

**Economic Impact On  
Riverside County & Its Southwestern Area  
Liberty Quarry**

by  
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# Economic Impact On Riverside County & Its Southwestern Area Liberty Quarry

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## EXECUTIVE SUMMARY

Granite Construction Company is seeking approval to open the 155-acre Liberty Quarry sand and gravel (*aggregate*) mine on 413 acres near San Diego County in the hills south of Temecula. The site is located close to the southwest corner of Rainbow Valley Blvd. and the I-15 freeway. Its maximum production is proposed at 5 million tons of aggregate a year. The facility is expected to operate 300 days per year or an average of six days per week. Production is estimated to start at 500,000 tons per year in 2012, increase by 500,000 tons per year until maximum production of 5 million tons per year in Year 2021. In the process, Liberty Quarry would have the following impacts on Riverside County's economy:

**I. Regional Policies.** The opening of Liberty Quarry represents the option most consistent with the other economic policies being followed in Southwest Riverside County. It provides a nearby source of sand and gravel to meet the demand generated by those policies. It reduces the cost of moving this material long distances. It allows the community to fill its needs without imposing burdens upon other communities. It reduces the Vehicle Miles Traveled (*VMT*) by trucks delivering materials the area needs and lowers the cost of freeway maintenance, congestion and diesel emissions.

**II. Total Economic Impact of Liberty Quarry.** The total economic impact of Liberty Quarry on the Riverside County economy in 2021 would be the impact of the funds leaving the firm and hitting the economy, plus the level of activity at the firm itself.

- **Output Impact: \$171.5 million**
  - **\$21.9 million** would be the annual impact of the “direct” injection of funds by Liberty Quarry into other sectors of Riverside County's economy.
  - **\$149.6 million** would be the total outside money flowing into Liberty Quarry from investments by Granite Construction plus sales of its products.
- **Household Income Impact: \$18.7 million**
  - **\$6.9 million** would be the extra income flowing to workers in the other sectors of Riverside County's economy that would occur due to the “direct” injection of funds by Liberty Quarry.
  - **\$11.8 million** would be the income flowing to Liberty Quarry's workers that is financed from outside flows of funds into the operation from either investments by Granite Construction or sales of its products.
- **Employment Impact: 277 Jobs**
  - **178** would be the extra jobs in the other sectors of Riverside County's economy that would be available due to the “direct” injection of funds by Liberty Quarry.
  - **99** would be the jobs created at Liberty Quarry with an average income of \$83,443 not including benefits and a median income (*half above:half below*) of \$91,644. Average pay in 2021, including benefits would be valued at \$123,762.

**III. Governmental Revenues.** Liberty Quarry would deliver the following funds to governmental entities based upon its design capacity of 5 million tons of production in 2021. All figures are in 2005 dollar terms:

- **Riverside County**
  - Additional Property Taxes Per Year, at 5 million Tons of Production: **\$658,181**
  - Additional Sales Taxes Per Year, at 5 million Tons of Production: **\$1,026,311**
  - TUMF Fees (*one time*): **\$107,070**
  - Multiple Species Habitat Conservation Fee (*one time*): **\$950,305**
- **Riverside County Transportation Commission**
  - Additional Sales Taxes Per Year, at 5 million Tons of Production: **\$513,155**
- **California**
  - Additional Sales Taxes Per Year, at 5 million Tons of Production: **\$6,157,865**
  - Present Value of Royalties for life of project: **\$3,023,752**

**IV. Economic Impact of Reduced Truck Travel**

- **On Air Quality.** Liberty Quarry would reduce Vehicle Miles Traveled by heavy trucks by an estimated 16.5 million miles per year. By 2020, this would reduce annual truck air emissions on I-15 in Riverside County by:

Pollutant	Reduction: 2020 Standards (Tons Per Year)
Reactive Organic Gases ( <i>ROG</i> )	-4.2
Carbon Monoxide ( <i>CO</i> )	-22.5
Nitrogen Oxide ( <i>NOx</i> )	-56.5
Sulfur Dioxide ( <i>SO<sub>2</sub></i> )	-0.4
Tailpipe and fugitive <i>PM<sub>10</sub></i>	-9.7

ARB wishes to reduce truck air emissions by 5.3 tons per day by 2020 in the South Coast Air Basin. Liberty Quarry alone would account for 0.18 tons per day by 2020. Alone, the quarry would thus be responsible for 3.42% of the daily NOx reduction sought by ARB with no cost to its strategies. It would similarly assist in reducing PM<sub>10</sub> emissions.

ARB’s strategies for cutting truck emissions are estimated at a cost of \$800 million. While the exact relationship is not known, if there was a straight line relationship between the share of reductions of NOx that Liberty Quarry could achieve and a reduction in the cost of ARB’s strategies through 2020, the quarry alone could reduce those costs by 3.42% of \$800 million or **\$27.3 million**. In any case, the opening of the quarry would have a major economic benefit on the cost of reducing truck emissions in the South Coast Air Basin.

- **On Highway Maintenance.** In addition to air quality, the VMT reduction from the opening of Liberty Quarry would lower highway maintenance costs from aggregate truck use of freeways. Using Federal Highway Administration data on the cost per VMT of highway maintenance in 2000, and adjusting their figure by California’s data on the 2000-2005 increase in highway maintenance costs, the cost factor for heavy trucks was

**\$0.322 per VMT** in 2005. The annual highway maintenance savings of 16.5 million VMT reduction in truck traffic from the opening of Liberty Quarry would thus be **\$5.3 million**. This is a conservative measure as sand and gravel trucks weigh more than the standard truck used in these calculations.

# Liberty Quarry

## Riverside County & Its Southwestern Area

John E. Husing, Ph.D.

### I. Introduction

Granite Construction Company is seeking approval to open the 155-acre Liberty Quarry sand and gravel (*aggregate*) mine on 413 acres near San Diego County in the hills south of Temecula. The site is located close to the southwest corner of Rainbow Valley Blvd. and the I-15 freeway. Its maximum production will be roughly 5 million tons of aggregate a year. The facility is expected to operate 300 days per year or an average of just under six days per week. In considering the economic impact of the operation, there are four different types of impacts that are analyzed:

#### 1. Local Economic Priorities

In analyzing the potential impact of a project like Liberty Quarry, perhaps the most important consideration is the extent to which it has a role to play in the economic priorities being pursued within the community where it is to be located. These policy decisions are often made at the ballot box. More frequently, they are the results of decisions by elected and appointed leaders or their staffs. For southwestern Riverside County, a significant share of these policy choices concern the form of the community's development. This is the case since the area is a relatively new part of Southern California's economic picture.

A look at the decisions being made in cities like Temecula and Murrieta show that the residents of southwestern Riverside County want to create a suburban community largely composed of upscale detached single family homes. They wish their children to attend uncrowded schools. They would like to see a wide range of locally available shopping both to generate sales taxes to fund local governments and as an amenity for families. Given the large number of residents forced to commute long distances to work, they want to see the creation of a strong base of local good-paying office, industrial and technology jobs. To tie the community together, the area's residents would like the region's internal streets and roads to become significantly less congested than they are today. They also want the I-15 freeway expanded to ease congestion and to decrease the length of time it takes commuters to reach San Diego County and Orange County.

However, this lifestyle is impossible without the materials that allow homes, patios, driveways, schools, retail centers, parking lots, offices, industrial facilities, streets, overpasses and freeways to be built. For these, the principal ingredient is *aggregate*, or simply - sand and gravel . Yet, like communities throughout California, many people in southwestern Riverside County do not want these materials mined either near them or in nearby remote areas. For this reason, California is running out of aggregate.<sup>1</sup> This problem is particularly true of southwestern Riverside County and nearby San Diego County, as their existing supplies are being rapidly depleted. . Looking long term, the California Department of Conservation estimates that western San Diego County and the Corona to Temecula area will need 2,069 million tons of aggregate from 2002-2052. The area only has existing capacity equal to 1,085 million tons or just 52.4% of its needs.<sup>2</sup>

Below, this dilemma and its implications are fleshed out more thoroughly.

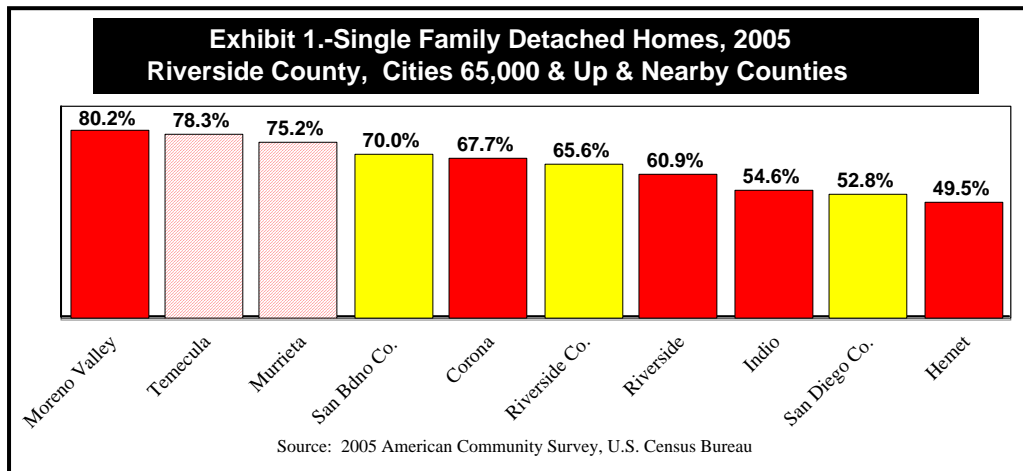
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<sup>1</sup> Aggregate Availability in California, Susan Kohler, Senior Geologist, California Geological Survey, 2002

<sup>2</sup> Aggregate Availability In California, Page 4, 2002

**Preferences & Strategic Decisions.** The situation starts with the fact that southwestern Riverside County has become home to increasing numbers of people, largely from San Diego County. As indicated, they are choosing to build a prosperous community based around high-end single family residences, quality schools, upscale shopping centers and expanding office and industrial campuses. These preferences are evident in the strategic decisions that the Temecula-Murrieta area is making in managing its expansion:

- The region has mandated that most new homes be upscale single family residences in low density developments. In 2005, the two major cities had the second and third highest concentrations of single family detached homes among cities of over 65,000 in Riverside County (*Exhibit 1*). To emphasize this preference, Temecula recently sued over the proposed construction of 4,600 houses in French Valley, and dropped its opposition in December 2004 only after the developer agreed to scale back the number of units on the site and helped to expand the roads that would connect the new residents with I-215.



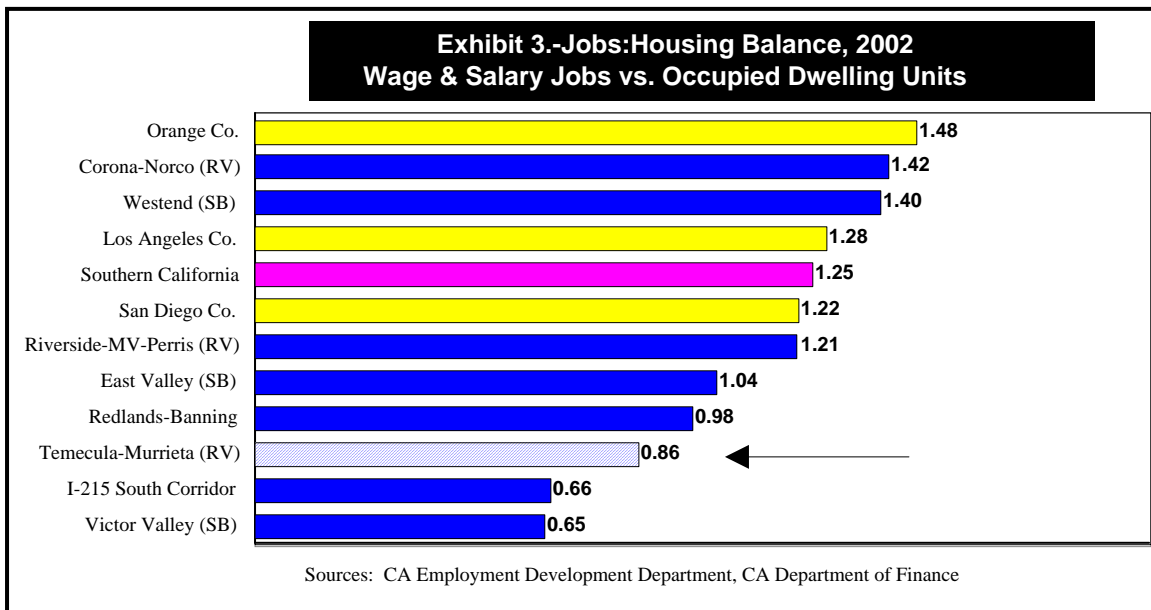
- The area has encouraged the development of new shopping outlets, many high-end. In Temecula, this has been seen in the development and expansion of the Promenade Mall plus power centers with stores like Walmart, Costco, Home Depot and Lowes. In Murrieta, a series of large scale projects like Crossroads Corporate Center are underway or planned near the junction of the I-15 and I-215 freeways.
- The region places a high priority on education and is continually expanding its school facilities. This is evident in that the Temecula and Murrieta school districts have Riverside County’s highest test scores. Together, the two districts have added 19 schools from 2000-2006 (*Exhibit 2*). In addition, the Temecula Education Center is moving forward. It will allow a wide range of university, private college and community college classes to be offered in one location, in twin 5-story buildings juxtapositioned with living facilities, retail outlets and oversized parking lots.

- The area wants a growing base of good paying jobs located in local office campuses and industrial facilities. This has led to the formation of the Southwest California Economic Alliance to lure firms to the area. It is also seen in the research by the Western Riverside Council of Governments (WRCOG) and the San Diego Association of Governments (SANDAG) on strategies to create a better local “jobs:housing” balance for the region by increasing the number of local employers in southwestern Riverside County.

<b>Exhibit 2.-New Schools, Temecula-Murrieta, 2000-2006</b>	
<b>Temecula Valley Unified School District</b>	Day (James L.) Middle
French Valley Elementary	Ysabel Barnett Elementary
Gardner (Erle Stanley) Middle	<b>Murrieta Valley Unified School District</b>
Great Oak High	Antelope Hills Elementary
Alamos Elementary	Cole Canyon Elementary
Bella Vista Middle	Creekside High (Cont.)
Crowne Hill Elementary	Daniel N. Buchanan Elementary
La Vorgna (Susan) Elementary	Monte Vista Elementary School
Tobin (Tony) Elementary	Vista Murrieta High School
Jackson (Helen Hunt) Elementary	Warm Springs Middle School
Reinke (Abby) Elementary	

Source: CA Department of Education

**Commuting & Transportation.** Meanwhile, a primary reason for southwestern Riverside County’s focus on local job creation has been the lag between the migration of people and the flow of jobs into the Temecula-Murrieta area. This has meant that a large share of local residents must commute to work in San Diego County. Thus, in 2002, the region had 41,630 local wage and salary jobs and 62,841 occupied dwellings, a 0.86 jobs:housing ratio. A ratio of 1.25 is the average for Southern California indicating that the Temecula/Murrieta area is very job poor and thus a commuter area (*Exhibit 3*).<sup>3</sup>



<sup>3</sup> Job data from CA Employment Development Department; occupied dwellings from CA Department of Finance

A June 2004 analysis conducted for the WRCOG, San Diego County Association of Governments (SANDAG), and Southern California Association of Governments (SCAG), further underscored the difficulties caused by this imbalance:<sup>4</sup>

- 29,000 residents of Temecula/Murrieta commute to San Diego County, meaning roughly one of every three families in the area has a resident commuting south on the I-15.
- 60% of commuters living in Temecula/Murrieta for under 10 years came from San Diego County.
- 90% would prefer owning a single family detached home versus an attached home, and few waver from this view even in exchange for cutting their commute time in half.
- 58% would prefer a local job at the same salary even with a career change, and 31% would prefer a local job even with a 10% pay cut.
- 60% would pay a toll to use a FasTrak lane to San Diego and 48% would consider carpooling if HOV lanes were built.

These facts mean that the prosperity of southwestern Riverside County is intimately affected by the success of San Diego County. The reverse is also true. It is thus essential that transportation ties between southwestern Riverside County and San Diego County be strengthened. In this light, the Riverside County Transportation Commission and SANDAG are both planning and building such links. In Riverside County, this includes added lanes on the I-15 freeway from the San Diego County line through southwestern Riverside County, north to Corona and Mira Loma.<sup>5</sup> In San Diego County, it includes creating a 20-mile "Managed Lanes" facility for car-pools and buses in the median of Interstate 15 between the SR-78 north of Escondido, and Route 163 near San Diego.<sup>6</sup> Given the need for aggregate to build these projects, the result is that economic development in southwestern Riverside County and San Diego County are partly dependent upon a supply of sand and gravel at reasonable costs to support highway construction linking the two areas. In particular, this construction is of direct benefit to the roughly one in three Temecula Valley families with a member commuting to San Diego County for work.

**Local Transportation Congestion Relief.** Meanwhile, the public's demand for transportation projects was underscored by Riverside County's 69.2% vote for the 2002 Measure A to raise sales taxes to fund them. Southwest Riverside County's voters joined the rest of the county in overwhelmingly passing this measure. It will provide funding for the expansion of the I-15 freeway mentioned earlier. In 2006, 64.4% of Riverside County's voters supported the passage of Proposition 1B to have the state borrow funds to increase transportation funding. In addition, Measure A included the Transportation Uniform Mitigation Fees that are now being collected to finance an extensive expansion of surface streets and arterials throughout the county. Here, the

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<sup>4</sup> I-15 Interregional Partnership, Final Report, SANDAG, WRCOG, SCAG, 2004

<sup>5</sup> \$359 million for I-15 from San Diego County line to SR-60, Ordinance 02-001 Riverside County Transportation Commission Transportation Expenditure Plan And Retail Transaction And Use Tax Ordinance

<sup>6</sup> Transportation Roads & Highways, I-15 Managed Lanes, San Diego Association of Governments

intensity of feeling in favor of road construction was seen in the October 2006 settlement of a lawsuit between Temecula and Riverside County that calls for spending to expand:

- Newport Road between Goetz Road and Winchester Road
- Scott Road/Bundy Canyon Road between I-15 and Winchester Road
- Clinton Keith Road between I-15 and Winchester Road
- Overpasses where these routes cross the I-215
- Study of the impact of growth on the I-215 and I-15 freeways

**Sand & Gravel.** An uncomfortable reality underlying each of these preference and strategic directions is the fact that implementation requires very large and growing amounts of sand and gravel. This is the true whether it is the construction of homes, schools, shopping centers, office campuses or industrial facilities. It is also the case for the expansion of surface streets to connect spread-out single family detached neighborhoods, as well as the new arterial routes planned to alleviate pressure on the highway system, plus the planned expansion of the I-15 freeway in Riverside County or the high occupancy lanes and/or toll lanes planned in San Diego County. In each situation, mined aggregate is an essential ingredient and often the main one:<sup>7</sup>

- 38,000 tons of sand and gravel is needed for one mile of a standard 4-lane highway
- 15,000 tons is needed for an average school
- 400 tons is needed to construct an average home
- One cubic yard of concrete is 81% sand and gravel and serves as the base material for offices, industrial projects, hotels and hospitals
- One ton of asphalt paving for surface streets has 1,900 lbs of sand and gravel in it

**Population Forecasts & Demand For Aggregate.** How much aggregate material will be needed? To determine that level, the starting point is per capita consumption. In California, the U.S. Geological Survey (*USGS*) found that in 2004, the state consumed 221,400,000 million metric tons of sand, gravel and crushed rock.<sup>8</sup> As the state is no longer self sufficient in aggregate, it is importing more and more of this material from British Columbia and Mexico. With a population of 36,200,000 in 2004, the consumption represented 6.12 tons per capita. This was close to the California Department of Conservation estimated of average consumption of aggregate in the state at 7 tons per capital per year.<sup>9</sup> In the Temecula, Murrieta, Lake Elsinore, Hemet, San Jacinto and the adjacent unincorporated areas, the 2006 population is estimated at 544,797. The forecast for 2030 is 887,909, an increase of 343,112 or 63.0%.<sup>10</sup>

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<sup>7</sup> 50 Fascinating Facts About Stone, Sand and Gravel, National Stone, Sand and Gravel Association, 2006

<sup>8</sup> U.S. Geological Survey, Minerals Year Book 2004, The Mineral Industry of California, Tables 3b & 5b

<sup>9</sup> Aggregate Availability in California, Susan Kohler, Senior Geologist, California Geological Survey, 2002, Page 16

<sup>10</sup> 2006 E-5 Report, CA Department of Finance modified with unincorporated areas based upon 2000 ratio less annexations. 2030 forecasts from Southern California Association of Governments Regional Transportation Program

Using the state’s estimate of 7.0 tons per person, that would put the level at 3.8 million tons per in 2006, rising to 6.2 million tons by 2030. In fact, the southwest Riverside County area’s demand will likely be higher given its extreme need to build local streets, arterials, and expanded freeway capacity as well as added shopping center, schools, offices and industrial facilities to catch up with its recent population expansion. That likelihood is consistent with the state’s estimate that in high growth areas with less dense populations, like San Diego County’s northern areas and southwest Riverside County, the annual consumption rate of aggregate may be as high as 10 tons per capita.

However, the issue does not end there. Currently, San Diego County is beginning to run out of aggregate from its existing sand and gravel mines. As a result, a large share of the material being used in northern San Diego County for projects like the expansion of the I-15 freeway is coming from quarries in Riverside County and north. The diesel trucks carrying this aggregate traverse the Temecula-Murrieta-Lake Elsinore area down the I-15 freeway. This demand is thus also affecting southwestern Riverside County. Currently, northern San Diego County has an estimated 2006 population of 825,871. This is forecasted to reach 1,043,034 by 2030, an increase of 217,163 or 26.3%.<sup>11</sup> That would put this area’s 2006 demand for aggregate at 5.8 million tons. This will rise to 7.3 million tons by 2030.

In Southwest Riverside County and Northern San Diego County, the total demand is thus:

- **2006 population = 1,370,688. Demand for aggregate = 9.6 million tons**
- **2030 population = 1,930,943. Demand for aggregate = 13.5 million tons**

<b>Exhibit 4.-Quarries Supplying Aggregate Materials, 2005</b>			
<b>Company</b>	<b>Location</b>	<b>Company</b>	<b>Location</b>
3 M	Corona	Shamrock Sand & Rock, Inc.	Temecula
All American Aggregate	Corona	Vulcan Materials Company	Corona
Cemex Construction Materials	Ontario	Chandler Sand & Gravel	Corona
Hanson Aggregate West, Inc.	Irwindale	Werner Corporation	Corona
Holiday Rock Company Inc.	Upland	Wyroc	Lake Elsinore

Source: Liberty Quarry Traffic Flow Evaluation, Urban Crossroads, 2005

There is also another 10 million tons of demand in South and Central San Diego County. These areas are served by local quarries as well as the same quarries in Riverside County and north.

**Geography.** Today, the sand and gravel supply serving Southwest Riverside County and Northern San Diego County largely comes from quarries located north of this combined area in Corona, Ontario, Upland, Irwindale and Lake Elsinore (*Exhibit 4*). To reach their destinations, trucks carrying this material move along the I-15 with many traversing the length of southwestern Riverside County. This fact is based upon the geographic location of these quarries and a study of truck traffic by Urban Crossroads, Inc. In 2005, they counted aggregate trucks over one 24-

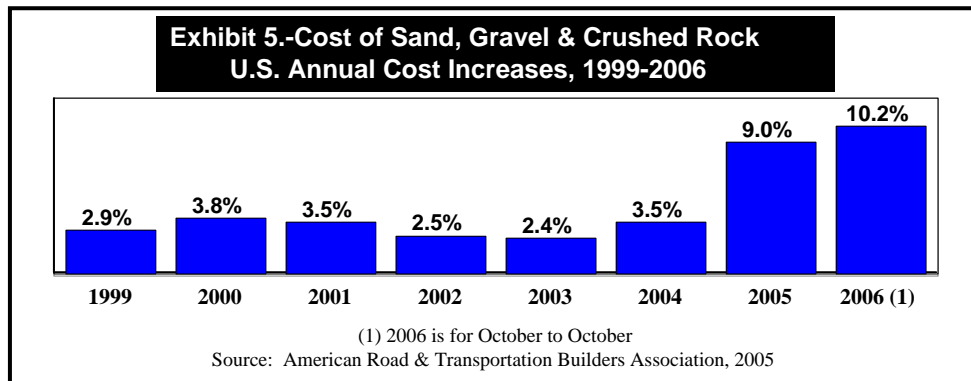
<sup>11</sup> 2006 and 2030 population data from San Diego Association of Governments

hour period that were driving along the I-15 freeway from the north where these quarries are located.<sup>12</sup> It found:

- 1,938 aggregate trucks at the I-15 and SR-74 in the Lake Elsinore area
- 931 aggregate trucks at the I-15 and SR-79 North next to Temecula
- 526 aggregate trucks at the I-15 and San Diego County line

**Opposition & Shortages.** While sand and gravel mining provides a product that is essential to allowing a community to build its desired structures and roads, it is not an activity that residents are excited about having located near them. In fact, aggregate mining operations almost always meet with opposition *no matter how remotely they are sited*. It was for this reason that a 2002 study by the California Department of Conservation predicted that the demand for sand and gravel would outpace the supply in the state.<sup>13</sup> In southwest Riverside County, like other California areas, the proposed Liberty Quarry has local opposition from the closest nearby urban center, Temecula. As is typical in the state, even the site's relative isolated location from population centers has become an issue for others who do not want a quarry in a relatively remote area.

**Cost of Materials.** As indicated earlier, with demand for sand, gravel and crushed rock increasing and the supply restricted by opposition, the cost of these materials has begun to soar. From 1999-2006, the U.S. gain in price was 40.3%, including 9.0% in 2005 and 10.2% to date in 2006 (*Exhibit 5*). As these cost increases have continued, the ability of programs like the Measure A ½ cent sales tax passed by the voters to finance transportation infrastructure that the public expects is becoming increasingly difficult.



<sup>12</sup> Liberty Quarry Traffic Flow Evaluation, Urban Crossroads, , April 2005

<sup>13</sup> Aggregate Availability in California, Susan Kohler, Senior Geologist, California Geological Survey, 2002

**Policy Issues.** For southwestern Riverside County, these facts raise three possibilities:

1. Residents will ultimately be forced to do without many of the facilities and infrastructure projects needed to support their desired lifestyles. This will occur as shortages drive up the price of sand and gravel, limiting the ability to finance projects. Already, this is happening with U.S. prices up 40.3% from 1999-2006, including 10.2% to date in 2006.<sup>14</sup> It has been seen locally in questions about the extent to which the revenues raised by the new Measure A will be sufficient to allow the full range of transportation projects outlined to the voters at the time of its passage.
2. Residents can hope that people somewhere else will overcome their own objections to local mining and allow expanded aggregate production. This strategy raises two issues:
  - o Given the decline in existing aggregate supplies in California, and the need for new sources, should one community with a growing need for this material transfer its difficult decisions about production to another place?
  - o The farther away an alternative source of supply, the higher the number of vehicle miles traveled (*VMT*) by diesel trucks carrying sand and gravel into and through the study area. This contributes to congestion and air quality difficulties in the South Coast Air Basin and particularly in southwestern Riverside County. Heavy trucks driving long distances also contribute to the cost of freeway maintenance.

This option is closest to the current situation with southwestern Riverside County and Northern San Diego County relying upon aggregate quarries elsewhere in Southern California for their sand and gravel. However, as indicated, many of these sources are being depleted and there is significant VMT by diesel trucks both to carry aggregate to southwestern Riverside County and through it to Northern San Diego County.

3. A nearby source of aggregate could be identified and operated that is somewhat remotely located from the population. This would allow the area to handle its own local sand and gravel supplies while reducing the VMT by diesel trucks to deliver it. Liberty Quarry would represent this alternative.

**Summary.** The opening of Liberty Quarry represents the option most consistent with the other economic policies being followed in Riverside County and its southwestern area. It provides a nearby source of sand and gravel to meet the demands generated by those policies. It reduces the cost of moving this material long distances. It allows the community to fill its needs without imposing burdens upon other communities. It reduces the VMT traveled by trucks delivering these needed materials and lowers the cost of freeway maintenance, congestion and diesel emissions.

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<sup>14</sup> Transportation Construction Material Prices, Annual Report, American Road & Transportation Builders Association, 2005

## **II. Economic Impact**

In studying the potential economic impact that a project like Liberty Quarry would have on its community, a key consideration is the amount of money that it will bring to the study area from the outside world. This is the case since once outside monies reach a region they have a disproportionately large impact on its economy. An understanding of the process by which this occurs is thus important to any analysis.

**Direct Source of Funds.** Fundamentally, an area has an economy because it has a set of activities that bring money to it from the outside world and supports firms and workers that receive it. These “direct” flows of funds form the community’s economic base. The major circumstances playing this role include:

- Commuters working elsewhere and bringing home their pay checks. The money is then spent locally on goods and services. In southwestern Riverside County, this appears to be its largest source of outside funds due to the many families being supported by commuters to San Diego County.
- Retirees receiving money from Social Security, savings or pensions and spending it locally on goods and services. This is likely a modest source of outside funds into southwestern Riverside County given that data from the 2005 American Community Survey and other estimates indicate that 10.7% of the region’s people are 65 or older versus 11.3% for Riverside County and 10.0% for Southern California as a whole.
- Construction firms receiving money via loans from the national money market and spending it on local workers, suppliers, service providers or profit to their owners. This has been a relatively large source of outside funding into the local economy, though it will likely not be as large in the next year or two due to the housing market slowdown.
- Manufacturers selling products outside the area and using the money to pay for local workers, supplies, service providers or profit to their owners. This has been a relatively small part of southwestern Riverside County’s direct funds given the area’s low jobs:housing ratio. Firms like Abbot Laboratories and International Rectifier have been the highlights for this source of outside money.
- Service firms, ranging from professionals to logistics operations, working for clients outside of the region and using the money they earn to pay for local workers, suppliers, service providers or profit to their owners. This is currently a weak source of direct funds for the Temecula-Murrieta area as it is not yet well-positioned to play a major role in such sectors as logistics, computer programming or engineering.
- Retailers, hotels or amusement operations selling products or services to visitors and using the money to pay for local workers, suppliers, service providers or profit to their owners. Here, the Temecula Valley’s wineries and the Pechanga Indian gaming operations are examples of strong sources of outside monies reaching the local economy.
- People on public assistance receiving checks from outside the area and spending the money locally on goods and services. Given the relative prosperity of southwestern Riverside County, this is a relatively small portion of its outside funds.

The key to these “direct” flows is that they bring money to the area from somewhere else. In the case of southwestern Riverside County, this means from elsewhere in the Inland Empire, Southern California, the state, the nation or the world.

Because Liberty Quarry will sell a good deal of its output to construction projects in Northern San Diego County, all of the funds flowing to it from this source would represent new “direct” funds into the local economy. In addition, since most of its sales within southwestern Riverside County will be to entities whose funding comes from the national money markets via loans and bonds used to fund their construction projects, a significant share of sales to these users can also be regarded as bringing fresh money into the local economy.

**Secondary Flow of Same Funds.** Once funds reach an area, the money moves from these initial recipients to other firms and people in the local area. As it does so, it supports these organizations and their workers. This “secondary” impact of the same money changing hands locally means that the “*direct*” funds reaching the market have a *multiplied* impact in expanding the area’s economy. The size of this secondary impact is determined by the depth and sophistication of the local business sector. The greater the range of goods and services it can supply, the more often the money changes hands locally, and the bigger the secondary impact of the initial “direct” inflow of funds.

Secondary impacts come in two varieties:

- “Indirect” secondary impacts occur when the companies receiving funds spend that money locally purchasing goods or services from firms in the area.
- “Induced” secondary impacts occur because once money reaches an economy it continues changing hands. For example, employees receiving pay checks ultimately spend the money on items like groceries, clothing and appliances, or with service providers like attorneys, restaurants and cinemas. This process also includes local firms buying local goods and services from other local firms. This process continues until all of the money that “*directly*” reached the economy has leaked because products, services and supplies have been bought from entities in other areas.

Here, an analogy might be useful. After World War II, the U.S. Navy often paid its sailors in \$2.00 bills when they reached a port. The “direct” economic impact occurred when these \$2.00 dollars were collected at venues providing the sailors with goods or services. However, the impact did not stop there. For simplicity, assume the firms operated in cash. Some firms receiving the \$2.00 bills might locally buy supplies or services to support their operations. The \$2.00 bills could thus be seen having an “indirect” secondary impact. All of these companies also had to pay their employees. When they spent their incomes locally on goods and services to support their families, an “induced” secondary impact occurred. Needless to say, people living in an economy suddenly awash in \$2.00 bills quickly understood the full impact of the fleet.

In the case of Liberty Quarry, the indirect secondary economic impact would occur when the firm purchased local supplies such as uniforms, gasoline, tractors or hand tools. It would also occur as the firm hired local service suppliers such as laundry services, attorneys or CPAs. The induced impact would occur when employees of Liberty Quarry or any of its indirect suppliers spent their pay checks at places like the Promenade Mall, Home Depot, Starbucks or with local beauty salons or tax preparers.

Below, the dollar volume of the basic & secondary economic impacts of building and operating the Liberty Quarry are estimated.

### **A. Direct Flow of Funds**

How much of the money flowing to Liberty Quarry would represent new “direct” monies reaching other portions of Riverside County’s economy? The answer starts with the fact that the flow of aggregate material currently serving southwestern Riverside County and Northern San Diego County largely comes from quarries a considerable distance away (*Exhibit 4*). Thus, a facility located south, but near to Temecula, would have a competitive advantage for southwestern Riverside County’s market as well as the Northern San Diego County’s market.

<b>Exhibit 6.-Estimated Volume, Liberty Quarry, Start Production to Capacity, 2012-2021</b>											
	<b>Product</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
1	Concrete Sand	100,000	150,000	250,000	350,000	400,000	500,000	500,000	600,000	700,000	800,000
2	Concrete Aggregates	100,000	300,000	400,000	600,000	750,000	900,000	1,000,000	1,100,000	1,200,000	1,300,000
3	Base	50,000	100,000	150,000	200,000	250,000	300,000	400,000	500,000	600,000	700,000
4	HMA's-outside sales <sup>1</sup>	50,000	100,000	150,000	200,000	250,000	300,000	400,000	500,000	600,000	700,000
5	HMA-inside sales <sup>1</sup>	150,000	300,000	500,000	600,000	800,000	900,000	1,100,000	1,200,000	1,300,000	1,400,000
6	Rip-Rap	50,000	50,000	50,000	50,000	50,000	100,000	100,000	100,000	100,000	100,000
	<b>Total Produced</b>	<b>500,000</b>	<b>1,000,000</b>	<b>1,500,000</b>	<b>2,000,000</b>	<b>2,500,000</b>	<b>3,000,000</b>	<b>3,500,000</b>	<b>4,000,000</b>	<b>4,500,000</b>	<b>5,000,000</b>

(1) Hot mix aggregate  
Source: Granite Construction

**Volume.** It was shown earlier than average U.S. per capita use of aggregate material is 6.12 tons/year and California’s average is 7.0 tons/year (*page 5*) and that these figures are likely low because demand is as high as 10 tons per capita in relatively remote areas like southwestern Riverside County and north San Diego County. Given existing and forecasted population levels, the conservative demand for aggregate was thus 9.6 million tons in 2006 and 13.5 million tons by 2030. For this reason, Liberty Quarry’s ability to sell products in these markets would only be constrained by its own production limitations. The proposal is that the quarry’s volume will be 500,000 tons at start-up in 2012 and grow at 500,000 tons a year before reaching capacity at 5.0 million tons per year in 2021 (*Exhibit 6*). It would then remain there for several years.

**Price.** The prices for Liberty Quarry’s products ranged from \$9.00 a ton for aggregate base to \$48 per ton for hot mixed asphalt concrete (HMAC) in 2005 (*Exhibit 7*). As the demand for these products is anticipated to outstrip supply in California, it is assumed that the prices of these products will increase by 1.5% beyond the normal inflation rate. Thus, by 2012, the price range will be from \$9.99 for base aggregate to \$53.27 for HMAC and the range would be \$11.42 to \$60.91 by 2021. The increases would continue after 2021. In particular, the HMAC assumption

made here is likely a conservative one as the price of this product is very sensitive to the price of oil. For instance, in mid-2006, this item climbed to \$65 a ton when oil went above \$70 a barrel.

<b>Exhibit 7.-Estimated Prices, Liberty Quarry, 2005-2021 (2005 Dollars)</b>													
	Product	Over Inflation	2005	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	Concrete Sand	1.5%	\$15.00	\$16.65	\$16.90	\$17.15	\$17.41	\$17.67	\$17.93	\$18.20	\$18.48	\$18.75	\$19.03
2	Concrete Aggregates	1.5%	\$10.00	\$11.10	\$11.26	\$11.43	\$11.61	\$11.78	\$11.96	\$12.14	\$12.32	\$12.50	\$12.69
3	Base	1.5%	\$9.00	\$9.99	\$10.14	\$10.29	\$10.44	\$10.60	\$10.76	\$10.92	\$11.09	\$11.25	\$11.42
4	HMA's-outside sales	1.5%	\$10.00	\$11.10	\$11.26	\$11.43	\$11.61	\$11.78	\$11.96	\$12.14	\$12.32	\$12.50	\$12.69
5	HMA-inside sales	1.5%	\$10.00	\$11.10	\$11.26	\$11.43	\$11.61	\$11.78	\$11.96	\$12.14	\$12.32	\$12.50	\$12.69
6	Rip-Rap	1.5%	\$20.00	\$22.20	\$22.53	\$22.87	\$23.21	\$23.56	\$23.91	\$24.27	\$24.64	\$25.00	\$25.38
7	HMAC <sup>1</sup>	1.5%	\$48.00	\$53.27	\$54.07	\$54.88	\$55.71	\$56.54	\$57.39	\$58.25	\$59.12	\$60.01	\$60.91

(1) Hot mixed asphalt concrete.

Source: Granite Construction

**Revenue.** To estimate the revenue from year 2012-2021, the prices in Exhibit 6 are multiplied by the product volumes in Exhibit 7. These are shown below (*Exhibit 8*). The HMAC (*hot mixed asphalt concrete*) revenue (*row 7*) assumes that the PMA-inside (*polymer mixed asphalt*) sales are joined by 105.5% of that volume in simultaneous HMAC sales. This product is priced using the HMAC rate. The imported material revenue (*row 8*) was calculated using the base aggregate price with assumed levels of recycled materials. These are 100,000 tons in 2012, growing by 3% per year to reach 130,477 tons in 2021 and growing at 3% per year thereafter.

<b>Exhibit 8.-Estimated Revenue, Liberty Quarry, Start Production to Capacity, 2012-2021 (2005 \$)</b>											
	Product	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	Concrete Sand	\$1,664,767	\$2,534,608	\$4,287,712	\$6,092,839	\$7,067,694	\$8,967,136	\$9,101,643	\$11,085,802	\$13,127,437	\$15,227,827
2	Concrete Aggregates	\$1,109,845	\$3,379,478	\$4,573,560	\$6,963,245	\$8,834,617	\$10,760,564	\$12,135,524	\$13,549,313	\$15,002,785	\$16,496,812
3	Base	\$499,430	\$1,013,843	\$1,543,576	\$2,088,973	\$2,650,385	\$3,228,169	\$4,368,789	\$5,542,901	\$6,751,253	\$7,994,609
4	HMA-outside sale	\$554,922	\$1,126,493	\$1,715,085	\$2,321,082	\$2,944,872	\$3,586,855	\$4,854,210	\$6,158,779	\$7,501,392	\$8,882,899
5	HMA-inside sale	\$1,664,767	\$3,379,478	\$5,716,950	\$6,963,245	\$9,423,591	\$10,760,564	\$13,349,077	\$14,781,069	\$16,253,017	\$17,765,798
6	Rip-Rap	\$1,109,845	\$1,126,493	\$1,143,390	\$1,160,541	\$1,177,949	\$2,391,236	\$2,427,105	\$2,463,511	\$2,500,464	\$2,537,971
7	HMAC-( 0.055)	\$8,430,382	\$17,113,675	\$28,950,634	\$35,261,872	\$47,721,067	\$54,491,494	\$67,599,725	\$74,851,332	\$82,305,277	\$89,965,999
8	Imported Material- resale	\$998,860	\$1,029,051	\$1,060,154	\$1,092,197	\$1,125,209	\$1,159,218	\$1,194,256	\$1,230,352	\$1,267,539	\$1,305,851
	<b>Total</b>	<b>\$16,032,820</b>	<b>\$30,703,119</b>	<b>\$48,991,062</b>	<b>\$61,943,995</b>	<b>\$80,945,385</b>	<b>\$95,345,235</b>	<b>\$115,030,329</b>	<b>\$129,663,059</b>	<b>\$144,709,165</b>	<b>\$160,177,765</b>

Source: Granite Construction (2006)

**Flow of Outside Funds To Company.** Using these calculations, in 2005 dollar terms, Liberty Quarry's total revenue would be \$16.0 million in 2012, rising to \$160.2 million by 2021 (*Exhibit 8*). Using the same logic, by year 20 or 2031, revenue would be \$186.1 million. However, not all of these funds would represent new money “directly” entering Riverside County's economy:

- Based upon market research, Granite Construction estimates that 2/3<sup>rd</sup> of their material will be sold in Northern San Diego County.

### Exhibit 9.-Outside Revenue, Liberty Quarry, Start Production to Capacity, 2012-2021 (2005 \$)

Product	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total Revenue.	\$16,032,820	\$30,703,119	\$48,991,062	\$61,943,995	\$80,945,385	\$95,345,235	\$115,030,329	\$129,663,059	\$144,709,165	\$160,177,765
No. San Diego Co. (2/3)	\$10,741,989	\$20,571,090	\$32,824,011	\$41,502,477	\$54,233,408	\$63,881,308	\$77,070,321	\$86,874,249	\$96,955,140	\$107,319,103
SW Riverside Co. (1/3)	\$5,290,830	\$10,132,029	\$16,167,050	\$20,441,518	\$26,711,977	\$31,463,928	\$37,960,009	\$42,788,809	\$47,754,024	\$52,858,663
Non-SW Riv.Co. (80%)	\$4,232,664	\$8,105,623	\$12,933,640	\$16,353,215	\$21,369,582	\$25,171,142	\$30,368,007	\$34,231,047	\$38,203,220	\$42,286,930
<b>Direct New Funds</b>	<b>\$14,974,654</b>	<b>\$28,676,713</b>	<b>\$45,757,652</b>	<b>\$57,855,691</b>	<b>\$75,602,989</b>	<b>\$89,052,450</b>	<b>\$107,438,327</b>	<b>\$121,105,297</b>	<b>\$135,158,360</b>	<b>\$149,606,033</b>

Source: Economic & Politics, Inc. calculations

- Of 1/3<sup>rd</sup> sold in southwestern Riverside County, 80% is assumed to be financed by contractors whose source of funds is the national money market. This would include construction loans for residential, retail, industrial and office projects and bond funding for infrastructure projects. The other 20% would represent local sources of funding. This would include cash put into projects by local residents from non-loan sources plus local people purchasing sand and gravel from their regular incomes. Given the way homes are funded today, this is most likely an overestimate of the share that is locally funded.

As a result, in 2005 dollar terms, Liberty Quarry's revenues would include \$15.0 million from outside of Riverside County in 2012, rising to **\$149.6 million by 2021** (*Exhibit 9*). Using this same logic, the figure would be \$173.9 million by 2031, the 20<sup>th</sup> year of operations.

Note: The share of outside funds received from operating the site is estimated at **93.4%**. This is the share of spending reaching the economy from its operations that represents an injection of new money into the economy.

**“Direct” Influx of Outside Funds.** Once funds reach Liberty Quarry, they begin injecting them into the balance of Riverside County's economy as they invest in the site, buy equipment and operate the facility. However, some of this spending is to firms outside the area. Thus, while these funds are spent by the company, they never actually impact the local region. The balance of the company's spending on local workers, contractors, machinery, supplies and services represents the “direct” flow of new funds into Riverside County.

There are several calculations necessary to determine Granite Construction's “direct” injection of money into Riverside County's economy:

- **Site Preparation Investment.** The cost of site preparation and fixed equipment required to open a modern aggregate facility can vary significantly depending upon the facility. For a typical 5 million ton per year hard rock facility, an industry average cost estimate for these items of **\$116,735,795** was estimated by EnviroMine, Inc. Their estimates were based upon several sources including: various equipment manufacturers and dealers; “equipmentwatch.com”; Ron Ripperger, Engineering Manager, Otay Water District; Aggregates Handbook, 2004; and personal conversations with aggregate industry representatives. It is assumed that these expenditures occur from **project start through 2011**. Estimates, by category are:
  - Access roads- \$13,925,000 (95% local)
  - Water Systems - \$2,784,550 (95% local)

- On Site Power Generation System - \$9,000,000 (95% local)
- Quarry buildings - \$1,075,000 (95% local)
- Quarry Processing Equipment – \$21,007,191 (25% local)
- Sedimentation ponds, environmental, misc. equip. - \$12,775,000 (75% local)
- Engineering, Procurement, Spare Parts, Set-up - \$40,120,753 (95% local)
- Contingency - \$16,048,301 (77.9% weight average of local)

It is assumed that Granite Construction would hire local professionals and sub-contractors assist them in preparing the site for mining. This includes excavation, grading, paving, and installation of equipment. The assumptions about the share of spending on each these items that would go to local professionals, workers, suppliers and other service providers are shown above. They are based upon the likelihood that Riverside County's economy could supply each activity.

Over time, there will be additional smaller investments in equipment at the site. These will vary from rough estimates of \$1 million in most, but not all years to finance expansions of the basic operation. 95% of these expenditures are assumed to be local. There will also be an estimated \$1 million spent on a ready mix plant in year #4 (2015) and an estimated \$6 million spent on an asphalt plant in year #6 (2017). Of these purchases, 75% of the spending is assumed to be local. The lower figure is used due to the need to buy non-locally supplied specialized equipment. All fixed site capital investment spending is included in Exhibit 10, line 1 (*below*).

- **Rolling Stock Investment.** Granite Construction would also have to purchase an initial round of rolling stock (*e.g., tractors, trucks*) to operate the site. This is assumed to occur in operating year #1 (2012). EnviroMine Inc. estimated that in 2005 dollars, the initial equipment cost for an average 5 million ton per year mine would be \$6,301,180. Again, these figures may vary from industry averages. Over time, there will be the need to make smaller investments in rolling stock as production expands and as old equipment wears out. Rolling stock purchases are part of capital investment spending (*Exhibit 10, line 1*).

Here, local purchases vary by the type of equipment. As there are major dealers in this equipment in Riverside County, it is assumed that purchases are through them. However, the only part of this spending that enters and affects the county is the wholesale and retail margins that go to local outlets for items like trucks and tractors, and the wholesale margins only that go to local outlets for items like mining equipment. These shares vary from 11.0% (*small trucks*) to 21.0% (*specialized vehicles*) to 29.6% (*tractors*). In each case, the balance of the purchase price goes to external manufacturers and transportation firms.

- **Operating Expenses.** Operating expenses can be broken into four categories:
  1. Wages and salaries to craft workers who operate the facility. Given the location of Liberty Quarry, it is assumed that 100% live in southwestern Riverside County or Fallbrook and Rainbow.
  2. Salaries to management personnel who will run the site. Given the location of Liberty Quarry, it is assumed that 100% live in southwestern Riverside County or Fallbrook and Rainbow. *Note: There will be a total of 99 craft and management workers.*
  3. Spending with third party providers for items like supplies (*e.g., office equipment, uniforms*), support services (*e.g., vehicle repair, dry cleaning*), and professional services (*e.g., legal, marketing*). Again, it is assumed that these functions can be supplied from within southwestern Riverside County or Fallbrook and Rainbow.
  4. Consumable supplies and equipment repair will increase along with the volume of the operations. The local share of these expenditures will vary:
    - Electricity will be generated on site using natural gas purchased from Southern California Gas.
    - Flocculent to remove fine material from water will be purchased from a local supplier but only 22.2% of the sales will involve local wholesale and retail margins, the rest goes to producers and shipping firms elsewhere.
    - Plant parts are purchased locally but only 18.8% of this mining equipment spending assumed to be funds kept by local suppliers, the balance goes to producers and shipping firms located outside the region.
    - Conveyor belt consumables are similarly purchased locally with 22.2% of the funds actually staying with the local suppliers.
    - 500 acre-feet of water per year will be purchased from Western Municipal Water District.
    - Asphalt oil will be bought locally. At 1.5 million tons of HMAC, oil need would be about 5.5% or 83,000 tons (*oil cost today is about \$300 per ton*).

<b>Exhibit 10.-Total Spending, Typical Facility, Start Production to Capacity, Begin-2021 (2005 \$)</b>											
Product	Thru 2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital Invest	\$116,735,795	\$6,301,180	\$1,405,800	\$1,000,000	\$2,000,000	\$1,545,000	\$6,772,500	\$3,877,300	\$2,452,300	\$1,195,000	\$2,743,600
Craft Workers		1,357,360	2,095,360	2,645,360	3,195,360	4,185,360	4,955,360	5,745,520	6,515,520	7,065,520	7,635,680
Management		2,500,000	1,000,000	500,000	500,000	500,000	1,000,000	500,000	500,000	500,000	1,000,000
Services		2,957,526	4,111,963	4,861,889	5,893,369	8,221,392	9,261,275	10,407,147	11,040,438	11,123,242	11,206,666
Consumables		2,002,075	2,017,091	1,590,063	1,413,519	1,424,120	1,434,801	1,445,562	1,456,404	1,467,327	1,478,332
Operating Exp		\$8,816,962	\$9,224,414	\$9,597,311	\$11,002,248	\$14,330,872	\$16,651,437	\$18,098,229	\$19,512,362	\$20,156,089	\$21,320,678
<b>Total Spent</b>	<b>\$116,735,795</b>	<b>\$15,118,142</b>	<b>\$10,630,214</b>	<b>\$10,597,311</b>	<b>\$13,002,248</b>	<b>\$15,875,872</b>	<b>\$23,423,937</b>	<b>\$21,975,529</b>	<b>\$21,964,662</b>	<b>\$21,351,089</b>	<b>\$24,064,278</b>

Source: Economics & Politics Inc. Using Industry Average Data Estimated by EnviroMine, Inc.

From the project's start until 2011, Granite Construction is estimated to spend \$116.7 million (*in 2005 dollar terms*) on site preparation. In 2012, they are estimated to spend \$6.3 million on the

rolling stock needed for production. Afterwards, capital investment spending would vary depending upon the need to expand the physical plant, replace obsolete rolling stock, or buy additional rolling stock (*Exhibit 10, line 1*).

In 2012, Granite Construction will spend \$8.8 million (*in 2005 dollar terms*) on the four operating cost categories for Liberty Quarry at its beginning output of 500,000 metric tons. These expenses will rise each year, along with production. By 2021, the facility will be at its production capacity of 5.0 million tons with operating expenditures at \$21.3 million (*Exhibit 10, line 6*).

As indicated above, the monies spent building and operating Liberty Quarry will not entirely go to entities located in Riverside County. Some is spent elsewhere buying plant and equipment. On some goods bought locally, the retailers and wholesalers will only keep their margins. The balance goes to pay outside manufacturers and transportation firms. Thus, of \$116.7 million spent on the initial capital investment from project start to 2011, only \$90.9 million actually hits Riverside County's economy. Of the \$8.8 million in operating expenses in 2012, just \$8.5 million reaches the local economy. By 2021, at maximum capacity, operating spending will reach \$21.3 million, in 2005 dollar terms, with \$18.0 million entering Riverside County's economy (*Exhibit 11*).

<b>Exhibit 11.-Local Spending, Liberty Quarry, Start Production to Capacity, Begin-2021 (2005 \$)</b>											
Product	Thru 2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital Invest	\$90,887,943	\$1,826,873	\$416,182	\$950,000	\$1,700,000	\$457,464	\$4,728,732	\$1,787,973	\$1,380,016	\$1,007,738	\$1,452,292
Craft Workers		\$1,029,240	\$1,439,120	\$1,661,001	\$1,882,881	\$2,544,761	\$2,986,641	\$3,448,681	\$3,890,562	\$4,112,442	\$4,354,482
Management		\$2,500,000	\$1,000,000	\$500,000	\$500,000	\$500,000	\$1,000,000	\$500,000	\$500,000	\$500,000	\$1,000,000
Services		\$2,957,526	\$4,111,963	\$4,861,889	\$5,893,369	\$8,221,392	\$9,261,275	\$10,407,147	\$11,040,438	\$11,123,242	\$11,206,666
Consumables		\$2,002,075	\$2,017,091	\$1,590,063	\$1,413,519	\$1,424,120	\$1,434,801	\$1,445,562	\$1,456,404	\$1,467,327	\$1,478,332
Operating Exp		\$8,488,842	\$8,568,175	\$8,612,952	\$9,689,769	\$12,690,273	\$14,682,718	\$15,801,390	\$16,887,404	\$17,203,010	\$18,039,480
<b>Total Spent</b>	<b>\$90,887,943</b>	<b>\$10,315,715</b>	<b>\$8,984,357</b>	<b>\$9,562,952</b>	<b>\$11,389,769</b>	<b>\$13,147,737</b>	<b>\$19,411,449</b>	<b>\$17,589,363</b>	<b>\$18,267,420</b>	<b>\$18,210,749</b>	<b>\$19,491,772</b>

Source: Economics & Politics Inc. based upon estimated leakages by type of spending discussed above

Finally, of the money reaching Riverside County's economy, the capital investment expenditures by Granite Construction to build and expand the facility are assumed to be 100% outside investor funds. However, it was shown previously (*Exhibits 8-9*) that 93.4% of the revenues financing its operating expenses are from outside the area (*Exhibit 9 above*). The balance is from local sources. To determine the "direct" impact of Liberty Quarry, **100%** of capital investment spending and **93.4%** of operating expenses are therefore used.

<b>Exhibit 12.-"Direct" Spending, Liberty Quarry, Start Production to Capacity, Begin-2021 (2005 \$)</b>											
Product	Thru 2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Capital Invest	\$90,887,943	\$1,826,873	\$416,182	\$950,000	\$1,700,000	\$457,464	\$4,728,732	\$1,787,973	\$1,380,016	\$1,007,738	\$1,452,292
Craft Workers		\$961,310	\$1,344,138	\$1,551,375	\$1,758,611	\$2,376,807	\$2,789,523	\$3,221,068	\$3,633,785	\$3,841,021	\$4,067,086
Management		\$2,335,000	\$934,000	\$467,000	\$467,000	\$467,000	\$934,000	\$467,000	\$467,000	\$467,000	\$934,000
Services		\$2,762,330	\$3,840,574	\$4,541,004	\$5,504,407	\$7,678,780	\$8,650,031	\$9,720,275	\$10,311,769	\$10,389,108	\$10,467,026
Consumables		\$1,869,938	\$1,883,963	\$1,485,118	\$1,320,227	\$1,330,128	\$1,340,104	\$1,350,155	\$1,360,281	\$1,370,483	\$1,380,762
Operating Exp		\$7,928,578	\$8,002,675	\$8,044,497	\$9,050,244	\$11,852,715	\$13,713,658	\$14,758,498	\$15,772,835	\$16,067,612	\$16,848,874
<b>Total Spent</b>	<b>\$90,887,943</b>	<b>\$9,755,451</b>	<b>\$8,418,857</b>	<b>\$8,994,497</b>	<b>\$10,750,244</b>	<b>\$12,310,179</b>	<b>\$18,442,390</b>	<b>\$16,546,471</b>	<b>\$17,152,851</b>	<b>\$17,075,350</b>	<b>\$18,301,166</b>

Source: Economics & Politics Inc. based upon estimated leakages by type of spending discussed above

As a result, from project start to 2011, it is estimated that Granite Construction would “directly” invest \$90.9 million, in 2005 dollar terms to ready the site. 100% are new outside funds reaching Riverside County’s economy that would not reach the area if the firm did not exist. Similarly, the \$1.8 million portion of the rolling stock purchases that reached in the local economy in 2012, 100% are new monies to the area. This pattern is estimated to continue through 2021.

Starting in 2012, the “direct” impact would be more heavily a function of the funds brought to Riverside County by Liberty Quarry’s operational spending. Again, of this 93.4% is assumed to be from sales financed by new money coming from either sales in San Diego County or sales in Riverside County financed from non-local sources. Thus in 2012, of the \$8.5 million in the quarry’s operational expenditures that reach Riverside County’s economy, \$7.9 million is calculated to be fresh dollars. Of the \$18.0 million reach the county in 2021, at the firm’s operations capacity, \$16.8 million would be “direct” new dollars.

## **B. Indirect & Induced Impacts**

As indicated earlier, once outside funds are “directly” injected into an economy from the outside world, this sets off a wave of local “secondary” economic activity. This includes the indirect impact of funds reaching a firm’s local suppliers of goods and services. It also includes the induced impact of funds generally changing hands as local firms and people re-spend the money with other local companies before it all leaks away.

**Input-Output Models & Multipliers.** Within the regional economics profession, “input-output” models are used to determine the extent to which funds “directly” entering an economy create “secondary” impacts measured in terms of additional local economic activity and employment. The size of these “secondary” impacts depends upon three factors:

- The size of the “direct” injection of funds
- Which sectors initially receive these funds
- The breadth and depth of the local economy since that determines how often these funds will change hands locally before leaking away

To perform this task, the University of Minnesota’s IMPLAN “input-output” model is widely used in California for economic and fiscal analysis of urban development projects. That model is used here. It is based upon U.S. Bureau of Economic Analysis data for Riverside County that show the extent that each sector of the county’s economy, plus its households, meets its needs by buying goods and services from every other local sector or the outside world.

IMPLAN summarizes all of these interconnections in “multipliers.” They show the extent to which \$1.00 “directly” injected into a particular sector of Riverside County’s economy changes hands locally, creating additional dollars worth of economic activity and jobs.

**Liberty Quarry’s Multipliers.** In the case of Liberty Quarry, the “direct” injection of funds when the firm reaches its production capacity in 2021 would total \$18.3 million, in uninflated 2005 dollars. These funds would reach Riverside County’s economy via five expenditure categories (*Exhibit 13*).

To determine the impact of the funds that would move into Riverside County’s economy from expenditures by Liberty Quarry in 2021, the expenditure categories from its budget are broken into expenditures by sector of the county’s economy (*Exhibit 14*). Thus, the construction cate-

gory is defined as the sector with firms specializing in the type of heavy construction that would work at the site. In the IMPLAN model, these firms are those defined as involved in projects like highways, streets and tunnels. Consumables are broken into the several sectors from which products would be purchased: electrical, wholesale, mining equipment, construction equipment and vehicle parts and the relevant IMPLAN sector was used. The third party spending is assumed to go 50% each to professional and non-professional services. Here, the IMPLAN sectors used were the legal sector to exemplify professional services, and vehicle repair to exemplify non-professional services.

<b>Exhibit 13.-“Direct” Spending by Sector At Production Capacity, 2021 (2005 \$)</b>			
<b>Expenditure Category</b>	<b>Functional Group</b>		<b>“Direct” Sending</b>
Capital Investment	Heavy Construction		\$1,452,292
Craft Personnel	Household (Pay + Benefits)	\$7,301,016	\$3,166,010
Management Staff	Household (Pay + Benefits)	\$868,404	\$512,358
3rd Party Services	50% Professional; 50% Non-Professional		\$934,000
Consumables	Electrical; Wholesale; Mining Equipment; Construction Equipment; Vehicle Parts		\$4,067,086
<b>Total</b>			<b>\$18,301,166</b>

Source: Economics & Politics, Inc.

Finally, expenditures on the firm’s craft and management workers were combined and assumed to go to households in the \$75,000 to \$100,000 income group since the vast majority of workers will be in this range (*see Exhibit 15 below*). Note: Of the \$11.8 million in combined earnings, only the dollar earnings of workers (\$8.2 million) were used in determining secondary impacts. Benefit payments were omitted under the assumption they are not locally supplied (\$3.7 million).

<b>Exhibit 14.-Direct Spending &amp; Multipliers, Liberty Quarry, 2021 (2005\$)</b>								
<b>Expenditure Line Item</b>	<b>“Direct Spending</b>	<b>Sub-Sector</b>	<b>Share</b>	<b>Amount</b>	<b>IMPLAN Sector Used</b>	<b>IMPLAN Sector Name</b>	<b>\$1.00 Multiplier</b>	<b>Full Impact</b>
<b>Construction</b>	\$1,452,292	Heavy Construction		\$1,452,292	39	Highway, Street, Tunnel Constr.	1.692877	\$2,458,552
		Electrical	42.4%	\$1,723,330	30	Power generate & supply	1.408739	\$2,427,722
		Wholesale	3.5%	\$143,394	390	Wholesale	1.714971	\$245,917
<b>Consumables</b>	\$4,067,086	Mining Equipment	10.0%	\$405,649	260	Mining Equip Mfg	1.524889	\$618,570
		Construction Eq.	1.1%	\$45,140	259	Construction Equip Mfg.	1.516714	\$68,465
		Vehicle Parts	43.0%	\$1,749,573	401	Auto & Parts Retail	1.741758	\$3,047,332
<b>3<sup>rd</sup> Party Services</b>	\$934,000	Prof. Service	50.0%	\$467,000	437	Legal	1.741311	\$813,192
		Non-Prof. Service	50.0%	\$467,000	483	Vehicle Repair	1.824238	\$851,919
<b>Craft Workers</b>	\$10,467,026							
<b>Management</b>	\$1,380,762	Household (Pay Only)	100%	\$8,169,420	1003	HH of \$75,000 to \$100,000	1.396873	\$11,411,645
<b>TOTAL</b>	<b>\$18,301,166</b>			<b>\$14,622,799</b>				<b>\$21,943,314</b>

Source: Economics & Politics, Inc. & IMPLAN model

Given the outside dollars that would flow from Liberty Quarry into each of these sectors in 2021, the IMPLAN model of Riverside County has a multiplier showing the amount of direct and induced economic activity that \$1.00 of such funds would add into the economy. To cite three:

- Each \$1.00 of direct spending with highway, street and tunnel contractors would add another \$0.692877 worth of indirect and induced activity in the county's economy as the funds moved through it. Thus, \$1.45 million in such funds would create an additional \$1.01 million in activity for a total impact of \$2.46 million.
- Each \$1.00 of direct spent with vehicle repair firms would add another \$0.824238 worth of indirect and induced activity in the county's economy as the funds moved through it. Thus, \$467,000 in such funds would create an additional \$384,919 in activity for a total impact of \$851,919 million.
- Each \$1.00 of direct spending going to workers (*excluding benefits*) would add another \$0.396873 worth of indirect and induced activity in the county's economy as the funds are spent and moved through it. Thus, \$8.12 million would create an additional \$3.24 million in activity for a total impact of \$11.41 million.

**Impact of Liberty Quarry Dollars Reaching Riverside County's Economy.** Altogether, the \$14.6 million in 2021 "direct" spending that would flow from Liberty Quarry into the balance of Riverside County's economy would generate another \$7.3 million in "indirect" and "induced" spending for a total impact of \$21.9 million. Thus, each \$1.00 that would come from the quarry would generate another \$0.500623 in activity (*in 2005 dollar terms*).

In fact, the IMPLAN model produces three types of impacts from the \$14.6 million in "direct" spending flowing from Liberty Quarry into the other sectors of Riverside County's economy during 2021. These include the output impact shown above, plus income and employment impacts:

- **Output Impact: \$21.9 million**

As indicated, this is the economic activity that would occur due to the injection of \$14.6 million into the balance of Riverside County's economy

- **\$14.6 million** in "direct" activity at firms and households receiving the injection of activity because of the way in which Liberty Quarry's funds reach the economy.
- **\$2.6 million** in "indirect" output would additionally be created by entities receiving the \$14.6 million spent to purchase goods and services from local providers.
- **\$4.7 million** in "induced" activity would be created as the \$14.6 million of injected funds worked their way from the initial recipients and/or their suppliers through the economy at large.
- **\$21.9 million** would thus be the annual total impact of the "direct" injection of funds by Liberty Quarry on economic activity in Riverside County. Most of this would be concentrated in the county's southwestern zone.

- **Household Income Impact: \$6.9 million**

This is the additional income that would end up with local families due to the injection of \$14.6 million into the balance of Riverside County's economy:

- **\$4.1 million** in additional income would go to the workers and owners of local entities that "directly" received the injection of funds from the quarry.
- **\$861,000** in additional income would "indirectly" go to workers and owners of local firms that supply goods or perform services for the entities that initially receive the "direct" injection of funds from the quarry.
- **\$2.0 million** in additional income would go to workers and owners of firms with higher sales levels because the "direct" injection of funds by the quarry "induced" a greater overall economic activity in the county.
- **\$6.9 million** would thus be the total annual impact of the "direct" injection of funds by Liberty Quarry on Riverside County's household income. Most of this would be concentrated in the county's southwestern zone.

- **Employment Impact: 178 jobs**

These are the additional jobs that would be created due to the injection of \$14.6 million into the balance of Riverside County's economy:

- **102** additional jobs would go to workers in the entities that received the "direct" injection of funds by the quarry.
- **22** additional jobs would "indirectly" go to workers hired by the local firms that supply goods or perform services to the entities that initially receive the "direct" injection of funds from the quarry.
- **54** additional jobs would go to workers hired by firms whose sales levels would rise because the "direct" injection of funds by the quarry "induced" a greater level of overall economic activity in the county.
- **178** additional total jobs would thus result from the injection of funds by Liberty Quarry into Riverside County's economy. Most of these jobs would be concentrated in the county's southwestern zone.

**Total Economic Impact of Liberty Quarry.** The total economic impact of Liberty Quarry on the Riverside County economy in 2021 would be the impact of the funds leaving the firm and hitting the economy, plus the level of activity at the firm itself.

- **Output Impact: \$171.5 million**

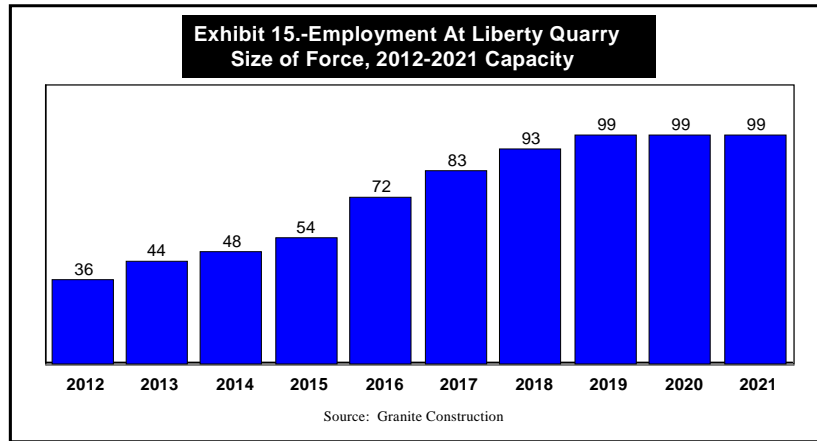
- **\$21.9 million** would be the annual impact of the "direct" injection of funds by Liberty Quarry into other sectors of Riverside County's economy (*prior section*).
- **\$149.6 million** would be the total outside money flowing into Liberty Quarry from investments by Granite Construction plus sales of its products (*Exhibit 9*).

- **Household Income Impact: \$18.7 million**
  - **\$6.9 million** would be the extra income flowing to workers in the other sectors of Riverside County’s economy that would occur due to the “direct” injection of funds by Liberty Quarry (*prior section*).
  - **\$11.8 million** would be the income flowing to Liberty Quarry’s workers that is financed from outside flows of funds into the operation from either investments by Granite Construction or sales of its products (*Exhibit 12*).
- **Employment Impact: 277 Jobs**
  - **178** would be the extra jobs for workers in the other sectors of Riverside County’s economy that would be available due to the “direct” injection of funds by Liberty Quarry (*prior section*).
  - **99** would be the jobs created at Liberty Quarry (*see Exhibit 15 below*).

**Liberty Quarry’s Jobs & Pay Scales.** Within the Temecula-Murrieta area, a key concern has been the availability of local jobs that are good paying. The need for local job creation was underscored earlier in the discussion showing that the region has just 0.86 jobs for each occupied dwelling, compared to the 1.25 average for Southern California. This means that the area has 31% fewer jobs for each family than is required in the Southland for a sub-market to have a self-sustained labor market. The result is large numbers of commuters. In this respect, the fact that by 2021, Liberty Quarry would help add 287 jobs, primarily located in southwestern Riverside County, would represent a positive though modest contribution.

In addition, the area’s leaders want to continue seeing high paying jobs added into their job mix. The 99 jobs at Liberty Quarry, when it is fully operational in 2021, would make a contribution to this goal. The average 2005 pay for these positions, including company standard levels of overtime for wage and salary workers (*500 hours/year*) would be \$83,443. This is consistent with the CA Employment Development Department’s 2005 data which indicates that all mining operations in the Inland Empire had an average pay of \$78,792. Importantly, the median pay (*half above/half below*) would be \$91,644. The lowest paying position would be Ready Mixer Truck Drivers at \$17.85 an hour at the union rates currently applicable to Granite Construction hourly employees. This jobs category would pay \$72,451 per year with 500 hours of overtime. The firm’s average annual compensation including fringe benefits would be \$123,762.

Liberty Quarry’s on-site employment would grow relatively quickly. It would begin with 36 people in 2012 and rise to its full staff by 2019 at 99 (*Exhibit 15*).



### III. Governmental Revenue

On an on-going basis, there are two principal forms of revenue that would flow from Liberty Quarry to local governments in Riverside County. These are the property taxes on the difference between the current valuation of the facility’s property versus the valuation as a fully operating quarry, as well as the sales taxes on the share of the quarry’s output that is taxable. In addition, there would be one-time fees like the Transportation Uniform Mitigation Fee (*TUMF*) that would have to be paid in the process of developing the facility.

**Property Taxes.** The beginning of the process for calculating the increase in property taxes to local entities in Riverside County was to establish the site’s current assessed valuation. The process for doing so was as follows:

1. Assessment parcel numbers were acquired from Granite Construction and the numbers were run through the Riverside County Assessor’s Property Information System to determine the acreage and the July 1, 2005 assessed valuation for each parcel.
2. Next, the parcels were run through the Riverside County Treasurer’s “Review Your Property Information” file to obtain the Tax Rate applicable to it as well as any Special Assessments on a per acre basis and the Tax Bill.
3. These procedures allowed calculation of the current Assessed Value of each parcel of the site and determination of (*Exhibit 17, page 23*):
  - Total Assessed Valuation for the 412.74 acres: **\$584,698**
  - Total current Tax Bill: **\$6,229**
  - Average Tax Rate per \$100 of valuation for the 412.74 acres: **\$1.0648**
4. One method of estimating the value of an operation is the discounted present value of its cash flows. Based upon the estimated cash flow for just the period 2012 to 2025 (*quarry life: 2061*) and using a discounted of 10%, Liberty Quarry estimated that the discounted present value of its operations would give it a valuation of: **\$62.4 million**

5. Applying the \$1.0648 average tax rate for the full site to the \$62.4 million valuation generated the estimated future annual tax bill: **\$664,410**
6. Assuming \$664,410 would be the estimated tax bill for the operation, if the current tax bill of \$6,229 is deducted, this yields the estimated *annual* increase in property taxes to local government from the development of Liberty Quarry: **\$658,181**

Thus, in 2005 dollars, the full operation of Liberty Quarry would yield \$658,181 a year to the local government entities covered by the site.

<b>Exhibit 16.-Estimated Sales Taxes, Liberty Quarry, 2012-2021 (2005 \$)</b>										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total Sales	\$15,332,458	\$29,361,914	\$46,850,985	\$59,238,095	\$77,409,447	\$91,180,269	\$110,005,459	\$123,998,986	\$138,387,834	\$153,180,719
Taxable Share	67%	67%	67%	67%	67%	67%	67%	67%	67%	67%
<b>Taxable Sales</b>	<b>\$10,272,747</b>	<b>\$19,672,482</b>	<b>\$31,390,160</b>	<b>\$39,689,524</b>	<b>\$51,864,329</b>	<b>\$61,090,780</b>	<b>\$73,703,657</b>	<b>\$83,079,321</b>	<b>\$92,719,848</b>	<b>\$102,631,082</b>
County: 1.0%	\$102,727	\$196,725	\$313,902	\$396,895	\$518,643	\$610,908	\$737,037	\$830,793	\$927,198	\$1,026,311
RCTC: 0.5%	\$51,364	\$98,362	\$156,951	\$198,448	\$259,322	\$305,454	\$368,518	\$415,397	\$463,599	\$513,155
Calif.: 6.0%	\$616,365	\$1,180,349	\$1,883,410	\$2,381,371	\$3,111,860	\$3,665,447	\$4,422,219	\$4,984,759	\$5,563,191	\$6,157,865
<b>Sales Taxes</b>	<b>\$770,456</b>	<b>\$1,475,436</b>	<b>\$2,354,262</b>	<b>\$2,976,714</b>	<b>\$3,889,825</b>	<b>\$4,581,809</b>	<b>\$5,527,774</b>	<b>\$6,230,949</b>	<b>\$6,953,989</b>	<b>\$7,697,331</b>

Sources: Exhibit 8 sales estimates; Granite Construction estimate of taxable share; Tax Rates from Jurisdictions

**Sales Taxes.** In Riverside County, the sales tax rate is 7.75%. This includes 6.0% going to the State of California, 1% going to county government in unincorporated areas, and 0.5% going to the Riverside County Transportation Commission (RCTC). These rates are applied to taxable sales within the county. Meanwhile, Granite Construction estimates that 67% of its sales volume represents taxable transactions, based upon their experience at other facilities.

Using these factors and based upon Liberty Quarry's sales volumes (*Exhibit 8*), taxable sales at the facility will go from \$10.3 million in 2012 to \$102.6 million in 2021 when the facility reaches full production. As always, these figures are in 2005 dollar terms. Applying the various sales tax rates to these amounts yields the taxes going to each jurisdiction:

- Riverside County's sales tax revenue: **\$102,727** in 2012; **\$1,026,311** in 2021 at capacity
- RCTC's sales tax revenue: **\$51,364** in 2012; **\$513,155** in 2021 at capacity
- California's sales tax revenue: **\$616,365** in 2012; **\$6,157,865** in 2021 at capacity

**Royalty Payments.** As Liberty Quarry extracts material from the site, Granite Construction would be required to pay royalty fees to the State of California. To calculate the amount, two assumptions were made (*Exhibit 18*):

- Royalties for the northern portion of the property are based on 10% of the sales prices net of processing costs and transportation costs per State Lands Commission guidelines. This represented \$0.03 per ton in 2006. It applies to 50% of the volume in 2015-2016 and 100% from 2016 until 2046. It is assumed that the rate grows 2% per year from 2006.
- Royalties for the southern portion of the property are based upon a 1/16 state ownership and assumed to be 1/16 (6.25%) of the royalty as calculated above. This applies to 100%

of the tonnage from 2012-2017, 50% of the property in 2018-2019, and 100% of the property from 2047 to the end of the quarry's life in 2061.

<b>Exhibit 18.-Royalty Payments to the State Lands Commission, 2012-2021</b>										
<b>Year</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Tonnage Mined & Sold	500,000	1,000,000	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000	4,000,000	4,500,000	5,000,000
Royalty Amount (per Ton) Inflate at 2% per year for 75 years	\$0.034	\$0.034	\$0.035	\$0.036	\$0.037	\$0.037	\$0.038	\$0.039	\$0.040	\$0.040
<b>Royalty Amount</b>	<b>\$16,892</b>	<b>\$34,461</b>	<b>\$52,725</b>	<b>\$71,706</b>	<b>\$91,425</b>	<b>\$111,904</b>	<b>\$133,165</b>	<b>\$155,233</b>	<b>\$178,130</b>	<b>\$201,880</b>
1/16 of Royalty Applies	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	0.00%	0.00%
100% of Royalty Applies	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	100.00%	100.00%
<b>Royalty Payment</b>	<b>\$1,056</b>	<b>\$2,154</b>	<b>\$3,295</b>	<b>\$4,482</b>	<b>\$5,714</b>	<b>\$6,994</b>	<b>\$70,744</b>	<b>\$82,467</b>	<b>\$178,130</b>	<b>\$201,880</b>

(1) 50% of volume @ 1/16 royalty and 50% at 100%

Source: Granite Construction

Based upon the projected increase in mining tonnage and these factors, the royalties paid to California would vary from \$1,056 in 2012 to \$201,880 in 2021. The level would climb to \$331,479 by 2049 and fall to \$22,407 in 2050 (*1/16<sup>th</sup> of fee*) and grow slowly from that level for the balance of the quarry's life in 2064. For the state, the value of this cash flow's stream of payments, using a discounted present value of 6%, would be **\$3,023,752**. Put another way, a dollar received today is worth more than a dollar received at some point in the future, because the dollar received today can be invested to earn interest. Effectively, it means that if the state had \$1,836,469 in 2012 and invested it at 6%, it could take the same payment stream. The relatively modest 6% discount rate is used as the future payment stream did not include an inflation factor.

**Exhibit 17.-Current/Forecasted Assessed Valuation & Tax, Liberty Quarry (2005 \$)**

Parcel	Assessed Value	Acres	Tax Ass. Dist.	Tax Rate	Tax
918-090-007	\$5,168	5.00	082-143	1.10752	\$57.24
918-090-008	\$5,168	5.00	082-143	1.10752	\$57.24
918-090-009	\$5,168	5.00	082-143	1.10752	\$57.24
918-090-010	\$5,168	5.00	082-143	1.10752	\$57.24
918-090-011	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-012	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-013	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-014	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-015	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-016	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-017	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-018	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-020	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-021	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-022	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-023	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-024	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-025	\$5,561	5.00	082-143	1.10752	\$61.59
918-090-026	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-027	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-028	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-029	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-030	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-031	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-032	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-033	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-034	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-035	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-036	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-037	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-038	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-039	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-040	\$11,138	10.00	082-143	1.10752	\$123.36
918-090-042	\$10,676	9.59	082-143	1.10752	\$118.24
918-090-043	\$0	0.41	082-143	1.10752	\$0.00
918-100-001	\$25,224	5.00	094-009	1.02649	\$258.92
918-100-002	\$25,224	5.00	094-009	1.02649	\$258.92
918-100-003	\$25,224	5.00	094-009	1.02649	\$258.92
918-100-004	\$25,224	5.00	094-009	1.02649	\$258.92
918-100-005	\$25,500	5.00	094-009	1.02649	\$261.75
918-100-006	\$25,500	5.00	094-009	1.02649	\$261.75
918-100-007	\$16,488	5.00	094-009	1.02649	\$169.25
918-100-008	\$16,488	5.00	094-009	1.02649	\$169.25
918-100-012	\$18,299	29.07	094-005	1.02649	\$187.84
918-110-001	\$57,211	20.00	094-009	1.02649	\$587.27
918-110-028	\$8,244	13.13	094-005	1.02649	\$84.62
918-120-044	\$28,221	44.89	094-005	1.02649	\$289.69
918-130-043	\$8,221	13.09	094-005	1.02649	\$84.39
102-230-66-00	Estimate \$3,628	2.56	094-005	1.02649	\$37.24
<b>TOTAL PROJECT</b>	<b>\$584,968</b>	<b>412.74</b>		<b>1.0648</b>	<b>\$6,229</b>
<b>VALUE as QUARRY</b>	<b>\$62,400,000</b>	<b>412.74</b>		<b>1.0648</b>	<b>\$664,410</b>
<b>CHANGE: Value &amp; Tax</b>	<b>\$61,815,032</b>				<b>\$658,181</b>

Sources: Riverside County Assessor and Tax Collector; Granite Construction

**Transportation Uniform Mitigation Fees (TUMF).** The Western Riverside Council of Governments will regard Liberty Quarry as an open air industrial site. Such a facility's TUMF fees are calculated using the acreage of the site times an industrial equivalency square footage factor. This is then multiplied times the industrial fee per square footage. In the case of Liberty Quarry:

- Operational area of the site: **155 acres**
- Industrial equivalency square footage factor per acre: **437.2**
- Square footage for fee purposes: **67,766**
- TUMF per square foot (7/1/06 to 6/30/07): **\$1.58**
- TUMF: **\$107,070**

**Multi-Species Habitat Conservation Plan Fees (MSHCP).** In 2006, this fee was \$6,131 per acre for industrial sites. It will increase at the Consumer Price Index meaning that in 2006 terms it can be regarded as staying at that level:

- Operational area of the site: **155 acres**
- Cost per acre: **\$6,131**
- MSHCP: **\$950,305**

#### **IV. Air Quality Improvement**

Liberty Quarry is an unusual industrial project in that it would have the effect of dramatically reducing air pollutants caused by diesel trucks. This is the case, because as indicated earlier, the sources of sand, gravel and rock supply used in southwestern Riverside County and Northern San Diego County are largely located a considerable distance to the north of these areas (*Exhibit 4 re-shown for clarity*).

<b>Exhibit 4.-Quarries Supplying Aggregate Materials, 2005</b>			
<b>Company</b>	<b>Location</b>	<b>Company</b>	<b>Location</b>
3 M	Corona	Shamrock Sand & Rock, Inc.	Temecula
All American Aggregate	Corona	Vulcan Materials Company	Corona
Cemex Construction Materials	Ontario	Chandler Sand & Gravel	Corona
Hanson Aggregate West, Inc.	Irwindale	Werner Corporation	Corona
Holiday Rock Company Inc.	Upland	Wyroc	Lake Elsinore

Source: Liberty Quarry Traffic Flow Evaluation, Urban Crossroads, 2005

**Truck Volumes.** To reach their destinations, trucks carrying material from these quarries must move along the I-15 with many traversing the length of southwestern Riverside County. This was shown based upon the geographic location of these quarries and an Urban Crossroads, Inc.'s study of sand and gravel truck traffic on the I-15 free over a 24-hour period. It found that:

- 1,938 aggregate trucks at the I-15 and SR-74 in the Lake Elsinore area
- 931 aggregate trucks at the I-15 and SR-79 North next to Temecula
- 526 aggregate trucks at the I-15 and San Diego County line

For air quality considerations, the farther away an aggregate source is from where this material is used, the higher the number of vehicle miles that must be traveled (*VMT*) by heavy diesel trucks

carrying sand and gravel. In the case of the markets under consideration here, the high VMT by aggregate trucks currently contributes to both congestion on the I-15 corridor and air quality difficulties within the Southern California Air Quality Management District (AQMD). Particularly in southwestern Riverside County.

**VMT Reduction.** Liberty Quarry would reduce the distances from the source of sand and gravel to where that material is used in Southwest Riverside County and Northern San Diego County. This would lower the VMT and reduce pollution from the heavy trucks. Based upon the Urban Crossroads, Inc.’s truck trip data, Kleinfelder, Inc., a major environmental and engineering company based in California, looked at the extent that this would be true.<sup>15</sup> With Liberty Quarry operating at capacity of 5 million metric tons of aggregate per year, the shorter distances to market would reduce VMT on freeways by 16.5 million miles per year. This reduction would reduce the production of five major pollutants (*Exhibit 190*):

<b>Exhibit 19.-Reduction In Pollutants, Liberty Quarry, 2021, at 5.0 Million Tons</b>		
<b>Pollutant</b>	<b>Reduction: 2010 Standards (Tons Per Year)</b>	<b>Reduction: 2020 Standards (Tons Per Year)</b>
Reactive Organic Gases ( <i>ROG</i> )	-7.9	-4.2
Carbon Monoxide ( <i>CO</i> )	-35.2	-22.5
Nitrogen Oxide ( <i>NOx</i> )	-193.4	-56.5
Sulfur Dioxide ( <i>SO<sub>2</sub></i> )	-0.4	-0.4
Tailpipe and fugitive PM <sub>10</sub>	NA	-9.7

Source: Kleinfelder, Inc.

- The reductions in 2010 were based upon the lower levels of permitted emissions for newer trucks that would enter the fleet between today and that year.
- The reductions in 2020 were lower than 2010 due to the still more stringent reductions in permitted emissions for new trucks and the larger number of trucks from both groups that would be in the fleet by 2020.

**Economic Consequences: Air Quality.** The economic consequences of the reductions in emissions cannot be ignored. The California Air Resources Board (*ARB*) has published its March 2006 Emission Reduction Plan. The NO<sub>x</sub> portion of that plan includes strategies designed to reduce these emissions by 5.3 tons per day by 2020 in the South Coast Air Basin. By itself, the NO<sub>x</sub> reductions that the opening of Liberty Quarry would bring about would reduce this pollutant by 56.5 tons per year or 0.18 tons per day by 2020 (*based upon 312 operating days*). Alone, the quarry would thus be responsible for 3.42% of the daily NO<sub>x</sub> reduction sought by ARB with no cost to its strategies. It would similarly assist in reducing PM<sub>10</sub> emissions.

In 2005 dollars, the estimated cost of ARB’s strategies aimed at reducing truck emissions to target levels in the South Coast Air Basin was \$800 million (*one-quarter of its \$3.2 billion state-wide effort*) between now and 2020. If there was a straight line relationship between the share of reductions of NO<sub>x</sub> that Liberty Quarry could achieve and a reduction in the cost of ARB’s strategies through 2020 to achieve that level of reduction, the quarry alone could reduce those costs by 3.42% of \$800 million or \$27.3 million.

<sup>15</sup> Reduction in Heavy Duty Truck Air Emissions Associated with Product Transport from the Proposed Liberty Quarry, Kleinfelder, Inc. May 1, 2006

Whatever the relationship between the cost of ARB's emission strategies and the 3.42% reduction in NOx emissions, there can be no question that the Liberty Quarry would have a major economic impact on the cost of reducing truck emissions in the South Coast Air Basin.

**Economic Consequences: Highway Maintenance.** As indicated, the opening of Liberty Quarry would reduce the VMT of heavy aggregate trucks by 16.5 million truck-miles per year at its operating capacity of 5.0 million tons. This would decrease the wear and tear on freeways and reduce the cost to state and local government of maintaining the facilities. To determine the cost of freeway maintenance, a Federal Highway Administration study is used. It showed the impact of 5-axle tractor-semi-trailers weighing 80,000 pounds on freeway maintenance costs.<sup>16</sup> The report found that 18,823 million VMT were traveled by these trucks and calculated a cost of \$3,297 million in freeway pavement costs or \$0.175 per VMT in year 2000 dollars. In California, highway construction costs rose 83.6% from 2000-2005.<sup>17</sup> The cost in 2005 would thus be **\$0.322 per VMT**. The annual savings in highway maintenance costs of a 16.5 million VMT reduction would thus be **\$5.3 million**.

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<sup>16</sup> Western Uniformity Scenario Analysis, A Regional Truck Size and Weight Scenario Requested by the Western Governors' Association, Federal Highway Administration,

<sup>17</sup> Highway Construction Cost Indices, Western States, Washington State Department of Transportation, 2006

## SUMMARY

In 2021, at its full production level of 5 million tons of aggregate, Liberty Quarry would have the following impacts on Riverside County's economy.

**I. Regional Policies.** The opening of Liberty Quarry represents the option most consistent with the other economic policies being followed in Southwest Riverside County. It provides a nearby source of sand and gravel to meet the demand generated by those policies. It reduces the cost of moving this material long distances. It allows the community to fill its needs without imposing burdens upon other communities. It reduces the VMT traveled by trucks delivering materials the area needs and lowers the cost of freeway maintenance, congestion and diesel emissions.

**II. Total Economic Impact of Liberty Quarry.** The total economic impact of Liberty Quarry on the Riverside County economy in 2021 would be the impact of the funds leaving the firm and hitting the economy, plus the level of activity at the firm itself.

- **Output Impact: \$171.5 million**
  - **\$21.9 million** would be the annual impact of the “direct” injection of funds by Liberty Quarry into other sectors of Riverside County's economy.
  - **\$149.6 million** would be the total outside money flowing into Liberty Quarry from investments by Granite Construction plus sales of its products.
- **Household Income Impact: \$18.7 million**
  - **\$6.9 million** would be the extra income flowing to workers in the other sectors of Riverside County's economy that would occur due to the “direct” injection of funds by Liberty Quarry.
  - **\$11.8 million** would be the income flowing to Liberty Quarry's workers that is financed from outside flows of funds into the operation from either investments by Granite Construction or sales of its products.
- **Employment Impact: 277 Jobs**
  - **178** would be the extra jobs in the other sectors of Riverside County's economy that would be available due to the “direct” injection of funds by Liberty Quarry.
  - **99** would be the jobs created at Liberty Quarry with an average income of \$83,443 not including benefits and a median income (*half above:half below*) of \$91,644. Average pay, including benefits would be valued at \$123,762.

**III. Governmental Revenues.** Liberty Quarry would deliver the following funds to governmental entities based upon its 2021 design capacity of 5 million tons of production. All figures are in 2005 dollar terms:

- **Riverside County**
  - Additional Property Taxes Per Year, at 5 million Tons of Production: **\$658,181**
  - Additional Sales Taxes Per Year, at 5 million Tons of Production: **\$1,026,311**
  - TUMF Fees (*one time*): **\$107,070**
  - Multi-Species Habitat Conservation Plan Fees: **\$950,305**
- **Riverside County Transportation Commission**
  - Additional Sales Taxes Per Year, at 5 million Tons of Production: **\$513,155**
- **California**
  - Additional Sales Taxes Per Year, at 5 million Tons of Production: **\$6,157,865**
  - Present Value of Royalties for life of project: **\$3,023,752**

**IV. Economic Impact of Reduced Truck Travel**

- **On Air Quality.** Liberty Quarry would reduced Vehicle Miles Traveled by heavy trucks by an estimated 16.5 million miles per year. By 2020, this would reduce annual truck air emissions by:

Pollutant	Reduction: 2020 Standards (Tons Per Year)
Reactive Organic Gases ( <i>ROG</i> )	-4.2
Carbon Monoxide ( <i>CO</i> )	-22.5
Nitrogen Oxide ( <i>NOx</i> )	-56.5
Sulfur Dioxide ( <i>SO<sub>2</sub></i> )	-0.4
Tailpipe and fugitive PM <sub>10</sub>	-9.7

ARB wishes to reduce truck air emissions by 5.3 tons per day by 2020 in the South Coast Air Basin. Liberty Quarry alone would account for 0.18 tons per day by 2020. Alone, the quarry would thus be responsible for 3.42% of the daily NOx reduction sought by ARB with no cost to its strategies. It would similarly assist in reducing PM<sub>10</sub> emissions.

ARB’s strategies for cutting truck emissions are estimated at a cost of \$800 million. While the exact relationship is not known, if there was a straight line relationship between the share of reductions of NOx that Liberty Quarry could achieve and a reduction in the cost of ARB’s strategies through 2020, the quarry alone could reduce those costs by 3.42% of \$800 million or **\$27.3**

**million.** In any case, the opening of the quarry would have a major economic impact on the cost of reducing truck emissions in the South Coast Air Basin.

- **On Highway Maintenance.** In addition to air quality, the VMT reduction from the opening of Liberty Quarry would lower highway maintenance costs from aggregate truck use of freeways. Using Federal Highway Administration data on the cost per VMT of highway maintenance in 2000, and adjusting their figure by California's data on the 2000-2005 increase in highway maintenance costs, the cost factor for heavy trucks was **\$0.322 per VMT** in 2005. The annual highway maintenance savings of 16.5 million VMT reduction in truck traffic from the opening of Liberty Quarry would thus be **\$5.3 million**. This is a conservative measure as sand and gravel trucks weigh more than the standard truck used in these calculations.

# Economics & Politics, Inc.

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## ABOUT THE COMPANY

Economics & Politics, Inc. is a closely held corporation. The firm's primary analyst is Dr. John Husing, a regional economist who has researched issues in Southern California since 1964. His specialty has been the Inland Empire and its ties and interactions with Los Angeles, Orange and San Diego counties. To extend its capability, the firm networks with a variety of specialists who assist in functions such as sampling, data collection, GIS presentation, graphic arts and website development.

## RESUMÉ: John E. Husing, Ph.D.

### HONORS

Selected by 2006 Los Angeles Times's West Magazine as one of the 100 most influential people in Southern California.

### EDUCATION

B.S. <i>cum laude</i>	Saint Mary's College of California	Classics & Economics	1962
M.A., Ph.D.	Claremont Graduate University	Economics	1965, 1971
	Dissertation: Economic Impact of Defense Closures on the Inland Empire		

### RECENT CLIENTS HAVE INCLUDED:

Southern California Metropolitan Water District	Southern California Association of Governments
Yellow Freight Systems	March Inland Global Port
Southern California Edison	Verizon
Hillwood (©A Perot Company)	Citizens Business Bank
Burlington Northern Santa Fe Railroad	City National Bank
Inland Empire Economic Partnership	Orange County Transportation Agency
Inland Valley Development Agency	Southern California Logistics Airport
General Growth Properties	Forest City Development
Riverside County Transportation Commission	San Bernardino Associated Governments
Western Riverside Council of Governments	Coachella Valley Economic Partnership
GE Capital	California Speedway
San Bernardino County	Riverside County
Arrowhead Credit Union	Entrepreneurial Capital Group
San Bernardino Valley Municipal Water District	State of California
PFF Bank	Over 40 Cities

### POSITIONS HELD

Executive Committee	CA Community College Strategic Plan	Community Colleges	2005
Vice President	Economics & Politics, Inc. & predecessor	Economics & Finance	1981-Present
Editor/Writer	Inland Empire Quarterly Economic Report	Economic Research	1988-Present
Columnist	The Business Press, Inland Empire	Newspaper	1998-Present
Executive Committee	Inland Empire Economic Partnership	Economic Development	1995-2003
President	Inland Empire Economic Partnership	Economic Development	1994
Economist	Inland Empire Business Center, CSU San Bdn	Economic Research	1990-1992
Senior Consultant	California State Assembly Majority Services	Analyst	1980-1984
Associate Professor	San Bernardino Valley College	Business & Economics	1966-1981

## **SAMPLES OF RECENT APPLIED RESEARCH**

### **1. Economic Impact of Goods Movement on Southern California, 2006**

Analysis of latest data on goods movement and the impact of the sectors on the economy of the seven Southern California counties. Impact includes opening of upper mobility for blue collar workers as well as the dollar and overall job impacts. Client: Seven Southern California Transportation Agencies, SCAG, CalTrans

### **2. Logistics & Distribution: An Answer to Regional Upward Social Mobility, 2004**

Analysis of Southern California's declining per capita income status, the need for a sector to replace manufacturing as a source of upward mobility for marginally educated workers, and the case why the logistics industry can play this role if its infrastructure issues are met. Client: Southern California Association of Governments

### **3. San Bernardino County General Plan Update, Economic Background & Strategies, 2003-2004**

440 page analysis of each of six economic zones in San Bernardino County looking at its history, demographics, housing, employment, retail trade, competitive location characteristic and quality of life indicators. Client: San Bernardino Co.

### **4. San Bernardino-Riverside Pass Area Economic Analysis, With Special Attention on Banning, 2004**

Analysis of the Pass Area economy with special attention on Banning. Client: City of Banning

### **5. Transportation Uniform Mitigation Fees (TUMF), 2004**

Researched the impact of Western Riverside County's TUMF fees on non-residential projects in that area compared to Orange County and San Bernardino County. Client: Western Riverside Council of Governments

### **6. Annual Budget Forecasts. 1992-2006**

Researched and documented annual budget forecasts for key variables for San Bernardino and Riverside counties, plus the sales tax revenues from San Bernardino Associated Government's Measure "I". Clients: San Bernardino & Riverside Counties; SANBAG

### **7. 2000-2030 Long Term Population, Job & Housing Forecasts, Inland Empire, 2000 & 2003-2004**

As part of the SCAG long term forecasting process, helped create the forecasts of jobs, housing and population with emphasis on the Inland Empire. Client: variously performed under contract to the San Bernardino Associated Governments, the City of Moreno Valley and SCAG.

### **8. Comprehensive Economic Development Strategy, Rancho Cucamonga, 2003**

Detailed economic development strategy for the city based upon its current economic conditions and the forces affecting it and the Inland Empire. Client: City of Rancho Cucamonga

### **9. Inland Empire & Southern California's Airport Policy, 2000-2001; 2003**

Examination of economic trends in the Inland Empire compared to the balance of Southern California and their implications for airport policy. Client: San Bernardino Associated Governments, Riverside County Transportation Commission; Southern California Edison.

### **10. Reorganization of Riverside County Transportation Commission, 2002**

Facilitated and later mediated discussions between elected representatives of the 24 cities and Riverside County Board of Supervisors that resulted in the reorganization of RCTC from a seven person board to a board with one representative of each city and all five supervisors. The negotiation also resulted in the establishment of a formula for allocating SB 45 transportation funds between the Coachella Valley and the Western Riverside areas. Client: Riverside County

### **11. Comparative Economic Behavior of Inland Empire versus L.A. & Orange Counties, 1995 and 2002**

Researched the reasons why the Inland Empire economy has added jobs faster than the larger adjacent counties and why this trend will continue into the foreseeable future. Identified the strengths and weaknesses of the inland area vis-à-vis coastal counties and policy issues arising. Clients: Verizon; Riverside County; Orange County Transportation Agency.

### **12. Analyze/criticize U.S. Fish & Wildlife economic impact study of San Bernardino Kangaroo Rat, Santa Ana Sucker, 2002 and 2004**

After a thorough review of the U.S. Fish & Wildlife economic impact studies of the San Bernardino Kangaroo Rat and Santa Ana Sucker, wrote critiques and criticism of them. The service redid their work and admitted that the impacts were far above their estimates. Clients: SB Valley Municipal Water District, SB County Flood Control.

**13. Community College Role In Economic Development & Upward Social Mobility, 2001 & 2004**

Analysis of the changing education needs of entry-level and adult workers and the role of the community colleges, economic development community and business community in designing and implementing programs to fill them. Clients: San Bernardino Community College District; Chaffey Community College District

**14. Economic Development Data & Strategies: IEEP Factbook, Banning, Cathedral City, Coachella, Corona, Chino, Chino Hills, Colton, Desert Hot Springs, Fontana, Garden Grove, Grand Terrace, Indio, Indian Wells, Lake Elsinore, La Quinta, Norco, Ontario, Palm Desert, Palm Springs, Perris, Pomona, Rancho Cucamonga, Rancho Mirage, Riverside, San Bernardino, Temecula, County of Riverside, County of San Bernardino, 1996-2006**

Almanacs tracking such local variables as population, retail sales, home prices & sales, assessed valuation, new firm locations, employment, law enforcement, education. Explanations of the forces at work. Strategic recommendations.

**15. Coachella Valley Economic Development Report, 2000-2006**

First analysis of the Coachella Valley economy based solely on data from within the region.

**16. Moody's, Fitch's and Standard & Poor Bond Ratings, 1993-2006**

Researched the impact of the California recession/recovery on the near & long term health of the Inland Empire. Made repeated presentations to the New York and San Francisco offices of Fitch's, Moody's and Standard & Poor bond rating agencies on behalf of Inland Empire counties, school districts and transportation authorities. Feature speaker Bond Buyer conference on California municipal securities, 1995. Clients: San Bernardino & Riverside Counties and Transportation Agencies, Chaffey Community College District, San Bernardino Community College District.

**17. Inland Empire Quarterly Economic Report, 1965-1969; 1988-2006**

Author of the respected Inland Empire QER, a publication now in its 16<sup>th</sup> year that is distributed to 12,000 business and governmental leaders. The QER gives hard data on the Inland Empire economy, discusses the impacts of economic trends and governmental policies. Sponsors: IEEP, Riverside County Transportation Commission, San Bernardino Associated Governments, Arrowhead Credit Union.

**18. Economic Impact of Santa Fe Intermodal Rail Yards on San Bernardino, 1995, 2001**

Researched the job and economic impact of developing a 500,000 lift capacity intermodal rail yard in the City of San Bernardino. Work explained the location advantage of intermodal rail for warehousing & manufacturing firms in an era County. Client: BNSF Railroad

**19. Economic Impact of Roadway Express cross docking facilities on the efficiency of goods movement in the I-10 Corridor of San Bernardino County, 1999**

Study of how locating Roadway's cross docks near to Burlington Northern Santa Fe Railroad intermodal yard, Ontario International Airport and the 200 million feet of industrial space developed since 1985 will increase the efficiency, lower the cost and increase the competitiveness of the goods moving industry in that area. Client: Roadway Express

**20. Impact of the El Sobrante Landfill on the character of economic development south of Corona, California, 1998**

Examined competing views of the impact of this facility on the nature of residential values and the types of likely manufacturing development in light of experiences at mature landfills elsewhere in Southern California. Client: Riverside County Board of Supervisors.

**21. Helped Coordinate Successful Effort to Stop Closure of Naval Warfare Assessment Division, Norco, 1995**

Modeled cumulative employment and dollar impact of adding NWAD to the Norton, George, & March AFB closures and/or downsizing. Documented weaknesses in Navy's case for closing NWAD. Helped coordinated local lobbying efforts. Testified before BRAC 1995 & 1993. Wrote sections of Governor Wilson's BRAC testimony both years. 1,500 direct jobs saved at NWAD. Client: City of Norco, Consortium of Riverside County agencies.

**22. Inland Empire Data Base, 2006**

Maintain extensive database of Riverside & San Bernardino County statistical indicators. Sources include: DataQuick Information Systems; CB Commercial; Grubb & Ellis; U.S. Census; U.S. Bureau of Economic Analysis; Bureau of Labor Statistics; CA Employment Development Dept.; CA Dept. of Finance; CA Board of Equalization; The Meyer's

Group; Hinderliter & DeLlamas; The Resource Group; The Findley Reports; Construction Industry Research Board; HighLine Banking Data; Real Estate Research Council; CA Department of Education; U.S. Department of Justice.