



Metropolitan Water District: Regional Recycled Water Program

An Economic Impact Study



INSTITUTE FOR APPLIED ECONOMICS

LOS ANGELES ECONOMIC DEVELOPEMNT CORPORATION

Metropolitan Water District: Regional Recycled Water Program

An Economic Impact Study

Los Angeles County Economic Development Corporation
444 S. Flower Street, 37th Floor ♦ Los Angeles, CA 90071
(888) 4-LAEDC-1 ♦ www.LAEDC.org



Shannon M. Sedgwick
Max Dunsker
Arthur Girard
August 2021

This report was prepared by the Institute for Applied Economics of the Los Angeles County Economic Development Corporation (LAEDC) for the Metropolitan Water District.

The LAEDC Institute for Applied Economics provides objective economic and policy research for public agencies and private firms. The group focuses on economic impact studies, regional industry analyses, economic forecasts and issue studies, particularly in workforce development, transportation, infrastructure and environmental policy.

Every reasonable effort has been made to ensure that the data contained herein reflect the most accurate and timely information possible and they are believed to be reliable.

The report is provided solely for informational purposes and is not to be construed as providing advice, recommendations, endorsements, representations or warranties of any kind whatsoever.

Executive Summary

Metropolitan Water District is developing a new regional water source for the Southern California region through its Regional Recycled Water Program (RRWP). The purpose of this program is to help ease the strain on regional water supply reserves by providing reliable replenishment supplies, which is particularly essential in maintaining adequate water storage during times of drought. The RRWP will be one of the largest programs of its kind in the world, as it would provide up to 168,000 acre-feet per year (AFY) of purified water when fully operational. At a more detailed level, it aims to replace both current and projected demand for imported water for the recharge of up to four Metropolitan Water District basins in the Southern California service area, enabling these basins to meet regional water demands during dry periods and emergencies through their storage function.

The most important element of the Regional Recycled Water Program is an advanced water treatment facility located at the Sanitation Districts of Los Angeles County's Joint Water Pollution Control Plant in the City of Carson. The program allows for production of up to 150 million gallons per day of purified water and the conveyance of purified water via approximately 60 miles of pipelines. These supplies are expected to be delivered to up to four groundwater basins (Orange County, Central, West Coast, and Main San Gabriel).

Economic and Fiscal Impact of Construction Expenditures

The RRWP development will provide a positive and widespread economic impact throughout the Los Angeles Basin (Los Angeles and Orange Counties) and the entire Southern California region (counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura).

The planned expenditure of approximately \$3.72 billion to develop the project (including construction, engineering, and other costs) will result in a total economic output of \$8.7 billion, accompanied by 47,100 total development-related jobs in Southern California – 24,100 of which will be directly involved in the construction. In addition to the direct employees, approximately 23,000 jobs would be supported by indirect or induced effects of the construction expenditures.

The project's total supported (direct, indirect, and induced) labor income in Southern California is estimated to be about \$3.5 billion (\$3.4 billion in the Los Angeles Basin, which is comprised of Los Angeles County and Orange County). Construction would also create about \$402 million in state and local tax impacts.

Exhibit ES-1

Economic Impact of MWD RRWP: Construction Expenditures (\$ millions)

| Total Economic Impact: | LA Basin | Rest of SoCal | Total SoCal |
|---------------------------------------|------------|---------------|-------------|
| Output | \$ 8,145.7 | \$ 534.7 | \$ 8,680.3 |
| Employment (jobs)* | 43,300 | 3,800 | 47,100 |
| <i>Direct</i> | 23,400 | 800 | 24,100 |
| <i>Indirect and induced</i> | 19,900 | 3,100 | 23,000 |
| Labor income | \$ 3,381.8 | \$ 74.9 | \$ 3,456.7 |
| Total State & Local Taxes: | \$ 365.1 | \$ 36.9 | \$ 402.0 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

RRWP Construction in the Los Angeles Basin:

- ▶ The 23,400 directly employed workers, which support an additional 19,900 jobs through indirect and induced effects in the Los Angeles Basin, for a combined total of 43,300 jobs.
- ▶ Generate \$8.15 billion in total economic output.
- ▶ Generate \$3.38 billion in labor income.
- ▶ Generate \$365.1 million in state and local taxes.

RRWP Construction in Southern California:

- ▶ The 24,100 directly employed workers, which support an additional 23,000 jobs through indirect and induced effects in Southern California, for a combined total of 47,100 jobs.
- ▶ Generate \$8.68 billion in total economic output.
- ▶ Generate \$3.46 billion in labor income.
- ▶ Generate approximately \$402 million in state and local taxes.

Economic and Fiscal Impact of Ongoing Activity

The Regional Recycled Water Program will have a recurring positive impact on the regional economy once construction is completed as well. In total, the ongoing operational and maintenance costs will result in an employment impact (direct, indirect, and induced) of 1,040 jobs in the Southern California region with labor income of \$88.0 million.

In the six-county region, there would be 220 direct jobs to support the annual operations of the RRWP, with another 820 created through indirect or induced effects. The total annual output of operations would be \$306.2 million, with an estimated \$25.9 million in annual fiscal impact. The majority of these effects would be located in the Los Angeles Basin, with very little economic impact occurring in the surrounding counties of Ventura, Riverside, San Bernardino, and San Diego.

RRWP Annual Operations and Maintenance in the Los Angeles Basin:

- ▶ The 210 directly employed workers, which support an additional 710 jobs through indirect and induced effects in the Los Angeles Basin, for a combined total of 920 jobs.
- ▶ Generate \$288.8 million in total economic output.
- ▶ Generate \$86.5 million in labor income.
- ▶ Generate \$24.4 million in state and local taxes.

RRWP Annual Operations and Maintenance in Southern California:

- ▶ The 220 directly employed workers, which support an additional 820 jobs through indirect and induced effects in Southern California, for a combined total of 1,040 jobs.
- ▶ Generate \$306.2 million in total economic output.
- ▶ Generate \$88 million in labor income.
- ▶ Generate approximately \$25.9 million in state and local taxes.

Exhibit ES-2

Economic Impact of MWD RRWP: Annual Operations & Maintenance Expenditures
(\$ millions)

| Total Economic Impact: | LA Basin | Rest of SoCal | Total SoCal |
|---------------------------------------|-----------------|----------------------|--------------------|
| Output | \$ 288.8 | \$ 17.4 | \$ 306.2 |
| Employment (jobs)* | 920 | 120 | 1,040 |
| <i>Direct</i> | 210 | 10 | 220 |
| <i>Indirect and induced</i> | 710 | 110 | 820 |
| Labor income | \$ 86.5 | \$ 1.5 | \$ 88.0 |
| Total State & Local Taxes: | \$ 24.4 | \$ 1.5 | \$ 25.9 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

1. Introduction

The Metropolitan Water District (MWD), the nation's largest wholesaler of water, is developing a new regional water source for the Southern California region through its Regional Recycled Water Program (RRWP).

Historically, groundwater basin yields have been the result of local rainfall, with additional replenishment through imported supplies and locally recycled water. However, replenishment provided by imported supplies has decreased in recent years, due in part to



the deteriorating supply reliability of the State Water Project, and natural replenishment has decreased due to prolonged droughts. Supplies of existing recycled water for groundwater recharge have not been able to prevent an overall decline in the regional supply; as such, new sources are required. The RRWP aims to alleviate the strain on regional water supply reserves by providing reliable replenishment supplies, thus freeing up imported water to be placed in storage as a buffer against drought.

The Metropolitan Water District's Regional Recycled Water Program will be one of the largest programs of its kind worldwide. When fully operational, the program would provide up to 168,000 acre-feet per year (AFY) of purified water in partnership with the Sanitation Districts of Los Angeles County. The RRWP would replace both current and projected demand for imported water for the recharge of up to four MWD groundwater basins (Orange County, Central, West Coast, and Main San Gabriel) in the Southern California service area, enabling these basins to meet regional water demands during dry periods and emergencies through their storage function.

The RRWP includes four elements: (1) an advanced water treatment facility located at the Sanitation Districts of Los Angeles County's Joint Water Pollution Control Plant in Carson; (2) the production of up to 150 million gallons per day (MGD) of purified water; (3) the conveyance of purified water via approximately 60 miles of pipelines; and (4) delivery of purified water to up to four groundwater basins (Orange County, Central, West Coast, and Main San Gabriel) within the Metropolitan Water District of Southern California's service area. These four elements will be split across two major phases. The first phase of the project will entail the construction of the advanced water treatment plant and backbone conveyance to four groundwater basins, as well as modifications to the direct potable reuse demonstration plant, to produce 100 MGD. The second phase would expand the project's treatment capabilities by an additional 50 MGD or more and build out additional conveyance pipelines, as well as adding more basin replenishment options and/or potential direct potable reuse connections.

The Institute for Applied Economics of the Los Angeles Economic Development Corporation (LAEDC) has estimated the economic impact of the first phase of the project and the economic impact of annual ongoing operations and maintenance costs once the second phase is complete. The total economic impacts consist of the one-time increases in total output, employment, and labor income in the Los Angeles Basin and in

Southern California, associated with construction activities over eleven and a half years (July 2022 through December 2033), and the annual increases in total output, employment, and labor income in these two geographies associated with the ongoing operations of RRWP elements once fully operational.

All of the project infrastructure and most of the employment and economic activity will be in the Los Angeles Basin (which consists of Los Angeles and Orange Counties); however, impacts are estimated at the six-county Southern California regional level, which includes the counties of Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura.

Approach and Methodology

The approach and methodology of economic impact analysis typically begins with a look at the increase in the final demand for an industry's output, such as a purchase of construction services. We began by estimating the impact of capital expenditures for the MWD RRWP within Los Angeles County and the Southern California region based on data provided by the client.

Our approach used the expected RRWP construction budget (midpoint escalation) and expected labor costs related to construction reported by MWD. It also used the expected annual operational and maintenance costs reported by MWD, scaled to account for inflation.

The magnitude of the multiplying effect differs from one region to another depending on the extent to which the local region can fill the demand for all rounds of supplying needs. For example, the automobile manufacturing industry has high multipliers in Detroit and Indiana since these regions have deep and wide supplier networks, while the same industry multiplier in Phoenix is quite small. In another example, the jobs multiplier for the construction industry is higher in say, Arkansas, than in California because the same amount of spending will purchase fewer workers in Los Angeles than in Little Rock.

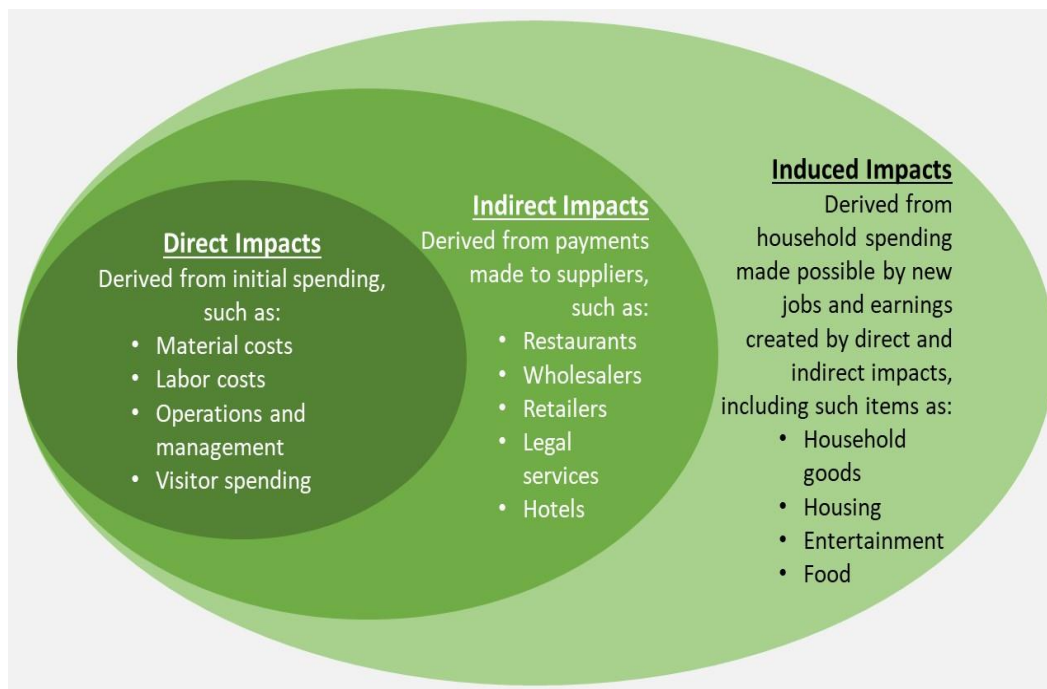
Multipliers can also differ from year to year as relative material and labor costs change all while the production "recipe" of industries changes as well. For example, the IT revolution significantly reduced the job multiplier of many industries (such as manufacturing, accounting, architecture, and publishing) as computers replaced administrative and production workers.

Once the initial direct activity was determined, we estimated the indirect and induced impacts using models developed with data and software from MIG, Inc. MIG's IMPLAN system is a robust, widely used set of modeling tools that provide economic resolution from the national level down to the ZIP code level. For purposes of this study, the region of our interest is Los Angeles County and the Southern California region.

The metrics used to determine the value of the economic impact include employment, labor income and the value of output. *Employment* numbers include full-time, part-time, permanent, and seasonal employees, and the self-employed, and are measured on a job-count basis regardless of the number of hours worked. *Labor income* is a measure of all income received by both payroll employees and the self-employed, including wages and benefits such as health insurance and pension plan contributions. *Output* is the value of the goods and services produced. For most industries, this is simply the revenue generated through sales; for others, in particular retail industries, output is the value of the services supplied.

Direct activity is the expenditures made for the construction activity, including labor, related to the RRWP in Los Angeles County and the Southern California region. Direct output is the value of the services provided by each business firm or entity. *Indirect effects* are those that stem from the employment and output motivated by the purchases made by each direct company. For example, indirect jobs are sustained by the suppliers of the construction materials and insurance coverage purchased by participating institutions. *Induced effects* are those

generated by the household spending of employees whose wages are sustained by both direct and indirect spending.



Unless otherwise noted, labor income, expenditures and output are expressed in current 2021 dollars, to provide a current value of the entire construction project. Employment estimates are reported on an annual basis, i.e., the number of full and part-time jobs supported in one year.

Assumptions

To model the economic impact of the Regional Recycled Water Program, certain assumptions must be made in accordance with the IMPLAN's modeling software and the general economy of the region.

The IMPLAN model uses regional purchase coefficients to assign the average percentage of expenditures made locally for each commodity (known collectively as regional absorption), based on recorded spending patterns. The model used for this analysis assumes that the percentage of MWD's procurement of materials that occurs within the Los Angeles Basin and Southern California region will follow IMPLAN's matrix of regional purchase coefficients for the construction of non-residential structures, which is specific to the model year, region and commodity. Though MWD has not identified vendors for all materials, it is likely that some materials may be purchased in other states or countries; if so, this would change the economic impact of the project in the Los Angeles Basin and Southern California to the degree that purchases deviate from the standard regional purchase coefficient. Economic impacts are not estimated for expenditures outside of the geographic area of interest.

The IMPLAN model employs local use ratios and inter-industry spending patterns within a regional economy to estimate indirect and induced effects. However, it will not identify how inputs interact with specific economic actors or the geographical context. Thus, the model captures whether there are active businesses in a particular industry within the region, but is unable to quantify the impact on California's water supply and the cascading effects of reductions in imported water for the Los Angeles Basin and the surrounding regions without additional information or assumptions being employed.

Other assumptions and limitations have been included herein where relevant.

2. Economic and Fiscal Impact of Construction Expenditures

The construction associated with the Regional Recycled Water Program will generate considerable economic activity in Los Angeles Basin and the Southern California region as expenditures are made for goods and services to produce the new structures and facilities.

RRWP Construction in the Los Angeles Basin:

- ▶ The 23,400 directly employed workers, which support an additional 19,900 jobs through indirect and induced effects in the Los Angeles Basin, for a combined total of 43,300 jobs.
- ▶ Generate \$8.15 billion in total economic output.
- ▶ Generate \$3.38 billion in labor income.
- ▶ Generate \$365.1 million in state and local taxes.

RRWP Construction in Southern California:

- ▶ The 24,100 directly employed workers, which support an additional 23,000 jobs through indirect and induced effects in Southern California, for a combined total of 47,100 jobs.
- ▶ Generate \$8.68 billion in total economic output.
- ▶ Generate \$3.46 billion in labor income.
- ▶ Generate approximately \$402 million in state and local taxes.

Direct Activity

The approach in this analysis utilizes the expenditures of the Metropolitan Water District attributable to the first phase of RRWP construction as the direct activity. Indirect and induced impacts are estimated using models developed with software and data from the IMPLAN Group, LLC. The primary economic impact of the construction phase on the local economy is the expenditure of billions of dollars towards goods and services from local vendors and for the wages and benefits of local construction workers. The overall development budget of \$3.72 billion provided by MWD is presented in Exhibit 2-1.

Exhibit 2-1

Direct Construction Expenditures (Midpoint Escalation \$)

| Planned Expenditures: | \$ millions | % of total |
|------------------------------------|-------------------|---------------|
| Engineering services | \$ 310.0 | 8.3% |
| Construction contract | \$ 2,971.2 | 79.8% |
| Labor | \$ 441.4 | 11.9% |
| <i>Engineering services</i> | 439.4 | 11.8 |
| <i>Real property</i> | 0.07 | 0.002 |
| <i>Water system operations</i> | 2.0 | 0.1 |
| Total Direct Project Costs: | \$ 3,722.5 | 100.0% |

Source: MWD

Construction contracts will account for just under 80 percent of the overall project budget at \$2.97 billion. Over 8 percent of the budget (\$310.0 million) is allocated for engineering services, and just under 12 percent (\$441.4 million) is allocated for labor, including engineering services and water system operations.

One-Time Construction Impact

Based upon budget estimates provided to the LAEDC, the total economic and fiscal impact of the capital expenditures for RRWP construction in the Los Angeles Basin and the six-county Southern California region,

which includes indirect and induced activity, is presented in Exhibit 2-2. Construction impacts are one-time impacts, the impact of ongoing annual operations and maintenance will be discussed in the next section.

The planned expenditure of approximately \$3.72 billion (midpoint escalation dollars) to develop the Regional Recycled Water Program in Southern California (including

construction, design, and other related costs) will result in a total economic output of nearly \$8.7 billion, and support 47,100 total project-related jobs, of which 24,100 will be directly involved in the construction and earn an estimated \$1.97 billion in labor income. There will also be another 23,000 jobs across the Southern California region supported by the project through indirect and induced effects earning an estimated \$1.48 billion in labor income, leading to a total of \$3.46 billion in wages created by the RRWP. Furthermore, the program will create \$402 million in state and local taxes.

The majority of employment and output will be generated in the Los Angeles Basin, which is composed of Los Angeles County and Orange County. The LA Basin will be the location for \$8.1 billion in total output and 43,300 total jobs, accounting for 94 percent of the programs overall output and 92 percent of overall resulting employment in all of Southern California.

Industry Breakdown

Exhibit 2-3 shows the total output, employment, and compensation impacts of the Regional Recycled Water Program in Southern California disaggregated by industry sector. This allows an estimation and industry identification of “follow-on” jobs and business revenues. The values in the exhibit should be interpreted as illustrative of the industry effects rather than precise, given model and data limitations.

Much of the impact will occur in the construction industry, with 34.6 percent of the total output – direct, indirect, and induced – earned by firms in the industry (\$3.0 billion) and about 36.6 percent of the employment generated. Professional and technical services will also be significantly impacted with 20.4

Exhibit 2-2

Economic Impact of MWD RRWP: Construction Expenditures (\$ millions)

| Total Economic Impact: | LA Basin | Rest of SoCal | Total SoCal |
|---------------------------------------|-----------------|----------------|-----------------|
| Output | \$ 8,145.7 | \$ 534.7 | \$ 8,680.3 |
| Employment (jobs)* | 43,300 | 3,800 | 47,100 |
| <i>Direct</i> | 23,400 | 800 | 24,100 |
| <i>Indirect and induced</i> | 19,900 | 3,100 | 23,000 |
| Labor income | \$ 3,381.8 | \$ 74.9 | \$ 3,456.7 |
| Total State & Local Taxes: | \$ 365.1 | \$ 36.9 | \$ 402.0 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

Exhibit 2-3

Total Economic Impact of MWD RRWP Construction by Industry Sector in Southern California

| | Employment (jobs) | Labor Income (\$ millions) | Output (\$ millions) |
|-------------------------------------|----------------------|-------------------------------|-------------------------|
| Agriculture | 50 | \$ 2.6 | \$ 4.7 |
| Mining, and oil and gas extraction | 60 | 3.7 | 22.4 |
| Utilities | 50 | 8.5 | 41.1 |
| Construction | 17,230 | 1,276.2 | 3,000.7 |
| Manufacturing | 1,270 | 101.4 | 532.9 |
| Wholesale trade | 1,070 | 105.6 | 378.6 |
| Retail trade | 2,500 | 111.5 | 289.1 |
| Transportation and warehousing | 1,700 | 84.7 | 209.6 |
| Information | 390 | 57.2 | 250.0 |
| Finance and insurance | 1,180 | 104.7 | 349.7 |
| Real estate and rental and leasing | 1,280 | 71.2 | 703.9 |
| Professional and technical services | 9,460 | 938.9 | 1,774.0 |
| Management of companies | 370 | 47.8 | 89.2 |
| Administrative and waste services | 2,640 | 132.6 | 243.8 |
| Educational services | 460 | 23.5 | 37.6 |
| Health care and social assistance | 2,580 | 166.0 | 297.6 |
| Arts, entertainment, and recreation | 480 | 22.9 | 45.6 |
| Accommodation and food services | 2,190 | 72.6 | 182.4 |
| Other services | 1,890 | 96.7 | 163.2 |
| Government | 240 | 28.4 | 64.3 |
| Total All Industries* | 47,100 | \$ 3,456.7 | \$ 8,680.3 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

percent of the total output (\$1.8 billion) and 20 percent of the supported jobs. However, other industries will also stand to gain, including health care and social assistance; accommodation and food services; and administrative and waste services. Each of these industries will see an increase in business revenues and in the number of jobs, as the effects of the increase in construction activity due to the Metropolitan Water District’s project ripple through the regional economy.



Occupational Impacts

The Regional Recycled Water Program will support jobs for a broad range of occupations, as it requires workers with a wide variety of educational backgrounds, skills and expertise. Exhibit 2-4 displays the estimated occupational distribution of workers that will be directly involved in the construction efforts of the project.

Of the 24,100 expected jobs, nearly 11,000 will be in construction and extraction occupations such as construction laborers, construction equipment operators, electricians, and pipelayers. The construction is projected to create another 3,700 jobs for workers in architecture and engineering occupations including civil, electrical, mechanical, and industrial engineers. A significant number of jobs will also be supported in office and administrative support occupations, management occupations, business and financial occupations, and installation, maintenance, and repair occupations.

Exhibit 2-4

Estimated Occupational Distribution of Jobs Supported by MWD RRWP Construction in Southern California

| SOC | Occupational Description | Direct Jobs Supported | Total Jobs Supported |
|----------------------------------|--|-----------------------|----------------------|
| 11-0000 | Management occupations | 1,770 | 3,040 |
| 13-0000 | Business and financial operations | 1,020 | 2,420 |
| 15-0000 | Computer and mathematical science | 440 | 1,120 |
| 17-0000 | Architecture and engineering | 3,690 | 4,210 |
| 19-0000 | Life, physical and social science | 340 | 470 |
| 21-0000 | Community and social services | 0 | 260 |
| 23-0000 | Legal occupations | 10 | 230 |
| 25-0000 | Education, training and library | 0 | 370 |
| 27-0000 | Arts, design, entertainment, sports, media | 160 | 530 |
| 29-0000 | Healthcare practitioners and technical | 40 | 1,010 |
| 31-0000 | Healthcare support occupations | 0 | 520 |
| 33-0000 | Protective service occupations | 20 | 360 |
| 35-0000 | Food preparation and serving related | 0 | 2,200 |
| 37-0000 | Building/grounds cleaning/maintenance | 150 | 880 |
| 39-0000 | Personal care and service | 0 | 1,080 |
| 41-0000 | Sales and related occupations | 470 | 3,100 |
| 43-0000 | Office and administrative support | 2,350 | 6,150 |
| 45-0000 | Farming, fishing, and forestry | 0 | 60 |
| 47-0000 | Construction and extraction | 10,950 | 11,270 |
| 49-0000 | Installation, maintenance and repair | 1,570 | 2,720 |
| 51-0000 | Production occupations | 540 | 1,830 |
| 53-0000 | Transportation and material moving | 610 | 3,260 |
| Total of All Occupations* | | 24,100 | 47,100 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

When looking at the occupational distribution of the total jobs supported by the construction (which include indirect and induced employment as well as direct), it is apparent that this project will have an effect on jobs across the entire occupational spectrum. Although much of the direct employment is located within construction occupations, there are several occupational groups where thousands of extra indirect

and induced jobs will be supported throughout project construction, including transportation and material moving, food preparation and serving related, production and sales, and related occupations

Fiscal Impact

The economic activity in the Los Angeles Basin and Southern California generated by the Regional Recycled Water Program over its construction period will generate significant federal, state, and local tax revenues. Income taxes will be collected on the earnings of workers, both direct and indirect, as will be unemployment insurance and disability insurance taxes. Sales taxes will be generated on the purchases of materials by the construction contractors and of goods and services by all the workers whose earnings are sustained by the transportation projects.

The estimated tax revenues by level of government are detailed in Exhibit 2-5 below and shown for both the Los Angeles Basin (Los Angeles County and Orange County) and the entire Southern California region as a whole, which includes the counties of Riverside, San Bernardino, San Diego, and Ventura along with the LA Basin.

Exhibit 2-5
Distribution of MWD RRWP's Construction Fiscal Impact by Government Level
 (\$ millions)

| Region | Impact Type | Sub-County General | Sub-County Special Districts | County | State | Federal | Total |
|------------------------|---------------|-----------------------|---------------------------------|--------------|---------------|---------------|-----------------|
| Los Angeles Basin | Direct | \$ 5.88 | \$ 5.93 | \$ 4.23 | \$ 91.33 | \$ 400.41 | \$ 507.77 |
| | Indirect | 18.46 | 17.91 | 12.52 | 64.21 | 134.18 | 247.29 |
| | Induced | 24.04 | 23.30 | 16.29 | 81.00 | 158.28 | 302.90 |
| | Total* | 48.38 | 47.13 | 33.03 | 236.54 | 692.87 | 1,057.95 |
| Southern California | Direct | \$ 5.92 | \$ 6.32 | \$ 4.12 | \$ 94.19 | \$ 400.82 | \$ 511.37 |
| | Indirect | 19.58 | 20.03 | 12.91 | 72.25 | 150.57 | 275.33 |
| | Induced | 26.95 | 27.55 | 17.74 | 94.42 | 179.26 | 345.92 |
| | Total* | 52.44 | 53.90 | 34.77 | 260.85 | 730.65 | 1,132.62 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

It is estimated that RRWP construction in Southern California will generate \$730.7 million in federal taxes and about \$402 million in state and local taxes. Altogether, over \$1.1 billion in tax revenues will be collected in relation to the construction portion of the program. Approximately 45 percent of this will be generated directly from the construction, and the remaining 55 percent will come from indirect and induced sources.

The Los Angeles Basin will be responsible for the vast majority of tax revenues, just as it will be the home for the majority of output and employment. About \$1.06 billion in taxes created by construction will come from Los Angeles County and Orange County, approximately 93 percent of the fiscal impact.

The total tax revenues for RRWP construction are disaggregated by tax type in Exhibit 2-6. At the federal level, direct, indirect, and induced workers will pay \$299.2 million in federal income taxes with \$375.9 million in social insurance taxes. Businesses will also pay over \$36 million in corporate income taxes. At the

state and county level, workers will pay \$133.9 million in income taxes with \$16.9 million in social insurance taxes, while \$123.1 million will be generated by sales taxes and \$101.4 million by property taxes. The remaining fees and fines, as well as assorted other taxes, bring total revenues in the state of California to over \$400 million from the construction project.

Exhibit 2-6

Fiscal Impact of MWD RRWP Construction in Southern California
(\$ millions)

| | |
|-------------------------------------|--------------------|
| State and Local Taxes*: | \$ 402.0 |
| <i>Property Taxes</i> | 101.4 |
| <i>Sales Taxes</i> | 123.1 |
| <i>Income Taxes</i> | 133.9 |
| <i>Social Insurance</i> | 17.0 |
| <i>Fees, Fines, and Other Taxes</i> | 26.6 |
| Federal Taxes*: | \$ 730.7 |
| <i>Personal Income Taxes</i> | 299.2 |
| <i>Social Insurance</i> | 375.9 |
| <i>Corporate Profit Taxes</i> | 36.1 |
| <i>Fees, Fines, and Other Taxes</i> | 19.5 |
| Total Fiscal Impact*: | \$ 1,132.62 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.



3. Economic & Fiscal Impact of Ongoing Operations

Even after construction has been completed, the Regional Recycled Water Program will continue to have a positive effect on the economies of the Los Angeles Basin and Southern California as a whole due to the impact of annual operations and maintenance.

RRWP Annual Operations and Maintenance in the Los Angeles Basin:

- ▶ The 210 directly employed workers, which support an additional 710 jobs through indirect and induced effects in the Los Angeles Basin, for a combined total of 920 jobs.
- ▶ Generate \$288.8 million in total economic output.
- ▶ Generate \$86.5 million in labor income.
- ▶ Generate \$24.4 million in state and local taxes.

RRWP Annual Operations and Maintenance in Southern California:

- ▶ The 220 directly employed workers, which support an additional 820 jobs through indirect and induced effects in Southern California, for a combined total of 1,040 jobs.
- ▶ Generate \$306.2 million in total economic output.
- ▶ Generate \$88 million in labor income.
- ▶ Generate approximately \$25.9 million in state and local taxes.

Direct Activity

There are a wide range of necessary operational costs that are anticipated for the upkeep of the advanced water treatment plant, including the costs for power and chemicals associated with the treatment process at the completed site and the replacement of unit process components that wear out over time. There are further costs for energy used at the pump stations injection wells along with pipeline monitoring and maintenance. These responsibilities will require full-time workers assigned to the RRWP system and create more indirect and induced jobs in auxiliary industries. As the construction progresses in phases and new portions of the project come online, these costs will start to become present. The following analysis examines annual expenditures once the Regional Recycled Water Program is fully operational and running at maximum capacity.

Exhibit 3-1

Direct Annual Operations & Maintenance Expenditures (2021 dollars)

| | \$ millions | % of total |
|------------------------------------|-----------------|---------------|
| Power | \$ 56.1 | 40.0% |
| Materials | \$ 64.5 | 46.0% |
| Labor | \$ 19.6 | 14.0% |
| Land use | \$ 0.1 | 0.1% |
| Total Annual O&M Cost*: | \$ 140.3 | 100.0% |

Source: MWD; *Totals may not sum due to rounding.

Ongoing Annual Economic Impact

Annual operational costs for the RRWP, provided by the Metropolitan Water District and escalated to 2021 dollars, are displayed in Exhibit 3-1; the expenditures are based on when the RRWP is complete and fully operational. The cost of powering the treatment and distribution system is expected to be roughly \$56.1 million each year, accounting for 40 percent of the total. Materials costs will be around \$64.5 million (46

percent) and labor costs \$19.6 million (14 percent), with a small amount also dedicated to land use fees for situating the treatment facility on Sanitation Districts’ property.

Based off these expenditures, the total economic and fiscal impact of annual RRWP activity in the Los Angeles Basin and the Southern California region, including indirect and induced activity, is presented in Exhibit 3-2. The Regional Recycled Water Program will support 920 direct, indirect, and induced jobs in Los Angeles County and Orange County when fully operational, with labor income of \$86.5 million; when including all of Southern California, it will provide for 1,040 total jobs earning just under \$88 million in estimated income. The annual economic output of ongoing operations will be \$288.8 million in the LA Basin and \$306.2 million in Southern California. The activity from annual RRWP operations will also generate \$25.9 million in state and local taxes for California, with \$24.4 million from this total sourced in Los Angeles and Orange Counties. Outside of the Los Angeles

Basin, the four remaining counties in the Southern California region will not see much impact from the RRWP, with just 5.6 percent of the overall output and less than two percent of labor income.

Industry Breakdown

Exhibit 3-3 shows the breakdown of the total economic impact from the Regional Recycled Water Program’s annual operational and maintenance costs by industry sector for employment, labor income, and output. Similar to the prior section, models developed with software and data from the IMPLAN



Exhibit 3-2
Economic Impact of MWD RRWP: Annual Operations Expenditures
 (\$ millions)

| Total Economic Impact: | LA Basin | Rest of SoCal | Total SoCal |
|---------------------------------------|----------|---------------|-------------|
| Output | \$ 288.8 | \$ 17.4 | \$ 306.2 |
| Employment (jobs)* | 920 | 120 | 1,040 |
| <i>Direct</i> | 210 | 10 | 220 |
| <i>Indirect and induced</i> | 710 | 110 | 820 |
| Labor income | \$ 86.5 | \$ 1.5 | \$ 88.0 |
| Total State & Local Taxes: | \$ 24.4 | \$ 1.5 | \$ 25.9 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

Exhibit 3-3
Total Economic Impact of MWD RRWP Annual Operations by Industry Sector in Southern California

| | Employment (jobs) | Labor Income (\$ millions) | Output (\$ millions) |
|-------------------------------------|-------------------|----------------------------|----------------------|
| Agriculture | 0 | \$ 0.1 | \$ 0.1 |
| Mining, and oil and gas extraction | 10 | 0.6 | 3.2 |
| Utilities | 230 | 31.2 | 136.1 |
| Construction | 10 | 0.6 | 1.9 |
| Manufacturing | 50 | 4.3 | 23.8 |
| Wholesale trade | 50 | 5.1 | 18.3 |
| Retail trade | 50 | 2.2 | 5.7 |
| Transportation and warehousing | 110 | 6.2 | 14.7 |
| Information | 10 | 2.0 | 8.7 |
| Finance and insurance | 40 | 3.8 | 13.0 |
| Real estate and rental and leasing | 50 | 2.8 | 22.4 |
| Professional and technical services | 100 | 10.0 | 19.9 |
| Management of companies | 10 | 1.4 | 2.7 |
| Administrative and waste services | 90 | 4.5 | 8.7 |
| Educational services | 10 | 0.6 | 1.0 |
| Health care and social assistance | 70 | 4.3 | 7.6 |
| Arts, entertainment, and recreation | 20 | 0.7 | 1.5 |
| Accommodation and food services | 60 | 1.9 | 4.7 |
| Other services | 60 | 3.3 | 5.5 |
| Government | 20 | 2.6 | 6.9 |
| Total All Industries* | 1,040 | \$ 88.0 | \$ 306.2 |

Source: Estimates by LAEDC; Totals may not sum due to rounding.

Group, LLC were used to estimate the ongoing indirect and induced effects.

Whereas the economic impacts of building the RRWP were heavily concentrated in the construction sector, the impact of ongoing operations are most present in the utilities sector, in which it is estimated to support 230 jobs paying \$31.2 million in compensation and generate \$136.1 million annually in total output. The utilities sector will thus be responsible for 44 percent of total output, with significant percentages also dispersed among industries like manufacturing, real estate, professional and technical services, and transportation and warehousing. Overall, the annual effects of operational and maintenance costs will be

fairly distributed across the entire range of industry sectors in Southern California. A description of these industries is provided in the Appendix.

Occupational Impacts

A distribution of the total (direct, indirect, and induced) jobs supported by the annual operations and maintenance of the Regional Recycled Water Program is displayed in Exhibit 3-4.

Of the 1,040 total jobs supported, office and administrative support occupations are expected to have the most with 190, but the majority of these are either indirect or induced jobs. There will also be many jobs created in production occupations, transportation and material moving occupations, and installation, maintenance, and repair occupations due to the labor required for monitoring and repairing the RRWP system. The remaining jobs are dispersed among the entire range of occupations in Southern California.

Fiscal Impact

The economic activity in the Los Angeles Basin and Southern California generated by the annual operational and maintenance costs of the Regional Recycled Water Program will also generate significant federal, state, and local tax revenues. These impacts are shown in Exhibit 3-5 and disaggregated by tax type at both the federal, state, and local levels.

Exhibit 3-4

Estimated Occupational Distribution of Jobs Supported by MWD RRWP Annual Operations & Maintenance in Southern California

| SOC | Occupational Description | Total Jobs Supported |
|----------------------------------|--|----------------------|
| 11-0000 | Management occupations | 60 |
| 13-0000 | Business and financial operations | 60 |
| 15-0000 | Computer and mathematical science | 30 |
| 17-0000 | Architecture and engineering | 30 |
| 19-0000 | Life, physical and social science | 10 |
| 21-0000 | Community and social services | 10 |
| 23-0000 | Legal occupations | 10 |
| 25-0000 | Education, training and library | 10 |
| 27-0000 | Arts, design, entertainment, sports, media | 10 |
| 29-0000 | Healthcare practitioners and technical | 30 |
| 31-0000 | Healthcare support occupations | 10 |
| 33-0000 | Protective service occupations | 10 |
| 35-0000 | Food preparation and serving related | 60 |
| 37-0000 | Building/grounds cleaning/maintenance | 30 |
| 39-0000 | Personal care and service | 30 |
| 41-0000 | Sales and related occupations | 80 |
| 43-0000 | Office and administrative support | 190 |
| 45-0000 | Farming, fishing, and forestry | 0 |
| 47-0000 | Construction and extraction | 40 |
| 49-0000 | Installation, maintenance and repair | 80 |
| 51-0000 | Production occupations | 130 |
| 53-0000 | Transportation and material moving | 130 |
| Total of All Occupations* | | 1,040 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

Exhibit 3-5

Fiscal Impact of MWD RRWP Annual Operations & Maintenance in Southern California (\$ millions)

| | |
|--------------------------------|----------------|
| State and Local Taxes*: | \$ 25.9 |
| Property Taxes | 8.7 |
| Sales Taxes | 10.8 |
| Income Taxes | 3.9 |
| Social Insurance | 0.4 |
| Fees, Fines, and Other Taxes | 2.1 |
| Federal Taxes*: | \$ 20.8 |
| Personal Income Taxes | 7.8 |
| Social Insurance | 9.4 |
| Corporate Profit Taxes | 2.0 |
| Fees, Fines, and Other Taxes | 1.7 |
| Total Fiscal Impact*: | \$ 46.7 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

The annual fiscal impact of RRWP ongoing operations once the program is fully operational is estimated to be \$46.7 million in Southern California. \$20.8 million from this total (45 percent) is attributed to federal taxes, including \$7.8 million in federal income taxes and \$2.0 million in corporate profits tax. Additionally, employers and employees (direct, indirect, and induced) will contribute \$9.4 million in social insurance taxes. Other federal taxes, such as customs duties and excise taxes, will have an impact of about \$1.7 million annually.

At the state and local level, the annual impact will be about \$25.9 million in California. Sales taxes will have the greatest effect at nearly \$10.8 million each year, generated on the purchases of materials for replacing components and equipment as well as purchases of goods and services by all the workers whose earnings are sustained by the ongoing operations. State and local governments will collect over \$3.9 million in income taxes from direct RRWP workers and workers sustained by its operations, and \$8.7 million in property taxes. The vast majority of taxes from RRWP ongoing operations will be generated in the Los Angeles Basin, as Los Angeles County and Orange County will be responsible for \$44.3 million in fiscal impact annually – nearly 95 percent of the total.

The estimated tax revenues by level of government are shown in Exhibit 3-6 below for both the Los Angeles Basin and the Southern California.

Direct taxes on the labor used for annual operations, the inputs used, purchases made and other direct activities are responsible for about half of the total fiscal impact of RRWP's operational and maintenance expenditures at \$23.4 million. The fiscal impact of indirect and induced economic activity comprises the other half of total government revenues; \$14.5 million will come from indirect sources and \$8.9 million from induced.

In Los Angeles County and Orange County, where nearly all of the fiscal impacts will be generated, direct economic activity will contribute \$23.1 million, indirect will contribute \$13.4 million and induced \$7.8 million.

Exhibit 3-6

Distribution of MWD RRWP's Annual Operations and Maintenance Fiscal Impact by Government Level

(\$ millions)

| Region | Impact Type | Sub-County General | Sub-County Special Districts | County | State | Federal | Total |
|------------------------|---------------|-----------------------|---------------------------------|-------------|--------------|--------------|--------------|
| Los Angeles Basin | Direct | \$ 2.83 | \$ 2.74 | \$ 1.91 | \$ 7.19 | \$ 8.46 | \$ 23.13 |
| | Indirect | 0.96 | 0.93 | 0.65 | 3.45 | 7.41 | 13.39 |
| | Induced | 0.62 | 0.60 | 0.42 | 2.08 | 4.07 | 7.79 |
| | Total* | 4.41 | 4.26 | 2.98 | 12.72 | 19.94 | 44.31 |
| Southern California | Direct | \$ 2.89 | \$ 2.94 | \$ 1.90 | \$ 7.54 | \$ 8.13 | \$ 23.40 |
| | Indirect | 0.97 | 0.99 | 0.64 | 3.74 | 8.12 | 14.45 |
| | Induced | 0.69 | 0.71 | 0.45 | 2.42 | 4.59 | 8.86 |
| | Total* | 4.55 | 4.64 | 2.99 | 13.7 | 20.84 | 46.72 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

4. Conclusion

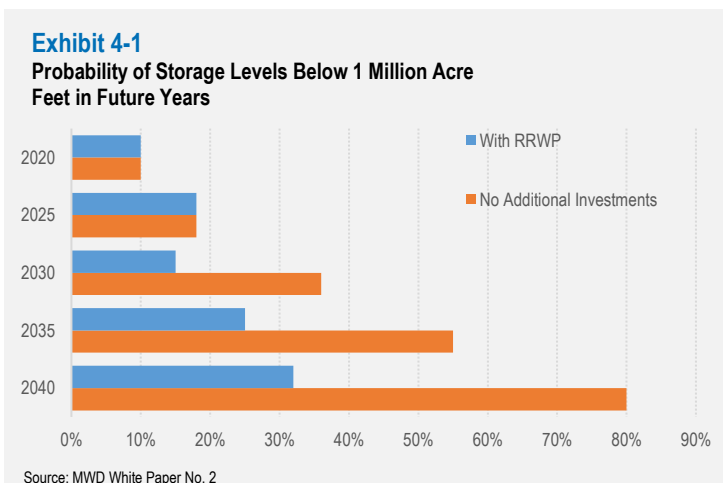
Water conservation and storage remains an ever-present challenge in the American Southwest, and the pressures of scarcity have continued to mount over the past decade. With the federal government declaring its first Western reservoir water shortage for the Colorado River in August 2021, greater eyes are being placed on the sustainable management of water resources. In the future, groundwater basin depletion and the draining of freshwater supplies that California and the Los Angeles region have long depended on will make the need for dependable sources of purified water even greater. The Regional Recycled Water Program is a timely project that has the potential to provide a new local source of reliable, high-quality and climate-change resistant water, easing the burden on the Metropolitan Water District of Southern California and ensuring that it can meet water demands for the region’s growing population.

The MWD Regional Recycled Water Program will provide benefits above and beyond the economic impact of the program’s construction and ongoing annual impacts once fully operational.

With the ability to deliver up to 150 million gallons per day of purified water, there will be immense benefits above and beyond the economic impact of the project’s construction and ongoing annual impact once fully operational. The Metropolitan Water District will have the ability to increase its regional water reserves, which are critical to maintain for use during droughts and similar times of scarcity. It will also be able to diversify its water sources and enhance operational reliability and flexibility, which is gaining importance as the growing consensus has become that the impacts of climate change can affect the yield of both imported and local water supply sources. Rather than splitting up its imported supplies both for use by member agencies and for storage, Metropolitan would gain greater flexibility to make groundwater replenishment deliveries primarily through the RRWP and liberate a good deal of imported water for increased storage and other uses.

As shown in Figure 4-1, without additional investments into imported water resources, imported water conveyance or storage capacity, the probability of Metropolitan storage levels sinking below one-million acre feet rise dramatically across the next two decades, which would force the consideration of mandatory water supply allocations. If the Regional Recycled Water Program is implemented, this threshold is estimated to be less than half as likely to be reached.

Alongside the benefits for the strength and resilience of the region’s water supply and distribution system, the construction and operation of the Regional Recycled Water Program will also have a marked impact on the economy of the Los Angeles Basin and greater Southern California. Over the course of Phase I construction, which includes the advanced water treatment plant in Carson and the backbone conveyance system, there will be close to 50,000 direct, indirect and induced jobs supported, providing a wealth of opportunities for local workers across the



entire spectrum of industries and occupations in Southern California. Even after construction has completed, the operation and maintenance needs of the program will provide further jobs and income for workers.

Furthermore, the potential economic impact for the Southern California region is substantial, with an estimated \$8.7 billion generated in economic output from Phase I construction and over \$300 million more annually from operations and maintenance for the fully completed Regional Recycled Water Program. **The direct expenditures on labor, materials, power, construction and more by Metropolitan Water District will work its way through the economy and create indirect and induced benefits for a wide range of businesses. State and local governments stand to gain as well from the hundreds of millions of dollars in tax revenues that the program will generate.**

The Regional Recycled Water Program is a massive undertaking, but one that has tremendous potential gains for the Los Angeles Basin and Southern California as a whole. Its economic impacts will create jobs and revenues throughout the region, and the completed program will be a major step forward in securing a sustainable future for Southern California's water supply.

Appendix A: Description of Industry Sectors

The industry sectors used in this report are established by the North American Industry Classification System (NAICS). NAICS divides the economy into twenty sectors, and groups industries within these sectors according to production criteria. Listed below is a short description of each sector as taken from the sourcebook, North American Industry Classification System, published by the U.S. Office of Management and Budget (2012).

Agriculture, Forestry, Fishing and Hunting: Activities of this sector are growing crops, raising animals, harvesting timber, and harvesting fish and other animals from farms, ranches, or the animals' natural habitats.

Mining: Activities of this sector are extracting naturally occurring mineral solids, such as coal and ore; liquid minerals, such as crude petroleum; and gases, such as natural gas; and beneficiating (e.g., crushing, screening, washing and flotation) and other preparation at the mine site, or as part of mining activity.

Utilities: Activities of this sector are generating, transmitting, and/or distributing electricity, gas, steam, and water and removing sewage through a permanent infrastructure of lines, mains, and pipes.

Construction: Activities of this sector are erecting buildings and other structures (including additions); heavy construction other than buildings; and alterations, reconstruction, installation, and maintenance and repairs.

Manufacturing: Activities of this sector are the mechanical, physical, or chemical transformation of material, substances, or components into new products.

Wholesale Trade: Activities of this sector are selling or arranging for the purchase or sale of goods for resale; capital or durable non-consumer goods; and raw and intermediate materials and supplies used in production and providing services incidental to the sale of the merchandise.

Retail Trade: Activities of this sector are retailing merchandise generally in small quantities to the general public and providing services incidental to the sale of the merchandise.

Transportation and Warehousing: Activities of this sector are providing transportation of passengers and cargo, warehousing and storing goods, scenic and sightseeing transportation, and supporting these activities.

Information: Activities of this sector are distributing information and cultural products, providing the means to transmit or distribute these products as data or communications, and processing data. This industry contains all aspects of motion picture recording and distribution as well as the sound and telecommunications industry.

Finance and Insurance: Activities of this sector involve the creation, liquidation, or change of ownership of financial assets (financial transactions) and/or facilitating financial transactions.

Real Estate and Rental and Leasing: Activities of this sector are renting, leasing, or otherwise allowing the use of tangible or intangible assets (except copyrighted works) and providing related services.

Professional, Scientific, and Technical Services: Activities of this sector are performing professional, scientific, and technical services for the operations of other organizations.

Management of Companies and Enterprises: Activities of this sector are the holding of securities of companies and enterprises, for the purpose of owning controlling interest or influencing their management decision, or administering, overseeing, and managing other establishments of the same company or enterprise and normally undertaking the strategic or organizational planning and decision-making of the company or enterprise.

Administrative and Support and Waste Management and Remediation Services: Activities of this sector are performing routine support activities for the day-to-day operations of other organizations, such as: office administration, hiring and placing of personnel, document preparation and similar clerical services, solicitation, collection, security and surveillance services, cleaning, and waste disposal services.

Educational Services: Activities of this sector are providing instruction and training in a wide variety of subjects. Educational services are usually delivered by teachers or instructors that explain, tell, demonstrate, supervise, and direct learning. Instruction is imparted in diverse settings, such as educational institutions, the workplace, or the home through correspondence, television, or other means.

Health Care and Social Assistance: Activities of this sector are operating or providing health care and social assistance for individuals.

Arts, Entertainment and Recreation: Activities of this sector are operating facilities or providing services to meet varied cultural, entertainment, and recreational interests of their patrons, such as: (1) producing, promoting, or participating in live performances, events, or exhibits intended for public viewing; (2) preserving and exhibiting objects and sites of historical, cultural, or educational interest; and (3) operating facilities or providing services that enable patrons to participate in recreational activities or pursue amusement, hobby, and leisure-time interests.

Accommodation and Food Services: Activities of this sector are providing customers with lodging and/or preparing meals, snacks, and beverages for immediate consumption.

Other Services (except Public Administration): Activities of this sector are providing services not specifically provided for elsewhere in the classification system. Establishments in this sector are primarily engaged in activities, such as equipment and machinery repairing, promoting or administering religious activities, grant-making, advocacy, and providing dry-cleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services. ❖

Appendix B: Economic and Fiscal Impact of Construction Expenditures: AWT Plant

The construction associated with Phase I of the Advanced Water Treatment (AWT) Plant, part of MWD's Regional Recycled Water Program, will generate considerable economic activity in the City of Carson as expenditures are made for goods and services to produce the new facility.

AWT Plant Construction in the City of Carson:

- ▶ The 9,300 directly employed workers, which support an additional 120 jobs through indirect and induced effects in the City of Carson, for a combined total of 9,420 jobs.
- ▶ Generate \$1.71 billion in total economic output.
- ▶ Generate \$0.8 billion in labor income.
- ▶ Generate \$18.2 million in state and local taxes.

Direct Activity

The approach in this analysis utilizes the expenditures of the Metropolitan Water District attributable to the first phase of RRWP construction as the direct activity, using only those expenditures for the construction of the AWT Plant. Indirect and induced impacts are estimated using models developed with software and data from the IMPLAN Group, LLC. The primary economic impact of the construction phase on the local economy is the expenditure of over a billion of dollars towards goods and services from local vendors and for the wages and benefits of local construction workers. The overall development budget for the construction of the AWT Plant, totaling over \$1.4 billion, is provided by MWD is presented in Exhibit B-1.

Exhibit B-1

Direct Construction Expenditures of AWT Plant (Midpoint Escalation \$)

| Planned Expenditures: | \$ millions | % of total |
|------------------------------------|-----------------|---------------|
| Engineering services | \$ 120.8 | 8.5% |
| Construction contract | \$ 1,128.3 | 79.7% |
| Labor | \$ 166.9 | 11.8% |
| <i>Engineering services</i> | 165.1 | 11.7 |
| <i>Real property</i> | 0.07 | 0.005 |
| <i>Water system operations</i> | 1.7 | 0.1 |
| Total Direct Project Costs: | \$ 1,416 | 100.0% |

Source: MWD

Construction contracts will account for just under 80 percent of the overall project budget at \$1.13 billion. Over 8 percent of the budget (\$120.8 million) is allocated for engineering services, and just under 12 percent (\$166.9 million) is allocated for labor, including engineering services and water system operations. These percentage figures mirror those of the direct construction expenditures of the wider RRWP project.

One-Time Construction Impact

Based upon budget estimates provided to the LAEDC, the total economic and fiscal impact of the capital expenditures for AWT Plant construction in the City of Carson, which includes indirect and induced activity, is presented in Exhibit B-2. The construction impacts are a one-time expenditure.

Exhibit B-2

Economic Impact of MWD RRWP: Phase I Construction of the AWT Plant
(\$ millions)

| | |
|---------------------------------------|-------------------|
| Total Economic Impact: | Carson, CA |
| Output | \$ 1,713.12 |
| Employment (jobs)* | 9,422 |
| <i>Direct</i> | 9,303 |
| <i>Indirect and induced</i> | 118 |
| Labor income | \$ 798.02 |
| Total State & Local Taxes: | \$ 18.20 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

The planned expenditure of approximately \$1.41 billion (midpoint escalation dollars) to develop the AWT Plant in the City of Carson (including construction, design, and other related costs) will result in a total economic output of nearly \$1.7 billion, and support 9,422 total project-related jobs, of which over 9,300 will be directly involved in the construction and earn an estimated \$789 million in labor income. There will

also be another 118 jobs in the City of Carson supported by the project through indirect and induced effects earning just under an estimated \$9 million in labor income, leading to a total of just over \$798 billion in wages created by the AWT Plant. Additionally, the program will create \$18.2 million in state and local taxes.

Industry Breakdown

Exhibit B-3 shows the total output, employment, and compensation impacts of the AWT Plant in Carson, CA disaggregated by industry sector. This allows an estimation and industry identification of “follow-on” jobs and business revenues. The values in the exhibit should be interpreted as illustrative of the industry effects rather than precise, given model and data limitations.

Much of the impact will occur in the construction industry, with 65.8 percent of the total output – direct, indirect, and induced – earned by firms in the industry (\$1.1 billion) and about 69.1 percent of the employment generated. Professional and technical services makes up most of the remaining impact with 31.8 percent of the total output (\$0.5 billion) and 29.6 percent of the supported jobs. However, other industries will also stand to gain, including manufacturing, utilities, wholesale trade, transportation and warehousing, and administrative and waste services. Each of these industries will see an increase in business revenues and in the number of jobs, as the effects of the increase in construction activity due to the AWT Plant ripple through the city’s economy.

Exhibit B-3

Total Economic Impact of AWT Plant Construction by Industry Sector in Carson, CA

| | Employment (jobs) | Labor Income (\$ millions) | Output (\$ millions) |
|-------------------------------------|------------------------------|---------------------------------------|---------------------------------|
| Agriculture | 0 | \$ 0 | \$ 0 |
| Mining, and oil and gas extraction | 0 | 0 | 0.01 |
| Utilities | 16 | 1.7 | 6.4 |
| Construction | 6,513 | 351.5 | 1,128.6 |
| Manufacturing | 10 | 1.2 | 16.4 |
| Wholesale trade | 14 | 1.2 | 4.8 |
| Retail trade | 10 | 0.4 | 1.3 |
| Transportation and warehousing | 30 | 1.0 | 4.4 |
| Information | 2 | 0.1 | 0.7 |
| Finance and insurance | 0 | 0.04 | 0.2 |
| Real estate and rental and leasing | 5 | 0.3 | 2.3 |
| Professional and technical services | 2,786 | 238.1 | 544.9 |
| Management of companies | 1 | 0.1 | 0.3 |
| Administrative and waste services | 19 | 0.8 | 1.8 |
| Educational services | 0 | 0.005 | 0.01 |
| Health care and social assistance | 3 | 0.2 | 0.4 |
| Arts, entertainment, and recreation | 0 | 0.01 | 0.01 |
| Accommodation and food services | 3 | 0.1 | 0.3 |
| Other services | 10 | 0.4 | 1.1 |
| Government | 1 | 0.09 | 0.2 |
| Total All Industries* | 9,422 | \$597.3 | \$ 1,713.9 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

Occupational Impacts

The AWT Plant Phase I construction will support jobs for a broad range of occupations, as it requires workers with a wide variety of educational backgrounds, skills and expertise. Exhibit B-4 displays the estimated occupational distribution of workers that will be directly involved in the construction efforts of the project.

Of the 9,303 expected jobs from direct employment, over 4,000 will be in construction and extraction occupations such as construction laborers, construction equipment operators, electricians, and pipelayers. The construction is projected to create another 1,496 jobs for workers in architecture and engineering occupations including civil, electrical, mechanical, and industrial engineers. A significant number of jobs will also be supported in office and administrative support occupations, management occupations, installation, maintenance, and repair occupations, and business and financial occupations.

When looking at the occupational distribution of the total jobs supported by the construction (which include indirect and induced employment as well as direct), it is apparent that this project will have an effect on jobs across the entire occupational spectrum. Although much of the direct employment is located within construction occupations, there are several occupational groups where extra indirect and induced jobs will be supported throughout project construction, including transportation and material moving, sales and related occupations, and production occupations.

Exhibit B-4

Estimated Occupational Distribution of Jobs Supported by AWT Plant Construction in Carson, CA

| SOC | Occupational Description | Direct Jobs Supported | Total Jobs Supported |
|----------------------------------|--|-----------------------|----------------------|
| 11-0000 | Management occupations | 702 | 709 |
| 13-0000 | Business and financial operations | 455 | 460 |
| 15-0000 | Computer and mathematical science | 189 | 190 |
| 17-0000 | Architecture and engineering | 1,496 | 1,500 |
| 19-0000 | Life, physical and social science | 155 | 156 |
| 21-0000 | Community and social services | 0 | 0 |
| 23-0000 | Legal occupations | 5 | 5 |
| 25-0000 | Education, training and library | 0 | 1 |
| 27-0000 | Arts, design, entertainment, sports, media | 66 | 67 |
| 29-0000 | Healthcare practitioners and technical | 3 | 4 |
| 31-0000 | Healthcare support occupations | 0 | 3 |
| 33-0000 | Protective service occupations | 8 | 12 |
| 35-0000 | Food preparation and serving related | 2 | 6 |
| 37-0000 | Building/grounds cleaning/maintenance | 56 | 57 |
| 39-0000 | Personal care and service | 0 | 0 |
| 41-0000 | Sales and related occupations | 177 | 192 |
| 43-0000 | Office and administrative support | 866 | 882 |
| 45-0000 | Farming, fishing, and forestry | 2 | 2 |
| 47-0000 | Construction and extraction | 4,081 | 4,081 |
| 49-0000 | Installation, maintenance and repair | 594 | 601 |
| 51-0000 | Production occupations | 224 | 235 |
| 53-0000 | Transportation and material moving | 225 | 255 |
| Total of All Occupations* | | 9,303 | 9,422 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

Fiscal Impact

The economic activity in the City of Carson generated by the AWT Plant over its first phase of construction will generate significant federal, state, and local tax revenues. Income taxes will be collected on the earnings of workers, both direct and indirect, as will be unemployment insurance and disability insurance taxes. Sales taxes will be generated on the purchases of materials by the construction contractors and of goods and services by all the workers whose earnings are sustained by the transportation projects.

The estimated tax revenues by level of government are detailed in Exhibit B-5 below for the City of Carson.

Exhibit B-5

Distribution of AWT Plant's Construction Fiscal Impact by Government Level

(\$ millions)

| Region | Impact Type | Sub-County General | Sub-County Special Districts | County | State | Federal | Total |
|------------|---------------|-----------------------|---------------------------------|--------------|--------------|--------------|---------------|
| Carson, CA | Direct | \$ 2.41 | \$ 1.96 | \$ 1.79 | \$ 10.25 | \$ 92.82 | \$ 109.23 |
| | Indirect | 0.32 | 0.26 | 0.24 | 0.74 | 1.23 | 2.79 |
| | Induced | 0.05 | 0.04 | 0.04 | 0.1 | 0.14 | 0.36 |
| | Total* | 2.78 | 2.26 | 33.03 | 11.10 | 94.19 | 112.39 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.

It is estimated that the AWT Plant construction in the City of Carson will generate \$94.19 million in federal taxes and about \$18.2 million in state and local taxes. Altogether, over \$112 million in tax revenues will be collected in relation to the construction portion of the program. Approximately 97 percent of this will be generated directly from the construction, and the remaining 3 percent will come from indirect and induced sources.

The total tax revenues for the AWT Plant construction are disaggregated by tax type in Exhibit B-6. At the federal level, direct, indirect, and induced workers will pay \$1.38 million in federal income taxes with \$88.81 million in social insurance taxes. Businesses will also pay over \$3 million in corporate income taxes. At the state and county level, workers will pay \$0.6 million in income taxes with \$4.16 million in social insurance taxes, while \$6.09 million will be generated by sales taxes and \$4.82 million by property taxes. The remaining fees and fines, as well as assorted other taxes, bring total revenues in the state of California to \$18.2 million from the construction project. ❖

Exhibit B-6

Fiscal Impact of MWD RRWP Construction in Southern California

(\$ millions)

| | |
|-------------------------------------|-----------------|
| State and Local Taxes*: | \$ 18.2 |
| <i>Property Taxes</i> | 4.82 |
| <i>Sales Taxes</i> | 6.09 |
| <i>Income Taxes</i> | 0.6 |
| <i>Social Insurance</i> | 4.16 |
| <i>Fees, Fines, and Other Taxes</i> | 2.53 |
| Federal Taxes*: | \$ 94.19 |
| <i>Personal Income Taxes</i> | 1.38 |
| <i>Social Insurance</i> | 88.81 |
| <i>Corporate Profit Taxes</i> | 3.04 |
| <i>Fees, Fines, and Other Taxes</i> | 0.97 |
| Total Fiscal Impact*: | \$ 112.9 |

Source: Estimates by LAEDC; *Totals may not sum due to rounding.