The breakdown by year is as follows: 414 jobs and \$49,889,695 of output in 2009; 860 jobs and \$103,600,721 of output in 2010; and 1,184 jobs and \$142,610,212 of output in 2011.

<sup>13</sup> An accumulation of an additional approximately \$105 million of direct household spending could leak out of the Sacramento Region through demand for goods and services outside the area as well as payments received by institutions outside the Region.

## HOUSEHOLD CONSUMPTION IMPACTS

**FIGURE 7**  
**TOTAL ECONOMIC IMPACTS OF HOUSEHOLD**  
**CONSUMPTION FROM 2009 THROUGH 2011**

<i>Impact</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
<b>2009</b>				
Employment	284	70	83	436
Output	\$32,429,701	\$9,162,225	\$9,768,925	\$51,360,851
Value Added	\$20,691,195	\$5,200,841	\$6,072,636	\$31,964,672
Employee Compensation	\$9,148,286	\$2,732,929	\$2,795,891	\$14,677,106
<b>2010</b>				
Employment	589	145	172	906
Output	\$67,343,377	\$19,026,240	\$20,286,113	\$106,655,730
Value Added	\$42,967,246	\$10,800,045	\$12,610,414	\$66,377,705
Employee Compensation	\$18,997,293	\$5,675,190	\$5,805,937	\$30,478,420
<b>2011</b>				
Employment	811	200	237	1,247
Output	\$92,700,642	\$26,190,321	\$27,924,580	\$146,815,543
Value Added	\$59,145,997	\$14,866,661	\$17,358,694	\$91,371,352
Employee Compensation	\$26,150,468	\$7,812,107	\$7,992,087	\$41,954,662
<b>2009-2011 Cumulative</b>				
Employment	1,683	415	491	2,589
Output	\$192,473,720	\$54,378,786	\$57,979,618	\$304,832,124
Value Added	\$122,804,438	\$30,867,547	\$36,041,744	\$189,713,729
Employee Compensation	\$54,296,047	\$16,220,226	\$16,593,915	\$87,110,188

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Differences due to rounding.

In 2007 dollars.

## HOUSEHOLD CONSUMPTION IMPACTS

Figure 8 shows that the Retail Trade; Health & Social Services; and Accommodation & Food Services sectors could account for approximately 54 percent of the Sacramento Region's total employment impacts due to household consumption activities of residents occupying planned new housing units from 2009 to 2011.

**FIGURE 8**  
**MAJOR SECTOR EMPLOYMENT IMPACTS FROM**  
**HOUSEHOLD CONSUMPTION FROM 2009**  
**THROUGH 2011**

<i>Industry</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2009- 2011 Cumulative</i>	<i>% Total</i>
Retail Trade	92	190	262	544	21.0%
Health & Social Services	87	181	249	517	20.0%
Accommodation & Food Services	56	117	161	334	12.9%
Other Services	43	89	122	254	9.8%
Finance & Insurance	23	48	66	137	5.3%
Professional, Scientific & Technical Services	20	42	57	119	4.6%
Administrative & Waste Services	20	41	57	118	4.5%
Arts, Entertainment & Recreation	15	32	44	91	3.5%
Real Estate & Rental	15	32	43	90	3.5%
Educational Services	15	30	42	86	3.3%
Wholesale Trade	14	29	39	82	3.2%
Transportation & Warehousing	11	22	30	63	2.4%
Manufacturing	6	13	18	38	1.4%
Information	6	13	17	36	1.4%
Government	6	12	16	33	1.3%
Management of Companies	3	6	9	18	0.7%
Construction	3	5	7	15	0.6%
Agriculture, Forestry, Fishing & Hunting	2	3	4	9	0.3%
Utilities	1	2	2	5	0.2%
Mining	0	1	1	2	0.1%
<b>Total</b>	<b>436</b>	<b>906</b>	<b>1,247</b>	<b>2,589</b>	<b>-</b>

Sacramento Regional Research Institute, April 2008  
 Data Source: IMPLAN, 2006 Coefficients based on stated assumptions  
 Notes: Sorted by 2009-2011 total employment.  
 Differences due to rounding.

## HOUSEHOLD CONSUMPTION IMPACTS

Figure 9 shows that the Sacramento Region's Government; Health & Social Services; and Retail Trade sectors could account for 46 percent of total output impacts (including direct, indirect, and induced effects) resulting from new Natomas Basin residents' household consumption from 2009 through 2011.

**FIGURE 9**  
**MAJOR SECTOR OUTPUT IMPACTS FROM HOUSEHOLD CONSUMPTION IN 2009 THROUGH 2011**

<i>Industry</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2009-2011 Cumulative</i>	<i>% Total</i>
Government	\$8,793,437	\$18,260,412	\$25,136,132	\$52,189,981	17.1%
Health & Social Services	\$7,966,487	\$16,543,173	\$22,772,288	\$47,281,948	15.5%
Retail Trade	\$6,849,794	\$14,224,255	\$19,580,210	\$40,654,259	13.3%
Finance & Insurance	\$4,948,316	\$10,275,651	\$14,144,812	\$29,368,779	9.6%
Accommodation & Food Services	\$3,077,422	\$6,390,562	\$8,796,845	\$18,264,829	6.0%
Real Estate & Rental	\$2,857,482	\$5,933,836	\$8,168,144	\$16,959,462	5.6%
Other Services	\$2,427,006	\$5,039,910	\$6,937,621	\$14,404,537	4.7%
Manufacturing	\$2,413,442	\$5,011,745	\$6,898,851	\$14,324,038	4.7%
Professional, Scientific & Technical Services	\$2,352,858	\$4,885,935	\$6,725,669	\$13,964,462	4.6%
Wholesale Trade	\$2,332,920	\$4,844,531	\$6,668,678	\$13,846,129	4.5%
Information	\$1,816,927	\$3,773,023	\$5,193,704	\$10,783,654	3.5%
Administrative & Waste Services	\$1,141,162	\$2,369,733	\$3,262,026	\$6,772,921	2.2%
Transportation & Warehousing	\$1,118,683	\$2,323,053	\$3,197,768	\$6,639,504	2.2%
Arts, Entertainment & Recreation	\$823,032	\$1,709,106	\$2,352,647	\$4,884,785	1.6%
Educational Services	\$645,221	\$1,339,865	\$1,844,374	\$3,829,460	1.3%
Utilities	\$568,443	\$1,180,426	\$1,624,899	\$3,373,768	1.1%
Management of Companies	\$557,459	\$1,157,617	\$1,593,502	\$3,308,578	1.1%
Construction	\$329,307	\$683,839	\$941,329	\$1,954,475	0.6%
Agriculture, Forestry, Fishing & Hunting	\$181,384	\$376,660	\$518,486	\$1,076,530	0.4%
Mining	\$160,069	\$332,398	\$457,558	\$950,025	0.3%
<b>Total</b>	<b>\$51,360,851</b>	<b>\$106,655,730</b>	<b>\$146,815,543</b>	<b>\$304,832,124</b>	<b>-</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Sorted by 2009-2011 total output.

Differences due to rounding.

In 2007 dollars.

## Spending Diverted to Required Flood Insurance

In addition to economic losses generated from halted commercial and residential development activity, the flood zone remap could also create a loss of consumption activity in the economy as a result of Natomas Basin homeowner spending diverted to purchasing required flood insurance. The new flood zone designation will require most homeowners in the Natomas Basin to carry flood insurance and force those who currently voluntarily hold insurance to purchase a higher risk policy.

Currently, Natomas Basin homeowners can voluntarily purchase a Preferred Risk Policy (PRP). However, the proposed AE flood zone designation, which will go into effect starting in 2009, would require homeowners with federally-backed mortgages to purchase a High Risk Policy (HRP) through the National Flood Insurance Plan (NFIP). A PRP costs \$285 per year with \$250,000 of property coverage with \$100,000 of content coverage and a \$500 deductible.<sup>14</sup> The same coverage under an HRP could cost \$1,970, about 591 percent more than the PRP. However, only the property coverage component will be required with the proposed designation, which could cost \$1,216 per year.<sup>15</sup> Owners of some structures built before 1978 could be exempt from the requirement to purchase an HRP and could be grandfathered into NFIP, but these structures must also meet other eligibility requirements. In addition, those homeowners without mortgages who voluntarily maintain flood insurance could also be grandfathered in.

SRRI estimated the total amount of spending diverted to required flood insurance by applying the insurance requirements and related costs to groups of homeowners in the Natomas Basin based on mortgage status, voluntary flood insurance, and age of property. Expenditure patterns were determined using the range of household income distribution in the area. Since there are different options available for an HRP, SRRI developed two ranges of total insurance expenditures—the high range uses the full coverage while the low range only takes the property coverage premium into account. Because the new designation is not in place and processes for exemptions and grandfathering of older and non-mortgage properties are not clear, SRRI also incorporated assumptions about these homeowners into the low and high ranges. The low range assumes that all homeowners of properties built before 1980 that do not voluntarily purchase flood insurance qualify for the exemption and those who currently hold insurance can maintain the lower cost policy.<sup>16</sup> The high range takes the opposite into account—no exemptions or grandfathering occur for older and non-mortgage properties.

Spending diverted to required flood insurance assumptions:

- There are nearly 24,000 single-family housing units in the Natomas Basin.<sup>17</sup>

<sup>14</sup> PRP costs based on NFIP information and include a 10 percent discount as part of the City of Sacramento's Community Rating System (CRS) designation.

<sup>15</sup> HRP costs based on NFIP information and include a 20 percent discount as part of the City of Sacramento's class 6 CRS.

<sup>16</sup> Due to data limitations, 1980 rather than 1978 was used as the cut-off point for exemptions.

<sup>17</sup> Total housing units and tenure based on Claritas Site Reports, 2007 Demographic Snapshot Report.

All single-family units are tabulated in these estimates, including units that are owner-occupied, renter-occupied, and otherwise vacant since costs will be directly absorbed or passed on.

## DIVERTED SPENDING IMPACTS

- Approximately 88 percent of single-family units have a mortgage.<sup>18</sup>
- Around 84 percent of housing units were built after 1980.<sup>17</sup>
- About 36 percent of homeowners currently carry voluntary flood insurance.<sup>19</sup>
- The proportion of homeowners who voluntarily hold flood insurance will remain constant in exemption and grandfathered cases.
- A PRP policy costs \$285 per year and an HRP policy costs \$1,216 or \$1,970 per year, depending on coverage level.<sup>20</sup>
- The level of current homeowners will remain stable.<sup>17</sup>
- The Natomas Basin will maintain the current household income distribution.<sup>17</sup>

Figure 10 shows that as a result of the insurance requirements, every year that the proposed flood zone designation is in effect, between \$12 million and \$26 million of spending could be removed from the Sacramento Region's economy as it is diverted to purchasing flood insurance policies.<sup>21</sup>

Annually, this direct spending could support between 100 and 230 jobs in the Region. However, the losses to the Region's economy do not end with these direct impacts, the spending could also create a ripple effect. Every year, the Region could lose a total of between 170 and 350 jobs and between \$20 million and \$41 million of output as a result of

### Range of potential economic impacts of spending diverted to required flood insurance:

#### Annual:

- ✓ 170-350 jobs
- ✓ \$20-\$41 million output
- ✓ \$12-\$26 million value added
- ✓ \$6-\$12 million employee compensation

#### 2009-2011 Cumulative:

- ✓ 500-1,100 jobs
- ✓ \$59-\$124 million output
- ✓ \$37-\$77 million value added
- ✓ \$17-\$36 million employee compensation

consumption diverted to required flood insurance. The multiplier effect shows that for every dollar of consumption lost as it is diverted to flood insurance, an additional 60 cents of output or 0.5 jobs could also be removed from the Region's economy. Moreover, the Region could feel a loss of between \$12 million and 26 million of total added value and \$6 million and \$12 million of total employee compensation (equating to approximately \$34,000 per employee in both cases). If the flood zone designation was not changed until after 2011, the combined losses from required flood insurance (low range) could equate to around 500 jobs and \$59 million of output, including direct, indirect, and induced effects.

<sup>18</sup> Mortgage status based on U.S. Census Bureau, 2006 American Community Survey for Elk Grove. Since current mortgage information is not readily available for the Natomas Basin, the City of Elk Grove was used as a proxy because development occurred at a similar time and with similar growth patterns.

All mortgages are assumed to be federally-backed.

<sup>19</sup> Based on NFIP estimates of total policies in effect for the Natomas Basin and Claritas Site Reports, 2007 Demographic Snapshot Report counts of single-family housing units.

<sup>20</sup> Based on NFIP information for different coverage levels and City of Sacramento CRS designation discounts.

Income distribution based on Claritas Site Reports, 2007 Demographic Snapshot Report.

<sup>21</sup> An additional approximate \$7 million and \$15 million of direct expenditures diverted to flood insurance could leak out of the Sacramento Region through demand for goods and services outside the area as well as payments received by institutions outside the Region.

**DIVERTED SPENDING IMPACTS**

**FIGURE 10  
ECONOMIC IMPACTS OF SPENDING  
DIVERTED TO REQUIRED FLOOD INSURANCE**

<i>Impacts</i>	<i>Direct</i>	<i>Indirect</i>	<i>Induced</i>	<i>Total</i>
<u>Annual Low Range</u>				
Employment	109	27	32	168
Output	\$12,469,456	\$3,549,733	\$3,796,199	\$19,815,388
Value Added	\$7,924,915	\$2,015,499	\$2,359,823	\$12,300,237
Employee Compensation	\$3,548,654	\$1,057,744	\$1,086,479	\$5,692,877
<u>2009-2011 Cumulative Low Range</u>				
Employment	326	81	97	503
Output	\$37,408,368	\$10,649,199	\$11,388,597	\$59,446,164
Value Added	\$23,774,745	\$6,046,497	\$7,079,469	\$36,900,711
Employee Compensation	\$10,645,962	\$3,173,232	\$3,259,437	\$17,078,631
<u>Annual High Range</u>				
Employment	227	57	67	350
Output	\$26,000,676	\$7,401,724	\$7,915,642	\$41,318,042
Value Added	\$16,524,624	\$4,202,617	\$4,920,584	\$25,647,825
Employee Compensation	\$7,399,464	\$2,205,557	\$2,265,478	\$11,870,499
<u>2009-2011 Cumulative High Range</u>				
Output	680	170	202	1,051
Employment	\$78,002,028	\$22,205,172	\$23,746,926	\$123,954,126
Value Added	\$49,573,872	\$12,607,851	\$14,761,752	\$76,943,475
Employee Compensation	\$22,198,392	\$6,616,671	\$6,796,434	\$35,611,497

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Differences due to rounding.

In 2007 dollars.

## DIVERTED SPENDING IMPACTS

Figure 11 shows that the Sacramento Region’s Retail Trade; Health & Social Services; and Accommodation & Food Services sectors could see the greatest employment impacts resulting of consumption shifted to purchases of flood insurance. About 54 percent of the jobs that could have been supported by the consumption activity every year fall within these three sectors.

**FIGURE 11**  
**MAJOR SECTOR EMPLOYMENT IMPACTS FROM**  
**SPENDING DIVERTED TO REQUIRED FLOOD INSURANCE**

<i>Industry</i>	<i>Annual</i>		<i>2009-2011 Cumulative</i>		<i>% Total</i>
	<i>Low Range</i>	<i>High Range</i>	<i>Low Range</i>	<i>High Range</i>	
Retail Trade	36	75	108	225	21.5%
Health & Social Services	34	70	101	210	20.0%
Accommodation & Food Services	21	45	64	134	12.7%
Other Services	16	33	47	98	9.4%
Finance & Insurance	9	18	26	55	5.2%
Professional, Scientific & Technical Services	8	16	23	49	4.6%
Administrative & Waste Services	8	16	23	48	4.6%
Real Estate & Rental	7	14	20	41	3.9%
Arts, Entertainment & Recreation	6	12	17	35	3.3%
Wholesale Trade	5	11	16	34	3.2%
Educational Services	5	10	15	31	2.9%
Transportation & Warehousing	4	9	12	26	2.4%
Manufacturing	3	5	8	16	1.5%
Information	2	5	7	15	1.4%
Government	2	5	7	14	1.3%
Management of Companies	1	3	4	8	0.7%
Construction	1	2	3	6	0.6%
Agriculture, Forestry, Fishing & Hunting	1	1	2	4	0.4%
Utilities	0	1	1	2	0.2%
Mining	0	0	0	1	0.1%
<b>Total</b>	<b>168</b>	<b>350</b>	<b>503</b>	<b>1,051</b>	<b>-</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Note: Differences due to rounding.

## DIVERTED SPENDING IMPACTS

As Figure 12 demonstrates, the Government; Health & Social Services; and Retail Trade sectors could see the largest annual output impacts in the Sacramento Region due to expenditures directed toward flood insurance rather than other typical consumption activity. These three sectors could encompass around 46 percent of the total output impacts.

**FIGURE 12**  
**MAJOR SECTOR OUTPUT IMPACTS FROM**  
**SPENDING DIVERTED TO REQUIRED FLOOD INSURANCE**

Industry	Annual		2009-2011 Cumulative		% Total
	Low Range	High Range	Low Range	High Range	
Government	\$3,203,247	\$6,679,248	\$9,609,741	\$20,037,744	16.2%
Health & Social Services	\$3,106,195	\$6,476,881	\$9,318,585	\$19,430,643	15.7%
Retail Trade	\$2,693,131	\$5,615,580	\$8,079,393	\$16,846,740	13.6%
Finance & Insurance	\$1,883,919	\$3,928,252	\$5,651,757	\$11,784,756	9.5%
Real Estate & Rental	\$1,228,792	\$2,562,216	\$3,686,376	\$7,686,648	6.2%
Accommodation & Food Services	\$1,167,521	\$2,434,456	\$3,502,563	\$7,303,368	5.9%
Manufacturing	\$955,588	\$1,992,543	\$2,866,764	\$5,977,629	4.8%
Wholesale Trade	\$931,917	\$1,943,186	\$2,795,751	\$5,829,558	4.7%
Professional, Scientific & Technical Services	\$920,470	\$1,919,317	\$2,761,410	\$5,757,951	4.6%
Other Services	\$898,046	\$1,872,561	\$2,694,138	\$5,617,683	4.5%
Information	\$705,877	\$1,471,857	\$2,117,631	\$4,415,571	3.6%
Administrative & Waste Services	\$442,730	\$923,160	\$1,328,190	\$2,769,480	2.2%
Transportation & Warehousing	\$431,557	\$899,862	\$1,294,671	\$2,699,586	2.2%
Arts, Entertainment & Recreation	\$304,069	\$634,029	\$912,207	\$1,902,087	1.5%
Utilities	\$238,068	\$496,406	\$714,204	\$1,489,218	1.2%
Educational Services	\$218,354	\$455,299	\$655,062	\$1,365,897	1.1%
Management of Companies	\$217,774	\$454,091	\$653,322	\$1,362,273	1.1%
Construction	\$127,278	\$265,393	\$381,834	\$796,179	0.6%
Agriculture, Forestry, Fishing & Hunting	\$74,388	\$155,111	\$223,164	\$465,333	0.4%
Mining	\$66,467	\$138,594	\$199,401	\$415,782	0.3%
<b>Total</b>	<b>\$19,815,388</b>	<b>\$41,318,042</b>	<b>\$59,446,164</b>	<b>\$123,954,126</b>	<b>100.0%</b>

Sacramento Regional Research Institute, April 2008

Data Source: IMPLAN, 2006 Coefficients based on stated assumptions

Notes: Differences due to rounding.

In 2007 dollars.

## Other Effects

The Sacramento Region's economy could certainly be impacted in ways other than the loss of construction activity, industry employment, and household consumption quantified in the previous sections. There are a few market alterations that economic theory suggests could impact residential real estate and economic development in the Natomas Basin. At this point, these effects are not easily quantifiable since the remap has not officially occurred and there are no appropriate historical examples to look to where a large area of new development experienced a flood zone redesignation of this nature. In addition, all of the economic effects discussed in this report could have fiscal impacts for local governments. While not in the scope of this study to quantify these impacts, the basic idea is important to note. Furthermore, this study focused on a select group of projects to analyze the impacts of lost development, but additional research could highlight others that could be directly affected by the development shut-down.

## Residential Real Estate Effects

Economic theory suggests that residential properties in flood risk areas should sell for less than comparable homes located outside flood zones. The discount mainly arises from a lower risk of loss and lesser flood insurance premiums. Studies exploring this flood risk discount arrive at results that are mixed. While much of the research demonstrates that properties do sell at a discount after controlling for locational and amenity factors, studies that find limited evidence of the flood risk discount focus on the issue of imperfect information between buyers and sellers. In this premise, in addition to the instances of buyers ignoring small probability natural disaster risk, many buyers do not fully understand the degree of flood risk or the cost of maintaining flood insurance. Although a diligent buyer could obtain supplemental information to make a more informed decision, research shows that some buyers do not learn about the insurance premiums or full risk profile until far into the purchasing process—as such, the buyers do not have full information when negotiating a purchase price. However, if information on the area becomes more complete due to the recent occurrence of a natural event or public awareness is heightened due to public information activities, one would expect the discounted prices to more fully arise. This could certainly be the case in the Natomas area where the proposed remap has been covered in the media and a heightened public awareness exists after Hurricane Katrina.

The research does not imply that the area would become completely unattractive to buyers; rather, it suggests that Natomas home values would decrease as they respond to the discounting effect. At this point, this behavior would be difficult to measure since the economy is in the midst of a downturn driven by a housing market slump and the flood zone remap is not fully in effect. However, if one assumes that the discounting behavior will occur, as the market begins its response, a compounding effect could occur where the combination of a housing slump and the knowledge of the flood issue generates market conditions that make it difficult to attract buyers and harder to sell. Until the market recovers and the flood risk is changed, residents could expect to see reduced equity as a

result of lower home values. This would occur on top of the loss of disposable income due to increased flood insurance costs discussed earlier in the report. As buyers purchase homes for a lower cost, assessed values could also decrease in many cases, creating lower property tax revenues. These discounted purchase prices would not necessarily free up disposable income to benefit sales tax revenues since they would be offset to some extent by flood insurance premiums. All in all, it is likely that the flood risk will have a negative impact on the Natomas residential real estate market and create other externalities.

### **Economic Development Effects**

Since those involved in commercial real estate transactions are typically more sophisticated and informed than in the residential market, economic principles indicate that non-residential buildings and undeveloped land in flood risk areas are more likely to see discounted values. Even though this discount may be attractive to some speculative investors or specific types of users, many business location and expansion projects are heavily influenced by perceived risk, making a flood zone area generally unattractive. This risk aversion also affects building owners who find it harder to attract tenants, use property as security for bonds and debt, or sell property in a flood zone. According to local economic development professionals, the media coverage of the Natomas flood zone remapping has already increased the perception of risk in the area. While the decision criteria for every user are different, economic development theory suggests that businesses could become increasingly apprehensive about investing in an area viewed as a possible danger to property, equipment, and workers. If businesses choose to relocate after considering the level of perceived risk, vacancy rates in the area could rise. These effects might not be as pronounced for users that heavily weight the unique attributes of Natomas in decision criteria, are less equipment intensive, or have a shorter-term lease horizon, but, for the most part, economic developers could see a reduced reliance on Natomas for feasible sites. In recent years, the Natomas area has been the target of a handful of notable business locations and considered an asset for the upcoming availability of usable industrial land, which the supply is currently limited in the Sacramento Region.

The effects of discounting and risk aversion would be difficult to measure in the current environment since the local economy is experiencing a slowdown, the office and retail markets have softened, and the official FEMA remap has not yet taken place. Nevertheless, if one assumes that a flood risk discount will arise and companies will continue to display risk avoidance, a compounding effect from the negative market perception along with the slowing economy could knock Natomas off the list of sites in initial business screens and make it increasingly difficult to attract tenants or buyers to properties in the area. This would occur in tandem with the removal of developable land from the regional inventory and the economic losses from planned projects discussed earlier in the report. The risk avoidance could also show up as a result of decreased reliance on flood zone certification—developers who relied on evaluations of flood risk that initially opened up the Natomas Basin for development may be less likely to do so in

the future since the standards could continue to change as they have with the remapping process. In cases where commercial buyers purchase buildings at a discounted cost, property taxes could fall with lower assessed values. It is likely that cost savings would be counterbalanced with increased premiums to mitigate the flood risk, reducing the possibility of business cost savings. Overall, until the flood risk is removed and the perception of danger is minimized, the economic development potential in Natomas could be greatly reduced.

### **Fiscal Impacts**

The scope of this project did not include an analysis of fiscal impacts; however, it is important to note that local government revenues could definitely be affected by the economic impacts and other effects highlighted in this report. A reduction in development fees would be expected as a result of planned new development that does not occur due to the flood zone remap. In addition, property taxes associated with the new commercial buildings and housing units would not materialize. Risk aversion coupled with the loss of commercial space supporting businesses that produce taxable sales as well as reduced employee and resident spending would likely affect sales tax revenues. Further, the indirect and induced impacts of the construction activity, industry employment, household consumption, and diverted spending for flood insurance would also have even broader tax generation implications. It is also important to highlight the fact that the City of Sacramento is already feeling strains on its budget and ability to provide services to businesses and residents. Any further reduction in revenues could worsen the fiscal environment for the City and other local governments.

### **Additional Projects**

In addition to the specific projects analyzed in this report, it is also likely that a development shut-down will necessitate a shift in scope and timing for other entitled or planned projects in the Natomas Basin. As previously mentioned, the current market conditions are affecting some projects, but, as is evident in this study, other projects will be affected by the flood zone remap even when considering the soft market. Development plans for entitled projects not yet constructed could contain phases that occur within the shut-down period and the entitlement process for planned projects could put approval timing in this period. While some projects could speed their timeframes up to beat the shut-down, this is not feasible for many projects that have not sufficiently geared up or are not far enough along in the approval process. There are some large planned projects that lie within the Natomas Basin that could be affected, depending on the length of the shut-down, such as Metro Air Park, Greenbriar, and the Panhandle. Metro Air Park is a close to 1,900-acre project in Sacramento County on the eastern edge of the Sacramento International Airport, which is expected to include mainly commercial and industrial space. Greenbriar is a nearly 600-acre planned annexation area for the City of Sacramento, which would be a primarily residential area with some commercial uses. The Panhandle area, specifically the approximately 600-acre northern portion known as

## OTHER EFFECTS

the Metre, is another possible annexation area for the City of Sacramento that could contain future housing developments.

## Appendix—Technical Notes

### Economic Impact Analysis Methodology

The measurement of the economic impacts in this analysis was performed using an input-output model called IMPLAN, developed at the University of Minnesota specifically for use in regional analysis and currently distributed and supported by the Minnesota IMPLAN Group, Inc. This model is widely used in California for economic and fiscal analysis to quantify the full range of economic impacts. Input-output models, including IMPLAN, evaluate the effects of industries on each other based on the premise that industries use the outputs of other industries as inputs. Most typical measures of economic activity examine only the total output or employment of an industry, or the amount of final consumption demand provided by a given industry. The input-output model provides a much more comprehensive view of the inter-related economic impacts. Specifically, firms and households within the Natomas Basin plus residential and commercial construction will directly create employment and purchases of goods and services within the Sacramento Region; however, economic benefits directly associated with the firms, household, and total area construction do not end with these general activities—they also generate economic impacts in linked industries throughout the Region.

The full range of economic impacts that result from the planned development and insurance requirements in the Natomas Basin from 2009 through 2011 includes direct, indirect, and induced benefits:

- *Direct Effects* consist of economic activity related exclusively to the Natomas Basin's total jobs and household consumption or the residential and commercial construction within Natomas.
- *Indirect Effects* define the creation of additional economic activity that results from linked firms and suppliers of goods and services.
- *Induced Effects* measure the consumption expenditures of direct and indirect sector employees. Examples of induced effects include employees' expenditures on items such as retail purchases, housing, medical services, banking, and insurance.

In this analysis, the total direct, indirect, and induced benefits are presented in four ways:

- *Employment* demonstrates the total number of jobs generated and includes both full-time and part-time workers on an annual basis.
- *Output* accounts for total revenues including all sources of income or the value of production generated by an industry for a given time period. This is the best overall measure of business and economic activity because it is the measure most firms use to determine current activity levels.
- *Value Added* reflects the new value created by the industry, net of costs of inputs, and is approximately the wages, profits, and return to capital. Value Added

consists of four components—employee compensation, proprietor income, other property income, and indirect business tax.

- *Employee Compensation* is a sub-set of Value Added and includes wages, salaries, benefits, and all other employer contributions. This measure shows how the employment levels convert to financial and fiscal potential.

Additionally, the input-output model is used to quantify the multiplier effect that occurs when new employment or output is added in the Sacramento Region. This numerical value illustrates the effect generated when new employment or output is added in one sector, but creates additional jobs or output in other sectors which supply goods and services (indirect impact) and consumer services to employees (induced impact).

### Studied Development Projects

With the assistance of the North State Building Industry Association and its members, SRRI was able to gather direct information about nine projects with plans that could be directly affected by the development shut-down. Projects where plans were primarily altered due to soft market conditions and expectations for economic recovery were not considered as part of this study since they could not appropriately be tied to the flood zone remap. High-level details of the nine studied projects are as follows:

- Alleghany Properties
  - 2010—550,000 square feet of retail, 80,000 square feet of office, and 65,000 square feet of hotel
- Commerce Station
  - 2009—47,000 square feet of office and 450,000 square feet of retail
  - 2010—50,000 square feet of office and 50,000 square feet of mixed-use
  - 2011—90,000 square feet of office and 20,000 square feet of mixed-use
- John Laing Homes
  - 2009—68 housing units
  - 2010—27 housing units
  - 2011—24 housing units
- K. Hovnanian Homes
  - 2009—235 housing units
  - 2010—366 housing units
  - 2011—100 housing units
- KB Homes
  - 2009—152 housing units
  - 2010—163 housing units
  - 2011—155 housing units
- Pardee Homes
  - 2009—298 housing units
  - 2010—298 housing units
  - 2011—298 housing units
- Reynen & Bardis Communities

APPENDIX—TECHNICAL NOTES

- 2009—59 housing units
- Shea Homes
  - 2009—108 housing units
  - 2010—108 housing units
  - 2011—108 housing units
- Towne Development
  - 2009—20 housing units
  - 2010—25 housing units
  - 2011—25 housing units



# EVALUATION

**Economic and Tax Impact Studies:** The creation of jobs typically has a ripple effect throughout a region where additional jobs are generated through relationships with linked firms and purchases of goods and services.

*SRRRI provides* a complete picture of employment, income and consumption expenditures throughout the region's economy and determines their economic effects. Using IMPLAN modeling, SRRRI also creates an estimate of the generation of federal, state and local taxes.

**Industry Studies:** An understanding of the economic trends and qualities necessary to foster growth and development is critical for business attraction, expansion and retention efforts aimed at a specific industry.

*SRRRI analyzes* employment and wage data for the industry, economic impacts, locational advantages, contributions of major employers and responses from an employer survey.

**Workforce Studies:** An important part of understanding a local economy is evaluating the characteristics of the workforce.

*SRRRI provides* information on the mix of jobs, training, education and skills and analyzes the ability of the workforce to fill the existing and potential future employment needs. SRRRI also evaluates industry staffing patterns and workforce competitiveness.

# CONSULTATION

**Economic Development Strategies:** Long-term economic development planning must consider both the current local environment as well as a vision for future growth and development.

*SRRRI provides* analysis on which to base long-term business decisions by identifying the economic potential of a local area, assessing the existing attributes and advantages, evaluating economic and demographic trends and generating economic development strategies.

**Market and Feasibility Analyses:** Determining the market acceptance or feasibility of a specific project is essential to make informed business decisions and ensure success.

*SRRRI produces* market and feasibility studies to determine if the market conditions are suitable for development, short-and long-term project sustainability and the best use of a location or site.

## Policy Analysis and Program Evaluation

**Support:** In some cases, policy analysis and program evaluation activities require an added level of economic or technical support.

*SRRRI offers* support services in assessing the economic components of specific policy alternatives, developing research processes and measurement techniques and gathering and analyzing data to evaluate program effectiveness.

## CLIENTS

Public and private clients from inside and outside the Sacramento Region look to SRRRI's unique economic and demographic research expertise to help them work smarter and more competitively in realizing their objectives.

### Representative Clients:

California Building Industry Association  
California Chamber of Commerce  
City of Sacramento  
Folsom Economic Development Corporation  
KT Communities  
Los Rios Community College District

Partnership for Prosperity  
Placer County  
Sacramento Employment and Training Agency  
Teichert Aggregates  
The Diepenbrock Law Firm  
Westfield Corporation