

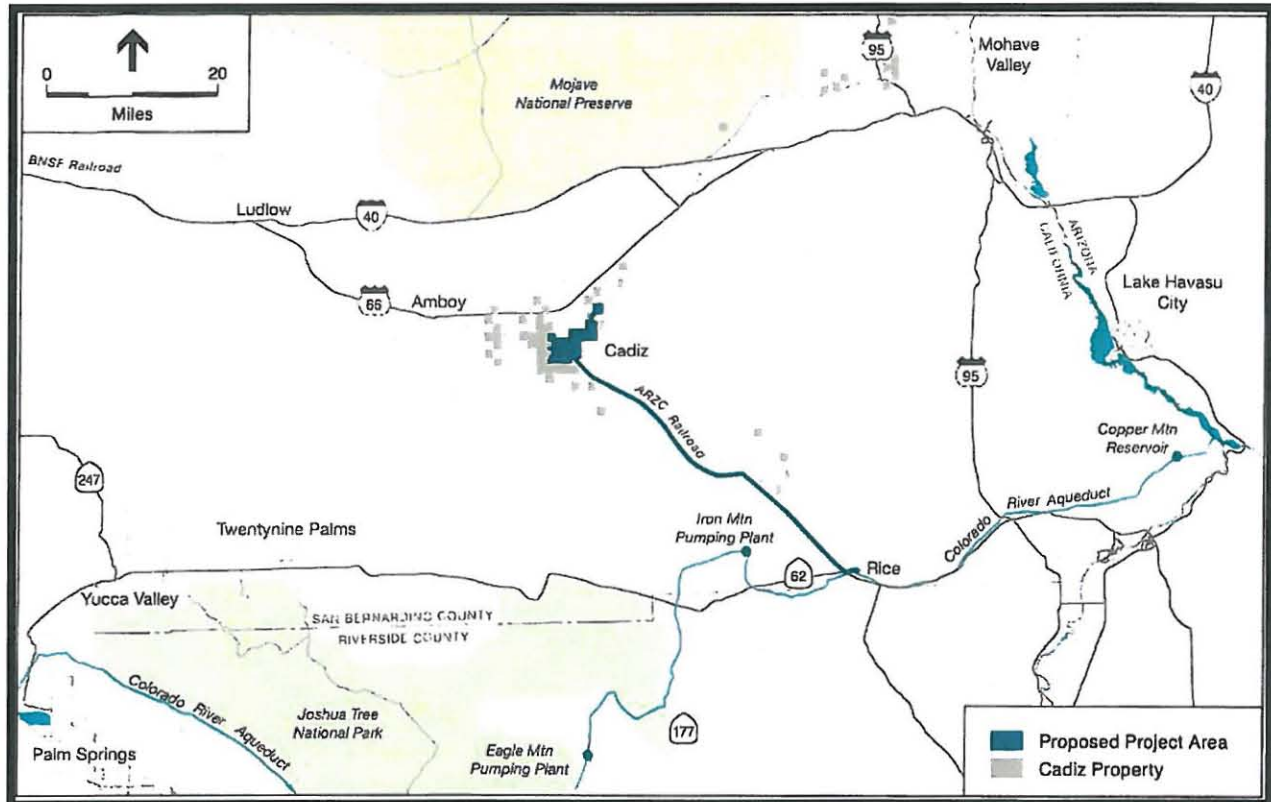
# Appendix I

## Economic Impact Report



# Economic Impact of the Proposed Cadiz Valley

## Groundwater Conservation, Recovery, and Imported Water Storage Project



### Final Report

April 18, 2011

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## Executive Summary

Looking at the year by year results, the economic impact of the full Cadiz Groundwater Conservation, Recovery, and Imported Water Storage Project yields the following results over its four year period of design and construction:

| Summary of Economic Impacts of Construction Activity, Cadiz Water Project |                |                |                |                |               |               |
|---|----------------|----------------|----------------|----------------|---------------|---------------|
| Type of Impact  | Phase 1 Year 1 | Phase 1 Year 2 | Phase 2 Year 1 | Phase 2 Year 2 | 4-Year Total  | Annual Avg.   |
| Job Creation ( <i>man-years</i> )   | 1,011          | 2,090          | 940            | 1,945          | 5,986         | 1,497         |
| Labor & Proprietorship Income   | \$53,416,010   | \$115,788,200  | \$49,713,909   | \$107,763,274  | \$326,681,393 | \$81,670,348  |
| Economic Activity Generated   | \$138,561,306  | \$316,207,131  | \$128,958,046  | \$294,291,784  | \$878,018,267 | \$219,504,567 |
| State & Local Taxes Generated   | \$6,113,696    | \$13,537,310   | \$5,689,975    | \$12,599,082   | \$37,940,063  | \$9,485,016   |

Longer term, assuming that the increase in the property valuation equals the construction cost of the Cadiz Water Project's facilities, the increase would be \$536,250,000. This property is inside the Needles Unified School District where the tax rate is \$1.00 per \$100 of valuation for San Bernardino County's government and \$0.1143 for the Needles Unified School District. If the assessed valuation is not increased by an inflation factor, the annual property tax revenue generated in San Bernardino County would total \$6.0 million, including \$5,362,500 to San Bernardino County's government and \$612,934 to the Needles Unified School District.

| Permanent Property Tax Revenue Increase |                    |                  |                    |
|---|--------------------|------------------|--------------------|
|   | San Bdno Co.       | Needles Unified  | Total              |
| Assumed Property Valuation              | \$536,250,000      | \$536,250,000    | \$536,250,000      |
| \$100 of Assessed Valuation             | \$5,362,500        | \$5,362,500      | \$5,362,500        |
| Tax Rates Per \$100 of AV               | \$1.000            | \$0.1143         | \$1.1143           |
| <b>Annual Tax Revenue</b>               | <b>\$5,362,500</b> | <b>\$612,934</b> | <b>\$5,975,434</b> |

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## **Economic Impact of the Proposed Cadiz Valley Groundwater Conservation, Recovery, and Imported Water Storage Project**

John E. Husing, Ph.D.

**Project.** The project's northern end is located at Cadiz, California, just south of the SR-66 in northeastern San Bernardino County. Its southern end is at Rice, California located along the SR-62 next to the Colorado River Aqueduct. Underlying Cadiz is an aquifer system that lies at the base of the Fenner Valley and Orange Blossom watersheds. This underground "lake" is naturally recharged by rain and snow in the nearby mountains that over time flows underground into it. The aquifer is roughly equivalent in capacity to Lake Mead, the nation's largest surface reservoir. Ultimately, a good deal of water that reaches the aquifer ends up just below ground at Cadiz Dry Lake and Bristol Dry Lake (*below*) where it converges with saline water and evaporates through the surface.



**Phase I. Conservation and Recovery.** In Phase I of the project, facilities would be built near Cadiz to capture and conserve the average annual natural recharge into the aquifer that would otherwise reach the Cadiz Dry Lake and the Bristol Dry Lake and evaporate. Phase I would include the construction of extraction wells that would be used to extract the amount of water that would otherwise flow to the Dry Lakes plus the amount needed to maintain hydraulic control in the well field area.

Phase I would also include the building of a 42-mile underground water pipeline that would transmit water southeast to the Colorado River Aqueduct near Rice. The pipeline would be



buried along the already disturbed railroad right-of-way along which the Arizona-California Railroad (ARZC) currently operates (*see photograph*). It would be sized to allow the conveyance of an annual average of 50,000 acre-feet of water. Once the water reaches the Colorado River Aqueduct, it would be conveyed down it into Southern California where it would be made available to the Santa Margarita Water District and other participating water districts.



**Phase I: Timing & Budget.** Once environmental approvals are finalized, Phase I of the project is slated to begin. Planning, design and engineering will occur over a six month period. Construction of the well field, pipeline and power facility is anticipated to take an additional 18 months. The construction budget is estimated as:

|   |                      |
|---|----------------------|
| • Well Field (20-32 wells)              | \$23,500,000         |
| • Pipeline                              | \$211,500,000        |
| • Power Facilities                      | \$17,500,000         |
| • Planning, engineering, other overhead | <u>\$25,250,000</u>  |
| • Total Phase I Budget                  | <b>\$277,750,000</b> |

**Phase I: Economic Impact.** The primary impact of a project like the Cadiz Valley Groundwater Conservation & Recovery effort would occur during its construction, not its operational phase. As the project will be built in San Bernardino County, this will be the location of all of the activity. In part, this is because the county has an extensive blue collar labor supply that can build the project. It is also because San Bernardino County is home to production facilities like Ameron International Water Transmission Group and Northwest Pipe Company, leading manufacturers of the materials used in construction wells, pipelines and power plants.

- It is therefore assumed that 100% of the construction expenditures will be made to workers and suppliers located within San Bernardino County.

**Phase I, Year 1.** In Year 1 of the project, it is assumed that 80% of the planning, engineering and management work on Phase I of the project is completed. Also in Year 1, 25% of construction and the purchase of materials required for it occurs. In addition, it is assumed that 75% of the construction budget for each activity represents construction, while 25% represents materials and supplies. Combined, this places \$83,325,000 of activity into Year 1 (*Exhibit 1*).

| <b>Exhibit 1.-Assumptions, Phase I Year 1</b> |               |              |                     |
|---|---------------|--------------|---------------------|
|   | <b>Period</b> | <b>Share</b> | <b>Year 1</b>       |
| Engineering & Related                         | 80.0%         |              | \$20,200,000        |
| Pipeline Construction                         | 25.0%         | 75.0%        | \$39,656,250        |
| Pipeline Supplies                             | 25.0%         | 25.0%        | \$13,218,750        |
| Power Plant                                   | 25.0%         | 75.0%        | \$3,281,250         |
| Power Plant Supplies                          | 25.0%         | 25.0%        | \$1,093,750         |
| Well Field                                    | 25.0%         | 75.0%        | \$4,406,250         |
| Well Field Supplies                           | 25.0%         | 25.0%        | \$1,468,750         |
| <b>Total Expenditures</b>                     |               |              | <b>\$83,325,000</b> |
| <b>Impact Sectors</b>                         |               |              |                     |
| Construction                                  |               |              | \$47,343,750        |
| Materials & Supplies                          |               |              | \$15,781,250        |
| Engineering & Related                         |               |              | \$20,200,000        |
| <b>Total Expenditures</b>                     |               |              | <b>\$83,325,000</b> |

These expenditures are recombined into three broad sectors used by the IMPLAN model to estimate the economic impact on San Bernardino County's economy of these Year 1 expenditures. The IMPLAN model is the standard one used by economists in determining the economic impact of funds coming from the outside world, in this case, the nation's money markets and hitting the local economy through specific types of activities.<sup>1</sup> The model assumes the economy is not operating at full capacity, a realistic assumption given the February 2011 unemployment rate of 13.7% in the county. Those sectors include:

- Construction of other non-residential structures (*Implan Sector #36*)
- Fabricated pipe and pipe fitting manufacturing (*Implan Sector #201*)
- Management, scientific and technical consulting (*Implan Sector #374*)

<sup>1</sup> Minnesota IMPLAN Group, Inc, Impacts For PLANning, model version 3. 0. 5. 2



Essentially, what the IMPLAN model does is provide analysts with three types of estimates:

- **Direct.** This is an estimate of the direct effect impact on the local economy of the activity being studied that brings money to the market from the outside world. To use an analogy, this is akin to the money coming to gold miners in the old west who find gold, send it away and bring money to an area that heretofore had no economy.
- **Indirect.** This is made up of activities in local sectors that receive expenditures from the activity being studied in support of it. In the analogy, this would be the general store which sells supplies to the miners. Without the miners, it would not exist. With them, it becomes a viable business.
- **Induced.** This is made up of activities in the local economy that occur simply because money is flowing through it. These activities are not directly or indirectly related to the initial cause of the money coming to the local economy. In the analogy, this would be the saloon that exists because money is being re-spent in the local area by miners and general store workers. The beneficiaries of the induced effects may not even be aware that their success is being caused by the activity being studied.

*Note: During and after World War II, the navy let local tradesman understand how much sailors meant to them by paying them in \$2.00 bills. As these bills changed hands through the local economy, merchants became aware of the induced effect that occurred because a fleet had showed up.*

In Year 1, the activities associated with planning and starting construction on the Conservation and Recovery phase of the Cadiz project will have the impacts shown in Exhibit 2:

| <b>Exhibit 2.-Economic Impact of Construction Activity, Phase I, Year 1</b> |                   |                     |                      |
|---|-------------------|---------------------|----------------------|
| <b>Impact Type</b>  | <b>Employment</b> | <b>Labor Income</b> | <b>Output</b>        |
| Direct Effect   | 593               | \$34,328,422        | \$83,325,000         |
| Indirect Effect   | 152               | \$7,654,712         | \$21,284,424         |
| Induced Effect  | 266               | \$11,432,875        | \$33,951,882         |
| <b>Total Effect</b>   | <b>1,011</b>      | <b>\$53,416,010</b> | <b>\$138,561,306</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011

- 1,011 full time equivalent jobs would be created in San Bernardino County. Of those, 593 would be working directly on the project either in construction, construction material production or planning and engineering. Another 152 jobs would be created in firms assisting those operations. Firms having essentially no ties to the project would add 266 jobs due to monies flowing generally through the economy.
- \$53.4 million in wages and salaries to workers as well as income to proprietorships in San Bernardino County. \$34.3 million would be to workers or proprietorships working directly on some phase of the project; \$7.7 million would go to workers in firms assisting



these operations. \$11.4 million would go to workers in unrelated firms benefiting from the general increase in economic activity in the county.

- \$138.6 million in economic activity would be added into San Bernardino County's economy.

In addition, in Year 1 of the project, \$6.1 million in tax revenues that currently do not exist would be created for the state of California and local governments in San Bernardino County (*Exhibit 3*).

| <b>Exhibit 3.-California &amp; Local Taxes Generated, Phase I, Year 1</b> |                     |
|---|---------------------|
| <b>Type of Tax</b>  | <b>Amount</b>       |
| Dividends   | \$ 573,600          |
| Social Ins Tax- Employee Contribution                                     | \$ 75,645           |
| Social Ins Tax- Employer Contribution                                     | \$ 187,893          |
| Indirect Bus Tax: Sales Tax   | \$ 1,360,016        |
| Indirect Bus Tax: Property Tax  | \$ 1,524,190        |
| Indirect Bus Tax: Motor Vehicle Licenses                                  | \$ 31,206           |
| Indirect Bus Tax: Severance Tax   | \$ 524              |
| Indirect Bus Tax: Other Taxes   | \$ 267,511          |
| Indirect Bus Tax: State & Local Non-Taxes                                 | \$ 143,364          |
| Corporate Profits Tax   | \$ 285,191          |
| Personal Tax: Income Tax  | \$ 1,206,212        |
| Personal Tax: Non-Taxes (Fines- Fees)                                     | \$ 363,468          |
| Personal Tax: Motor Vehicle License                                       | \$ 55,826           |
| Personal Tax: Property Taxes  | \$ 28,388           |
| Personal Tax: Other Tax   | \$ 10,662           |
| <b>Total State and Local Tax</b>  | <b>\$ 6,113,696</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011

**Phase I, Year 2.** In Year 2 of the project, it is assumed that 20% of the planning, engineering and management work on Phase I of the project is completed. Also in Year 2, 75% of construction and the purchase of materials required for it occurs. In addition, it is again assumed that 75% of the construction budget for each activity represents construction, while 25% represents materials and supplies. Combined, this places \$194,425,000 of activity into Year 2 (*Exhibit 4*).

| Exhibit 4.-Assumptions, Phase I, Year 2 |        |       |                      |
|---|--------|-------|----------------------|
|   | Period | Share | Year 2               |
| Engineering & Related                   | 80.0%  |       | \$5,050,000          |
| Pipeline Construction                   | 25.0%  | 75.0% | \$118,968,750        |
| Pipeline Supplies                       | 25.0%  | 25.0% | \$39,656,250         |
| Power Plant                             | 25.0%  | 75.0% | \$9,843,750          |
| Power Plant Supplies                    | 25.0%  | 25.0% | \$3,281,250          |
| Well Field                              | 25.0%  | 75.0% | \$13,218,750         |
| Well Field Supplies                     | 25.0%  | 25.0% | \$4,406,250          |
| <b>Total Expenditures</b>               |        |       | <b>\$194,425,000</b> |
| Impact Sectors                          |        |       |                      |
| Construction                            |        |       | \$142,031,250        |
| Materials & Supplies                    |        |       | \$47,343,750         |
| Engineering & Related                   |        |       | \$5,050,000          |
| <b>Total Expenditures</b>               |        |       | <b>\$194,425,000</b> |

As before, these expenditures are recombined into three broad sectors used by the IMPLAN model to estimate the economic impact on San Bernardino County's economy of these Year 2 expenditures. It is further assumed that the county's economy will not have fully overcome its 13.7% unemployment rate by Year 2 and be will still be operating at below full capacity:

- Construction of other non-residential structures (*Implan Sector #36*)
- Fabricated pipe and pipe fitting manufacturing (*Implan Sector #201*)
- Management, scientific and technical consulting (*Implan Sector #374*)

Using the IMPLAN model to calculate the direct, indirect and induced impacts of these expenditure yields the following estimates for Year 2 (*Exhibit 5*):

| Exhibit 5.-Economic Impact of Phase I, Year 2 ,Construction Activity |              |                      |                      |
|--|--------------|----------------------|----------------------|
| Impact Type  | Employment   | Labor Income         | Output               |
| Direct Effect  | 1,197        | \$73,830,338         | \$194,425,000        |
| Indirect Effect  | 316          | \$17,164,297         | \$48,151,836         |
| Induced Effect   | 577          | \$24,793,566         | \$73,630,295         |
| <b>Total Effect</b>  | <b>2,090</b> | <b>\$115,788,200</b> | <b>\$316,207,131</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011



- 2,090 full time equivalent jobs would be created in San Bernardino County. Of those, 1,197 would be working directly on the project either in construction, construction material production or planning and engineering. Another 316 jobs would be created in firms assisting those operations. Firms having essentially no ties to the project would add 577 jobs due to monies flowing generally through the economy.
- \$115.8 million in wages and salaries to workers, as well as income to proprietorships in San Bernardino County. \$73.8 million would be to workers or proprietorships working directly on some phase of the project; \$17.2 million would go to workers in firms assisting these operations. \$24.8 million would go to workers in unrelated firms benefiting from the general increase in economic activity in the county.
- \$316.2 million in economic activity would be added into San Bernardino County's economy.

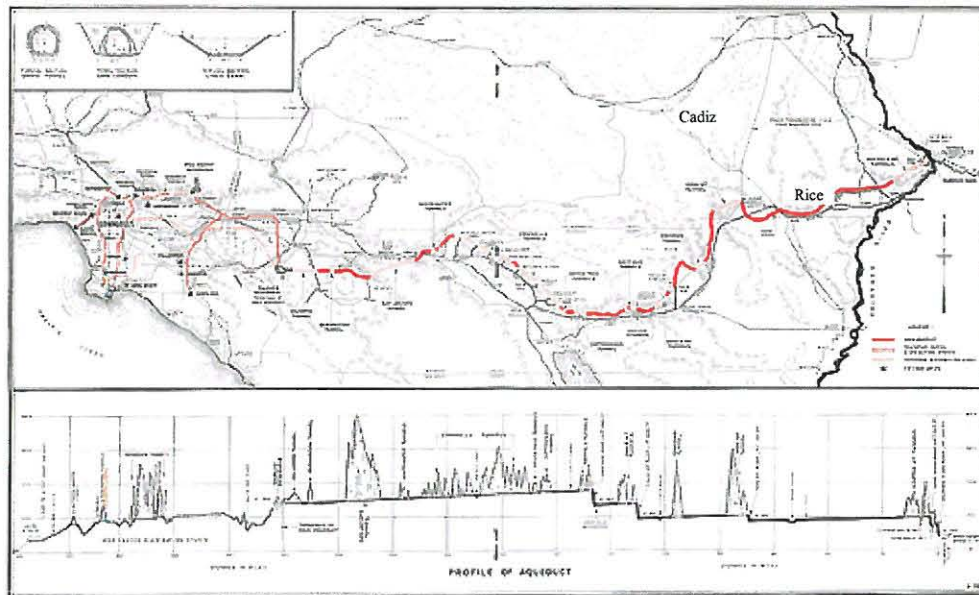
In addition, the project would create \$13.5 million in tax revenues that currently do not exist for California and San Bernardino County's local governments (*Exhibit 6*):

| <b>Exhibit 6.-California &amp; Local Taxes Generated, Phase I, Year 2</b> |                      |
|---|----------------------|
| <b>Type of Tax</b>  | <b>Amount</b>        |
| CA Dividend Taxes   | \$ 1,331,795         |
| Social Ins Tax- Employee Contribution                                     | \$ 162,113           |
| Social Ins Tax- Employer Contribution                                     | \$ 402,667           |
| Indirect Bus Tax: Sales Tax   | \$ 3,012,145         |
| Indirect Bus Tax: Property Tax  | \$ 3,375,756         |
| Indirect Bus Tax: Motor Vehicle Licenses                                  | \$ 69,114            |
| Indirect Bus Tax: Severance Tax   | \$ 1,161             |
| Indirect Bus Tax: Other Taxes   | \$ 592,481           |
| Indirect Bus Tax: State & Local Non-Taxes                                 | \$ 317,520           |
| Corporate Profits Tax   | \$ 662,162           |
| Personal Tax: Income Tax  | \$ 2,616,256         |
| Personal Tax: Non-Taxes (Fines- Fees)                                     | \$ 788,356           |
| Personal Tax: Motor Vehicle License                                       | \$ 121,086           |
| Personal Tax: Property Taxes  | \$ 61,573            |
| Personal Tax: Other Tax   | \$ 23,125            |
| <b>Total State and Local Tax</b>  | <b>\$ 13,537,310</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011



**Phase II. Imported Water Storage.** In Phase II of the project, imported water from the Colorado River would be sent down the Colorado River Aqueduct (*see map*) to its junction with the Arizona-California Railroad near Rice. There the water would be pump up through a 44 mile pipeline parallel to the pipeline built in Phase I, terminating in recharge basins in the Fenner Valley above Cadiz. There, the water would then be allowed to percolate into the ground and be stored in the underground aquifer until it is needed as a dry-year supply. The total capacity of the storage system is anticipated to be one million acre feet of ground water storage.



Phase II would also include the building of a 42-mile underground water pipeline that would transmit water southeast to the Colorado River Aqueduct near Rice. The pipeline would be buried along the already disturbed railroad right-of-way along which the Arizona-California Railroad (ARZC) currently operates (*see photograph*). It would be sized to allow the conveyance of an annual average of 50,000 acre-feet of water. Once the water reaches the Colorado River Aqueduct, it would be conveyed down it into Southern California where it would be made available to the parties responsible for storing it.

**Phase II: Timing & Budget.** Once environmental approvals are finalized, Phase II of the project is slated to begin. Planning, design and engineering will occur over a six month period. Construction of the second well field and pipeline is anticipated to take an additional 18 months. The power plant needed to raise the water will be the same one constructed in Phase I. The construction budget is estimated as:

|   |                      |
|---|----------------------|
| • Well Field                            | \$23,500,000         |
| • Pipeline                              | \$211,500,000        |
| • Planning, engineering, other overhead | <u>\$25,250,000</u>  |
| • Total Phase II Budget                 | <b>\$258,500,000</b> |

**Phase II: Economic Impact.** Again, the primary impact of a project like the Cadiz Valley Imported Water Storage effort would occur during its construction, not its operational phase. As the project will be built in San Bernardino County, this will be the location of all of its activity. Again, this is because the county has an extensive blue collar labor supply that can build the project. It is also because San Bernardino County is home to the production facilities of leading manufacturers of the materials used in construction wells and pipelines.

- It is therefore assumed that 100% of the construction expenditures will be made to workers and suppliers located within San Bernardino County.

**Phase II Year 1.** In Year 1 of Phase II of the project, it is assumed that 80% of the planning, engineering and management work on Phase II of the project is completed. Also in Year 1 of Phase II, 25% of construction and the purchase of materials required for it occurs. In addition, it is assumed that 75% of the construction budget for each activity represents construction, while 25% represents materials and supplies. Combined, this places \$77,550,000 of activity into Phase II Year 1 (*Exhibit 7*).

| <b>Exhibit 7.-Assumptions, Phase II, Year 1</b> |               |              |                        |
|---|---------------|--------------|------------------------|
|   | <b>Period</b> | <b>Share</b> | <b>Phase II Year 2</b> |
| Engineering & Related                           | 80.0%         |              | \$18,800,000           |
| Pipeline Construction                           | 25.0%         | 75.0%        | \$39,656,250           |
| Pipeline Supplies                               | 25.0%         | 25.0%        | \$13,218,750           |
| Well Field                                      | 25.0%         | 75.0%        | \$4,406,250            |
| Well Field Supplies                             | 25.0%         | 25.0%        | \$1,468,750            |
| <b>Total Expenditures</b>                       |               |              | <b>\$77,550,000</b>    |
| <b>Impact Sectors</b>                           |               |              |                        |
| Construction                                    |               |              | \$44,062,500           |
| Materials & Supplies                            |               |              | \$14,687,500           |
| Engineering & Related                           |               |              | \$18,800,000           |
| <b>Total Expenditures</b>                       |               |              | <b>\$77,550,000</b>    |

These expenditures are recombined into three broad sectors used by the IMPLAN model to estimate the economic impact on San Bernardino County's economy of these Phase II Year 1 expenditures. Again, the model assumes the economy continues to not be operating at full capacity given the deep hole from which it must recover, due to the county's February 2011 unemployment rate of 13.7%. Those sectors include:

- Construction of other non-residential structures (*Implan Sector #36*)
- Fabricated pipe and pipe fitting manufacturing (*Implan Sector #201*)
- Management, scientific and technical consulting (*Implan Sector #374*)



In Phase II Year 1, the activities associated with planning and starting construction on the Imported Water Storage phase of the Cadiz project will have the impacts shown in Exhibit 8:

| <b>Exhibit 8.-Economic Impact of Construction Activity, Phase II, Year 1</b> |                   |                     |                      |
|--|-------------------|---------------------|----------------------|
| <b>Impact Type</b>   | <b>Employment</b> | <b>Labor Income</b> | <b>Output</b>        |
| Direct Effect  | 552               | \$31,949,224        | \$77,550,000         |
| Indirect Effect  | 141               | \$7,124,188         | \$19,809,266         |
| Induced Effect   | 248               | \$10,640,497        | \$31,598,780         |
| <b>Total Effect</b>  | <b>940</b>        | <b>\$49,713,909</b> | <b>\$128,958,046</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011

- 940 full time equivalent jobs would be created in San Bernardino County. Of those, 552 would be working directly on the project either in construction, construction material production or planning and engineering. Another 141 jobs would be created in firms assisting those operations. Firms having essentially no ties to the project would add 248 jobs due to monies flowing generally through the economy.
- \$49.7 million in wages and salaries to workers, as well as income to proprietorships in San Bernardino County. \$31.9 million would be to workers or proprietorships working directly on some phase of the project; \$7.1 million would go to workers in firms assisting these operations. \$10.6 million would go to workers in unrelated firms benefiting from the general increase in economic activity in the county.
- \$129.0 million in economic activity would be added into San Bernardino County's economy.

In addition, in Phase II Year 1 of the project, \$5.7 million in tax revenues that currently do not exist would be created for the state of California and local governments in San Bernardino County (*Exhibit 9*).

| <b>Exhibit 9.-California &amp; Local Taxes Generated, Phase II, Year 1</b> |               |
|--|---------------|
| <b>Type of Tax</b>   | <b>Amount</b> |
| Dividends  | \$ 533,845    |
| Social Ins Tax- Employee Contribution                                      | \$ 70,403     |
| Social Ins Tax- Employer Contribution                                      | \$ 174,871    |
| Indirect Bus Tax: Sales Tax  | \$1,265,757   |
| Indirect Bus Tax: Property Tax   | \$1,418,553   |
| Indirect Bus Tax: Motor Vehicle Lic  | \$ 29,043     |
| Indirect Bus Tax: Severance Tax  | \$ 488        |
| Indirect Bus Tax: Other Taxes  | \$ 248,971    |
| Indirect Bus Tax: State & Local NonTaxes                                   | \$ 133,428    |



|                                       |                    |
|---------------------------------------|--------------------|
| Corporate Profits Tax                 | \$ 265,425         |
| Personal Tax: Income Tax              | \$1,122,613        |
| Personal Tax: Non-Taxes (Fines- Fees) | \$ 338,277         |
| Personal Tax: Motor Vehicle License   | \$ 51,957          |
| Personal Tax: Property Taxes          | \$ 26,421          |
| Personal Tax: Other Tax               | \$ 9,923           |
| <b>Total State and Local Tax</b>      | <b>\$5,689,975</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011

**Phase II, Year 2.** In Year 2 of Phase II of the project, it is assumed that 20% of the planning, engineering and management work on Phase II of the project is completed. Also in Year 2, 75% of construction and the purchase of materials required for it occurs. In addition, it is again assumed that 75% of the construction budget for each activity represents construction, while 25% represents materials and supplies. Combined, this places \$180,950,000 of activity into Phase II Year 2 (*Exhibit 10*).

| Exhibit 10.-Assumptions, Phase II, Year 2 |        |       |                      |
|---|--------|-------|----------------------|
|   | Period | Share | Phase II Year 2      |
| Engineering & Related                     | 80.0%  |       | \$4,700,000          |
| Pipeline Construction                     | 25.0%  | 75.0% | \$118,968,750        |
| Pipeline Supplies                         | 25.0%  | 25.0% | \$39,656,250         |
| Well Field                                | 25.0%  | 75.0% | \$13,218,750         |
| Well Field Supplies                       | 25.0%  | 25.0% | \$4,406,250          |
| <b>Total Expenditures</b>                 |        |       | <b>\$180,950,000</b> |
| Impact Sectors                            |        |       |                      |
| Construction                              |        |       | \$132,187,500        |
| Materials & Supplies                      |        |       | \$44,062,500         |
| Engineering & Related                     |        |       | \$4,700,000          |
| <b>Total Expenditures</b>                 |        |       | <b>\$180,950,000</b> |

As before, these expenditures are recombined into three broad sectors used by the IMPLAN model to estimate the economic impact on San Bernardino County's economy of these Phase II Year 2 expenditures. It is further assumed that the county's economy will still not have fully overcome its 13.7% unemployment rate by this time and will be operating at below full capacity:

- Construction of other non-residential structures (*Implan Sector #36*)
- Fabricated pipe and pipe fitting manufacturing (*Implan Sector #201*)

- Management, scientific and technical consulting (*Implan Sector #374*)

Using the IMPLAN model to calculate the direct, indirect and induced impacts of these expenditure yields the following estimates for Phase II, Year 2 (*Exhibit 11*):

| <b>Exhibit 11.-Economic Impact of Phase II Year 2 Construction Activity</b> |                   |                      |                      |
|---|-------------------|----------------------|----------------------|
| <b>Impact Type</b>  | <b>Employment</b> | <b>Labor Income</b>  | <b>Output</b>        |
| Direct Effect   | 1,114             | \$68,713,383         | \$180,950,000        |
| Indirect Effect   | 294               | \$15,974,692         | \$44,814,580         |
| Induced Effect  | 537               | \$23,075,199         | \$68,527,204         |
| <b>Total Effect</b>   | <b>1,945</b>      | <b>\$107,763,274</b> | <b>\$294,291,784</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011

- 1,945 full time equivalent jobs would be created in San Bernardino County. Of those, 1,114 would be working directly on the project either in construction, construction material production or planning and engineering. Another 294 jobs would be created in firms assisting those operations. Firms having essentially no ties to the project would add 537 jobs due to monies flowing generally through the economy.
- \$107.8 million in wages and salaries to workers, as well as income to proprietorships in San Bernardino County. \$68.7 million would be to workers or proprietorships working directly on some phase of the project; \$16.0 million would go to workers in firms assisting these operations. \$23.1 million would go to workers in unrelated firms benefiting from the general increase in economic activity in the county.
- \$294.3 million in economic activity would be added into San Bernardino County's economy.

In addition, the project would create \$12.6 million in tax revenues that currently do not exist for California and San Bernardino County's local governments (*Exhibit 12*):

| <b>Exhibit 12.-California &amp; Local Taxes Generated, Phase II, Year 2</b> |               |
|---|---------------|
| <b>Type of Tax</b>  | <b>Amount</b> |
| Dividends   | \$ 1,239,492  |
| Social Ins Tax- Employee Contribution                                       | \$ 150,877    |
| Social Ins Tax- Employer Contribution                                       | \$ 374,759    |
| Indirect Bus Tax: Sales Tax   | \$ 2,803,383  |
| Indirect Bus Tax: Property Tax  | \$ 3,141,793  |
| Indirect Bus Tax: Motor Vehicle Lic   | \$ 64,324     |
| Indirect Bus Tax: Severance Tax   | \$ 1,080      |
| Indirect Bus Tax: Other Taxes   | \$ 551,418    |
| Indirect Bus Tax: S/L NonTaxes  | \$ 295,514    |
| Corporate Profits Tax   | \$ 616,270    |
| Personal Tax: Income Tax  | \$ 2,434,931  |
| Personal Tax: Non-Taxes (Fines- Fees)                                       | \$ 733,718    |
| Personal Tax: Motor Vehicle License   | \$ 112,694    |



|  |                     |
|--|---------------------|
| Personal Tax: Property Taxes             | \$ 57,306           |
| Personal Tax: Other Tax (like Fish/Hunt) | \$ 21,523           |
| <b>Total State and Local Tax</b>         | <b>\$12,599,082</b> |

Source: Output from IMPLAN model for San Bernardino County, 2011

**Summary.** Looking at the year by year results, the economic impact of the full Cadiz Groundwater Conservation, Recovery, and Imported Water Storage Project yields the following results over its four year period:

| <b>Exhibit 13.-Summary of Economic Impacts of Construction Activity, Cadiz Water Project</b> |                 |                 |                  |                  |               |               |
|--|-----------------|-----------------|------------------|------------------|---------------|---------------|
| Type of Impact   | Phase I, Year 1 | Phase I, Year 2 | Phase II, Year 1 | Phase II, Year 2 | 4-Year Total  | Annual Avg.   |
| Job Creation ( <i>man-years</i> )  | 1,011           | 2,090           | 940              | 1,945            | 5,986         | 1,497         |
| Labor & Proprietorship Income  | \$53,416,010    | \$115,788,200   | \$49,713,909     | \$107,763,274    | \$326,681,393 | \$81,670,348  |
| Economic Activity Generated  | \$138,561,306   | \$316,207,131   | \$128,958,046    | \$294,291,784    | \$878,018,267 | \$219,504,567 |
| State & Local Taxes Generated  | \$6,113,696     | \$13,537,310    | \$5,689,975      | \$12,599,082     | \$37,940,063  | \$9,485,016   |

Note that the annual average employment over this period would be 1,497 full time equivalent jobs. Altogether, the project would generate \$326.7 million in income to workers and single proprietors, an average of \$81.7 million per year. The economic activity added into San Bernardino County's economy over the four years would total \$878.0 million, or \$219.5 million per year. State and local taxes generated would total \$37.9 million, or \$9.5 million per year.

Looking longer term, the result of construction of the full Cadiz Water Project would be to increase the assessed valuation of property in the Cadiz area, as well as along the Arizona-California Railroad right of way and in the area where the pipelines would interact with the Colorado River Aqueduct near Rice. If it is assumed that the increase in the property valuation would be equal to the construction cost of the facilities, the increase would be \$536,250,000. All of this property is in unincorporated areas of the Needles Unified School District, where the tax rate is \$1.00 per \$100 of valuation for San Bernardino County's government and \$0.1143 for the Needles Unified School District.

If assessed valuation is not increased by an inflation factor, the annual property tax revenue generated by the Cadiz Water Project within San Bernardino County would total \$6.0 million. This would include \$5,362,000 to San Bernardino County and \$612,934 to Needles Unified School District (*Exhibit 14*).

| <b>Exhibit 14.-Permanent Property Tax Increase, San Bernardino County</b> |                    |                  |                    |
|---|--------------------|------------------|--------------------|
|   | San Bernardino Co. | Needles Unified  | Total              |
| Assumed Property Valuation  | \$536,250,000      | \$536,250,000    | \$536,250,000      |
| \$100 of Assessed Valuation   | \$5,362,500        | \$5,362,500      | \$5,362,500        |
| Tax Rates Per \$100 of AV   | \$1                | \$0.1143         | \$1.1143           |
| <b>Annual Tax Revenue</b>   | <b>\$5,362,500</b> | <b>\$612,934</b> | <b>\$5,975,434</b> |

Source: San Bernardino County Auditor Controllers Office, Tax Rates June 30, 2010