

TECHNICAL APPENDIX

Figure 8: Modeling Construction Jobs

We derived construction labor hours on recent Southern California stormwater infrastructure projects in two ways.

First, LAANE submitted a public records act request to the Los Angeles City Bureau of Contract Administration for certified payroll records related to several stormwater projects. We received complete and usable data for four projects: the Riverdale Avenue Green Street project, the Broadway Neighborhood Stormwater Greenway project, the Echo Park Rehabilitation project, and the Temescal Canyon Park project. Thousands of pages of records submitted to the city by construction contractors provided detail on the labor performed: craft and classification, number of hours, and rate of pay. Personal information was redacted. We assume the accuracy of the certified records, though reporting errors are a theoretical possibility. Results for each project are summarized on pages TA 2-3 below, where the “average hourly” column indicates *only* wages paid to workers.

Second, Geosyntec collected published, awarded contract bids for six additional stormwater projects: Elmer Paseo Green Alley, Grand Boulevard Tree Wells, Imperial Highway Stormwater, Penmar Water Quality Improvement, Santa Anita Spreading Grounds Rehab, and South L.A. Wetlands Park. Using bid documents, Geosyntec identified and tallied each line item involving construction activities. Dollar amounts were first adjusted down by 15% for contractor mark-up/profit, and an additional 15% for possible equipment costs. A further amount (typically 30%-50%, depending on the line item) was discounted for materials, leaving a true labor cost. Geosyntec then allocated each line item to the typical construction trade performing that work, assuming 25% of labor hours performed by apprentices (for all trades save operating engineers and teamsters). Using the schedule of prevailing wage rates published by the California Department of Industrial Relations for 2016/2017, and adjusting for fringe benefits and payroll costs, Geosyntec determined workers’ hourly cost to employers (for journey-level workers they used the Southern California region; for apprentices they used Los Angeles County). True labor costs were then divided by hourly rates to determine labor hours. Geosyntec provided a “high” estimate and a “low” estimate; LAANE used the midpoint of the two in the “Hours” column in Figure 11. Geosyntec’s calculations appear on pages TA 4-9 below.

Next, hours on all 10 projects were converted to years using 1,879 hours per job-year, per the most recent (2012) U.S. Economic Census for All Construction in California. Table EC1223A1 accessed via American Fact Finder on September 8, 2017. Project budgets were provided by Gustavo Orozco and Fidel Maganda, City of Los Angeles Bureau of Sanitation, except for Imperial Highway (City of Los Angeles, Proposition O Monthly Report, May 2017) and Santa Anita (communication from Gail Farber, Los Angeles County DPW, to County Board of Supervisors, December 15, 2015).

Finally, in calculating the ratio of construction jobs to spending, we use *overall* project budget as the baseline (rather than construction budget) to ensure an accurate extrapolation to proposed County spending where, at this point, it is impossible to isolate construction costs. Note that the relation between overall project costs and construction costs may vary greatly, with construction accounting for under 40% of one project, and over 70% of a different project. Some projects require extensive design and engineering costs, or capital costs for land acquisition; other projects may have no such expenses. We assume these ten projects provide a sufficient sample such that these factors balance out in the aggregate.

Riverdale Green Street			
Trade	Hours Worked	Total Wages	Average Hourly
Cement Mason	112	\$5,380	\$48.04
Laborer	1,000	\$34,280	\$34.30
Landscape/Irrigation	448	\$10,835	\$24.18
Landscape/Irrigation – Apprentice	136	\$2,590	\$19.04
Operating Engineer	523	\$23,106	\$44.18
Teamster	162	\$5,110	\$31.55
General Employee	397	\$23,589	\$59.49
All Trades	2,777	\$104,891	\$37.73

Temescal Canyon BMP			
Trade	Hours Worked	Total Wages	Average Hourly
Asbestos Worker	16	\$450	\$28.10
Bricklayer	238	\$8,116	\$34.10
Bricklayer - Apprentice	4	\$98	\$24.47
Carpenter	8,080	\$313,036	\$38.74
Carpenter - Apprentice	3,618	\$88,398	\$24.43
Carpet	136	\$6,064	\$44.59
Carpet - Apprentice	16	\$325	\$20.32
Cement Mason	740	\$22,478	\$30.38
Cement Mason - Apprentice	63	\$1,004	\$15.93
Crane Operator	2,526	\$103,715	\$41.07
Driver	3,970	\$360,341	\$90.77
Electrician	1,112	\$46,893	\$42.17
Electrician - Apprentice	473	\$14,557	\$30.78
Field Surveyor	140	\$8,731	\$62.36
Iron Worker	2,454	\$83,113	\$33.87
Iron Worker - Apprentice	72	\$2,126	\$29.53
Laborer	11,899	\$358,138	\$30.10
Laborer - Apprentice	3,829	\$69,404	\$18.12
Landscape/Irrigation	49	\$1,158	\$23.87
Operating Engineer	2,574	\$113,493	\$44.10
Painter	24	\$704	\$29.32
Painter - Apprentice	24	\$428	\$17.85
Parking & Hwy Imprvmt	64	\$2,556	\$39.94
Plumber Pipefitter	211	\$8,830	\$41.85
Sheet Metal Worker	20	\$819	\$40.95
All Trades	42,350	\$1,614,975	\$38.13

Broadway Neighborhood Greenway			
Trade	Hours Worked	Total Wages	Average Hourly
Carpenter	287	\$2,079	\$42.16
Cement Mason	108	\$3,653	\$33.83
Cement Mason – Apprentice	162	\$3,025	\$18.73
Electrician	24	\$506	\$21.08
Laborer	2,423	\$89,531	\$36.95
Laborer – Apprentice	815	\$17,482	\$21.45
Operating Engineer	2,422	\$114,474	\$47.27
Operating Engineer – Apprentice	350	\$12,675	\$36.21
Parking & Hwy Imprvmt	96	\$4,285	\$44.75
Parking & Hwy Imprvmt - Apprentice	29	\$1,030	\$35.52
Teamster	314	\$13,988	\$44.55
All Trades	7,028	\$272,729	\$38.80

Echo Park Lake Rehabilitation			
Trade	Hours Worked	Total Wages	Average Hourly
Carpenter	15,467	\$594,503	\$38.44
Carpenter – Apprentice	5,937	\$124,009	\$20.89
Cement Mason	8,983	\$281,737	\$31.37
Cement Mason – Apprentice	1,776	\$27,816	\$15.67
Electrician	4,484	\$192,007	\$42.83
Electrician – Apprentice	5,548	\$95,217	\$17.16
Iron Worker	3,021	\$104,241	\$34.51
Iron Worker – Apprentice	839	\$23,268	\$27.75
Laborer	21,337	\$635,007	\$29.76
Laborer – Apprentice	5,942	\$112,258	\$18.89
Landscape/Irrigation	12,054	\$245,550	\$20.37
Operating Engineer	11,561	\$483,516	\$41.82
Operating Engineer – Apprentice	49	\$1,169	\$24.11
Painter	28	\$878	\$31.37
All Trades	97,023	\$2,921,176	\$30.11

Imperial Highway Sunken Median

Project Description: The Imperial Highway Sunken Median project retrofitted approximately 1.3 miles of Imperial Highway (from Pershing Drive to California Street) with a sunken median infiltration system and vegetated buffer strip. Runoff from this transportation corridor historically contained pollutants such as oil, grease, suspended solids, metals, gasoline and pathogens. This project diverted the polluted surface runoff from 11 acres into the median where vegetated filter strips and grassed filters now filter the polluted flow. Additional filtration takes place in infiltration trenches that have been lined with filter fabric and back-filled with stone to form an underground basin. This system removes soluble and particulate pollutants from runoff before it flows onto Dockweiler State Beach.

	Awarded Bid (Park West Landscape, Inc.)	Equipment Estimate	Materials Estimate (low)	Materials Estimate (High)	Labor Estimate (low)	Labor Estimate (high)	Total Labor Hours (low)	Total Labor Hours (high)	Total Labor Hours (low)														Total Labor Hours (high)														Percent by Cost of Work Performed By Team Members Per Task													
									Assumed Hourly Rate														Assumed Hourly Rate																											
									Operator	Laborer	Cement Mason	Carpenter	Iron Worker	Pipelayer	Teamster	Landscape/Irrigation Laborer	Electrician	Mechanical Pipefitter	Operator	Laborer	Cement Mason	Carpenter	Iron Worker	Pipelayer	Teamster	Landscape/Irrigation Laborer	Electrician	Mechanical Pipefitter	Operator	Laborer	Cement Mason	Carpenter	Iron Worker	Pipelayer	Teamster	Landscape/Irrigation Laborer	Electrician	Mechanical Pipefitter												
									81	54	58	61	64	58	64	52	68	58	81	54	58	61	64	58	64	52	68	58	0.4	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0							
Shoring - Composite Fiberglass Polyurethane Enhanced Sheet Piles (Specifications, Section 02150)	\$78,100.00	\$11,715.00	\$19,915.50	\$33,192.50	\$33,192.50	\$46,469.50	532	744	164	367	0	0	0	0	0	0	0	0	0	0	230	514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
Traffic Control, including Construction Signage and Coordination	\$41,800.00	\$6,270.00	\$10,659.00	\$17,765.00	\$17,765.00	\$24,871.00	317	444	22	295	0	0	0	0	0	0	0	0	0	0	31	413	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
Clearing and grubbing, including weed abatement at vegetation areas, trench, swale and riprap areas	\$4,200.00	\$630.00	\$178.50	\$357.00	\$3,213.00	\$3,391.50	51	53	16	30	0	0	0	0	5	0	0	0	0	0	17	31	0	0	0	0	5	0	0	0	0	0	0.1	0	0	0	0													
Excavation and Rough Grading, including Grass Swale Slopes, Grass Swale, Riprap, vegetation areas and infiltration trench.	\$47,700.00	\$7,155.00	\$2,027.25	\$4,054.50	\$36,490.50	\$38,517.75	536	566	226	168	0	0	0	0	142	0	0	0	0	238	178	0	0	0	0	150	0	0	0	0	0.25	0	0	0	0	0	0													
Infiltration Trench - Ecoram or approved equal. Procurement and installation, including infiltration system, gravel layer, sand layer, filter fabric and geotextile fabric per Pland and Specifications, Section 1330	\$133,100.00	\$19,965.00	\$33,940.50	\$56,567.50	\$56,567.50	\$79,194.50	942	1,318	140	626	0	0	0	0	176	0	0	0	0	196	876	0	0	0	0	246	0	0	0	0	0.2	0.6	0	0	0	0	0	0												
Riprap - 6" river rock, concrete pad and base	\$11,100.00	\$1,665.00	\$3,302.25	\$4,717.50	\$4,717.50	\$6,132.75	76	98	23	52	0	0	0	0	0	0	0	0	0	30	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0													
Import, backfill, and compaction for median vegetation, swale, and trench slope	\$14,700.00	\$2,205.00	\$624.75	\$1,249.50	\$11,245.50	\$11,870.25	165	174	70	52	0	0	0	0	44	0	0	0	0	73	55	0	0	0	0	46	0	0	0	0	0.25	0	0	0	0	0	0	0												
Cleaning existing storm drain culvert at Main Street	\$1,800.00	\$270.00	\$76.50	\$153.00	\$1,377.00	\$1,453.50	25	27	0	25	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
Irrigation and Landscape per Landscape Plans (including but not limited to trees, shrubs, plant material, hydroseed, 2" mulch, and soil testing)	\$85,100.00	\$12,765.00	\$21,700.50	\$36,167.50	\$36,167.50	\$50,634.50	666	932	45	0	0	0	0	0	0	621	0	0	0	63	0	0	0	0	0	0	869	0	0	0.1	0	0	0	0	0	0	0	0												
Plant Establishment Period, maintenance, system and landscaping (per Specifications, Section 02900)	\$13,264.00	\$1,989.60	\$563.72	\$1,127.44	\$10,146.96	\$10,710.68	194	204	0	0	0	0	0	0	0	194	0	0	0	0	0	0	0	0	0	0	204	0	0	0	0	0	0	0	0	0	0	0												
Total	\$430,864.00	\$64,629.60	\$92,988.47	\$155,351.44	\$210,882.96	\$273,245.93	3,502	4,561	705	1,615	0	0	0	0	366	815	0	0	878	2,162	0	0	0	0	0	447	1,074	0	0	0	0	0	0	0	0	0														

Figure 9: Distribution of SCWP Revenue over Time

The assumed \$300 million in annual tax revenue is at the low end of the range of anticipated annual spending needs. It is also consistent with the funding amount sought in 2013: \$290 million in 2013 dollars is equivalent to \$307 million in 2017 dollars (Bureau of Labor Statistics CPI Inflation Calculator).

A 20% allowance for project administration is typical for government contracting out work, based on Government Finance Officers' Association, "Make-vs.-Buy Decisions," *Cost Analysis and Activity-Based Costing*, 2004. Academic studies also use the 20% figure: see, e.g., Janet Rothenberg Pack, "Privatization and Cost Reduction," *Policy Sciences*, vol. 22 no. 1, March 1989; Elliott Sclar, *You Don't Always Get What You Pay For: The Economics of Privatization*, Cornell University Press, 2001; Mary K. Marvel and Howard P. Marvel, "Outsourcing Oversight: A Comparison of Monitoring for In-House and Contracted Services," *Public Administration Review*, May-June 2007. Administrative costs related to in-house work are typically lower than costs related to monitoring and oversight of an external contract. Funds spent on administration have stimulative effects, yet in the interest of a conservative calculation we do not include them.

We calculate annual O&M costs at 5% of capital costs because that is LACDPW's working assumption (Youn Sim, personal communication to the author, October 30, 2017). This is roughly in line with the 4.3% found by Geosyntec in analyzing a set of L.A. City projects.

According to Geosyntec, the generally-accepted industry standard for the typical lifespan of a green stormwater infrastructure project is expected to be 20–30 years, though irregularities may shorten project lifespans (Adam Questad, personal communication to the author, December 15, 2017). LADWP uses 30 years as the typical lifespan for municipal regional projects.

Three hundred million dollars in revenue is discounted 20% for administrative costs, leaving \$240 million in unallocated funds. O&M costs are 5% of capital costs, and with total spending at \$240 million, we use the formula $(x + 0.5x = \$240m)$ where x = capital spending. This yields year one capital spending of \$228,571,429, and O&M spending of \$11,428,571. Because the capital spending in year one commits O&M funding into future years, we then subtract year one's O&M spending from the next year's revenue, leaving \$228,571,429 in unallocated funds in year two. Using the same formula, we allocate year two's capital spending and associated O&M spending. We then add back in the previously-committed O&M spending associated with the projects from year one to create an aggregate O&M spending figure for the year. The process is then repeated. Because of the accretive nature of O&M spending, over time it will necessarily compose the majority of spending.

An expanded version of Figure 9 appears on the following page.

Funding Year	Revenue	Admin.	Post-Admin-Revenue	Unallocated Funds	Capital %	Capital	OM %	O&M (new)	O&M (aggregate)
1	\$300,000,000	\$60,000,000	\$240,000,000	\$240,000,000	95.2381%	\$228,571,429	5.0%	\$11,428,571	\$11,428,571
2	\$300,000,000	\$60,000,000	\$240,000,000	\$228,571,429	95.2381%	\$217,687,075	5.0%	\$10,884,354	\$22,312,925
3	\$300,000,000	\$60,000,000	\$240,000,000	\$217,687,075	95.2381%	\$207,321,024	5.0%	\$10,366,051	\$32,678,976
4	\$300,000,000	\$60,000,000	\$240,000,000	\$207,321,024	95.2381%	\$197,448,594	5.0%	\$9,872,430	\$42,551,406
5	\$300,000,000	\$60,000,000	\$240,000,000	\$197,448,594	95.2381%	\$188,046,280	5.0%	\$9,402,314	\$51,953,720
6	\$300,000,000	\$60,000,000	\$240,000,000	\$188,046,280	95.2381%	\$179,091,695	5.0%	\$8,954,585	\$60,908,305
7	\$300,000,000	\$60,000,000	\$240,000,000	\$179,091,695	95.2381%	\$170,563,519	5.0%	\$8,528,176	\$69,436,481
8	\$300,000,000	\$60,000,000	\$240,000,000	\$170,563,519	95.2381%	\$162,441,447	5.0%	\$8,122,072	\$77,558,553
9	\$300,000,000	\$60,000,000	\$240,000,000	\$162,441,447	95.2381%	\$154,706,140	5.0%	\$7,735,307	\$85,293,860
10	\$300,000,000	\$60,000,000	\$240,000,000	\$154,706,140	95.2381%	\$147,339,181	5.0%	\$7,366,959	\$92,660,819
11	\$300,000,000	\$60,000,000	\$240,000,000	\$147,339,181	95.2381%	\$140,323,029	5.0%	\$7,016,151	\$99,676,971
12	\$300,000,000	\$60,000,000	\$240,000,000	\$140,323,029	95.2381%	\$133,640,980	5.0%	\$6,682,049	\$106,359,020
13	\$300,000,000	\$60,000,000	\$240,000,000	\$133,640,980	95.2381%	\$127,277,124	5.0%	\$6,363,856	\$112,722,876
14	\$300,000,000	\$60,000,000	\$240,000,000	\$127,277,124	95.2381%	\$121,216,309	5.0%	\$6,060,815	\$118,783,691
15	\$300,000,000	\$60,000,000	\$240,000,000	\$121,216,309	95.2381%	\$115,444,104	5.0%	\$5,772,205	\$124,555,897
16	\$300,000,000	\$60,000,000	\$240,000,000	\$115,444,103	95.2381%	\$109,946,765	5.0%	\$5,497,338	\$130,053,235
17	\$300,000,000	\$60,000,000	\$240,000,000	\$109,946,765	95.2381%	\$104,711,205	5.0%	\$5,235,560	\$135,288,795
18	\$300,000,000	\$60,000,000	\$240,000,000	\$104,711,205	95.2381%	\$99,724,957	5.0%	\$4,986,248	\$140,275,043
19	\$300,000,000	\$60,000,000	\$240,000,000	\$99,724,957	95.2381%	\$94,976,150	5.0%	\$4,748,807	\$145,023,850
20	\$300,000,000	\$60,000,000	\$240,000,000	\$94,976,150	95.2381%	\$90,453,476	5.0%	\$4,522,674	\$149,546,524
21	\$300,000,000	\$60,000,000	\$240,000,000	\$90,453,476	95.2381%	\$86,146,168	5.0%	\$4,307,308	\$153,853,833
22	\$300,000,000	\$60,000,000	\$240,000,000	\$86,146,167	95.2381%	\$82,043,969	5.0%	\$4,102,198	\$157,956,031
23	\$300,000,000	\$60,000,000	\$240,000,000	\$82,043,969	95.2381%	\$78,137,113	5.0%	\$3,906,856	\$161,862,887
24	\$300,000,000	\$60,000,000	\$240,000,000	\$78,137,113	95.2381%	\$74,416,298	5.0%	\$3,720,815	\$165,583,702
25	\$300,000,000	\$60,000,000	\$240,000,000	\$74,416,298	95.2381%	\$70,872,665	5.0%	\$3,543,633	\$169,127,335
26	\$300,000,000	\$60,000,000	\$240,000,000	\$70,872,665	95.2381%	\$67,497,776	5.0%	\$3,374,889	\$172,502,224
27	\$300,000,000	\$60,000,000	\$240,000,000	\$67,497,776	95.2381%	\$64,283,597	5.0%	\$3,214,180	\$175,716,403
28	\$300,000,000	\$60,000,000	\$240,000,000	\$64,283,597	95.2381%	\$61,222,473	5.0%	\$3,061,124	\$178,777,527
29	\$300,000,000	\$60,000,000	\$240,000,000	\$61,222,473	95.2381%	\$58,307,117	5.0%	\$2,915,356	\$181,692,883
30	\$300,000,000	\$60,000,000	\$240,000,000	\$58,307,117	95.2381%	\$55,530,588	5.0%	\$2,776,529	\$184,469,412
TOTAL	\$9,000,000,000	\$1,800,000,000	\$7,200,000,000			\$3,689,388,248			\$3,510,611,755

Calculating Economic Effects of the Safe, Clean Water Program

The tables detailing construction and O&M impacts are on pages TA-13 and TA-14, and use Figure 9 as a jumping-off point.

Given projected spending on stormwater infrastructure, we calculate construction jobs (in the green column) as the product of capital spending and the multiplier 1.77 (as derived in Figure 8). These are more properly called “job-years,” but in a construction context—characterized by temporary, project-based work—the distinction between a job and a job-year is elusive. Year one sees the creation of 405 construction jobs. With capital spending lower in year two, there will be 385 construction jobs. Over 30 years, we project 6,530 construction jobs (job-years). While the Economic Roundtable report did not set out to calculate construction jobs, it is worth noting that one approach implied by their data—using a multiplier of 6.6 for direct job creation and then attributing 55% to the construction sector—would yield twice as many construction jobs.

The balance of the economic effects is derived by applying the ERT multipliers to capital spending. ERT’s Table 5.9 provides figures for indirect jobs (2.4) and induced jobs (4.0) associated with each million dollars of capital spending. Table 5.8 provides figures for the direct sales (\$1,000,000), indirect sales (\$408,934), and induced sales (\$583,740) associated with each million dollars of capital spending, for a total output of \$1,992,674. Applied to the approximately \$3.7 billion in capital spending, this yields \$7.35 billion in economic activity.

When considering the indirect and induced non-construction jobs created by the construction-related spending, it is more meaningful to speak of the annual average over time. Over 30 years the SCWP’s capital projects will create 8,855 indirect job-years and 14,758 induced job years; divided by 30 years, these average to 295 and 492 per year, respectively. Since these are not construction jobs, however, a job-year each year is indistinguishable from a job, and it can reasonably be said that in addition to the 6,530 construction jobs, over 30 years the program will support the creation of 787 additional jobs.

ERT provides analogous figures for O&M spending. Table 5.12 provides figures for direct jobs (7.3), indirect jobs (2.5), and induced jobs (4.1) associated with each million dollars of O&M spending. (According to Patrick Burns of Economic Roundtable, the figures presented here should supersede those in the published report which had had slight errors; updated data provided by Patrick Burns, personal communication to the author, December 19, 2017.) Table 5.11 provides figures for the direct sales (\$1,000,000), indirect sales (\$426,970), and induced sales (\$562,089) associated with each million dollars of O&M spending, for a total output of \$1,989,059. Applied to the approximately \$3.5 billion in O&M spending, this yields nearly \$7 billion in economic activity.

We calculate O&M jobs as the product of O&M spending and 7.3 yielding, in year one, 83 jobs. Year two sees slightly less *new* O&M spending, creating 79 *new* jobs—but year one’s O&M work carries into year two, so at the end of year two there are 163 O&M jobs. By year 10, this grows to 676 jobs. By year 30, it is 1,347 jobs. Over 30 years, O&M work also supports an additional 772 indirect and induced jobs.

A brief summary table is presented in the executive summary.

Funding Year	Capital Spending	Jobs				Sales		
		Construction	Indirect	Induced	Total	Indirect	Induced	Total
1	\$228,571,429	405	549	914	1,867	\$93,470,629	\$133,426,286	\$455,468,343
2	\$217,687,075	385	522	871	1,779	\$89,019,646	\$127,072,653	\$433,779,374
3	\$207,321,024	367	498	829	1,694	\$84,780,616	\$121,021,574	\$413,123,214
4	\$197,448,594	349	474	790	1,613	\$80,743,443	\$115,258,642	\$393,450,680
5	\$188,046,280	333	451	752	1,536	\$76,898,517	\$109,770,136	\$374,714,933
6	\$179,091,695	317	430	716	1,463	\$73,236,683	\$104,542,986	\$356,871,365
7	\$170,563,519	302	409	682	1,394	\$69,749,222	\$99,564,749	\$339,877,490
8	\$162,441,447	288	390	650	1,327	\$66,427,831	\$94,823,570	\$323,692,848
9	\$154,706,140	274	371	619	1,264	\$63,264,601	\$90,308,162	\$308,278,903
10	\$147,339,181	261	354	589	1,204	\$60,252,001	\$86,007,773	\$293,598,955
11	\$140,323,029	248	337	561	1,146	\$57,382,858	\$81,912,165	\$279,618,052
12	\$133,640,980	237	321	535	1,092	\$54,650,341	\$78,011,586	\$266,302,907
13	\$127,277,124	225	305	509	1,040	\$52,047,944	\$74,296,748	\$253,621,816
14	\$121,216,309	215	291	485	990	\$49,569,470	\$70,758,808	\$241,544,587
15	\$115,444,104	204	277	462	943	\$47,209,019	\$67,389,341	\$230,042,464
16	\$109,946,765	195	264	440	898	\$44,960,971	\$64,180,325	\$219,088,061
17	\$104,711,205	185	251	419	855	\$42,819,972	\$61,124,119	\$208,655,296
18	\$99,724,957	177	239	399	815	\$40,780,926	\$58,213,447	\$198,719,329
19	\$94,976,150	168	228	380	776	\$38,838,977	\$55,441,378	\$189,256,504
20	\$90,453,476	160	217	362	739	\$36,989,502	\$52,801,312	\$180,244,290
21	\$86,146,168	152	207	345	704	\$35,228,097	\$50,286,964	\$171,661,228
22	\$82,043,969	145	197	328	670	\$33,550,568	\$47,892,346	\$163,486,884
23	\$78,137,113	138	188	313	638	\$31,952,922	\$45,611,759	\$155,701,794
24	\$74,416,298	132	179	298	608	\$30,431,355	\$43,439,770	\$148,287,423
25	\$70,872,665	125	170	283	579	\$28,982,242	\$41,371,210	\$141,226,117
26	\$67,497,776	119	162	270	551	\$27,602,136	\$39,401,152	\$134,501,064
27	\$64,283,597	114	154	257	525	\$26,287,748	\$37,524,907	\$128,096,251
28	\$61,222,473	108	147	245	500	\$25,035,951	\$35,738,006	\$121,996,430
29	\$58,307,117	103	140	233	476	\$23,843,763	\$34,036,197	\$116,187,076
30	\$55,530,588	98	133	222	454	\$22,708,345	\$32,415,425	\$110,654,358
TOTAL	\$3,689,388,248	6,530	8,855	14,758	30,142	\$1,508,716,294	\$2,153,643,496	\$7,351,748,037
Annual Average		218	295	492	1,005			

Funding Year	O&M Spending		Jobs					Sales		
	New	Total	Direct: New	Direct: Total	Indirect	Induced	Total	Indirect	Induced	Total
1	\$11,428,571	\$11,428,571	83	83	29	47	159	\$4,879,657	\$6,423,874	\$22,732,103
2	\$10,884,354	\$22,312,925	79	163	56	91	310	\$9,526,950	\$12,541,850	\$44,381,725
3	\$10,366,051	\$32,678,976	76	239	82	134	454	\$13,952,943	\$18,368,493	\$65,000,412
4	\$9,872,430	\$42,551,406	72	311	106	174	591	\$18,168,174	\$23,917,677	\$84,637,257
5	\$9,402,314	\$51,953,720	69	379	130	213	722	\$22,182,680	\$29,202,615	\$103,339,015
6	\$8,954,585	\$60,908,305	65	445	152	250	847	\$26,006,019	\$34,235,888	\$121,150,212
7	\$8,528,176	\$69,436,481	62	507	174	285	965	\$29,647,294	\$39,029,482	\$138,113,257
8	\$8,122,072	\$77,558,553	59	566	194	318	1,078	\$33,115,175	\$43,594,810	\$154,268,538
9	\$7,735,307	\$85,293,860	56	623	213	350	1,186	\$36,417,919	\$47,942,741	\$169,654,520
10	\$7,366,959	\$92,660,819	54	676	232	380	1,288	\$39,563,390	\$52,083,627	\$184,307,836
11	\$7,016,151	\$99,676,971	51	728	249	409	1,386	\$42,559,076	\$56,027,329	\$198,263,376
12	\$6,682,049	\$106,359,020	49	776	266	436	1,478	\$45,412,111	\$59,783,235	\$211,554,365
13	\$6,363,856	\$112,722,876	46	823	282	462	1,567	\$48,129,286	\$63,360,289	\$224,212,451
14	\$6,060,815	\$118,783,691	44	867	297	487	1,651	\$50,717,073	\$66,767,006	\$236,267,770
15	\$5,772,205	\$124,555,897	42	909	311	511	1,731	\$53,181,631	\$70,011,499	\$247,749,027
16	\$5,497,338	\$130,053,235	40	949	325	533	1,808	\$55,528,830	\$73,101,493	\$258,683,557
17	\$5,235,560	\$135,288,795	38	988	338	555	1,881	\$57,764,257	\$76,044,344	\$269,097,395
18	\$4,986,248	\$140,275,043	36	1,024	351	575	1,950	\$59,893,235	\$78,847,059	\$279,015,337
19	\$4,748,807	\$145,023,850	35	1,059	363	595	2,016	\$61,920,833	\$81,516,311	\$288,460,995
20	\$4,522,674	\$149,546,524	33	1,092	374	613	2,079	\$63,851,879	\$84,058,456	\$297,456,860
21	\$4,307,308	\$153,853,833	31	1,123	385	631	2,139	\$65,690,971	\$86,479,547	\$306,024,350
22	\$4,102,198	\$157,956,031	30	1,153	395	648	2,196	\$67,442,487	\$88,785,348	\$314,183,865
23	\$3,906,856	\$161,862,887	29	1,182	405	664	2,250	\$69,110,597	\$90,981,348	\$321,954,831
24	\$3,720,815	\$165,583,702	27	1,209	414	679	2,302	\$70,699,273	\$93,072,777	\$329,355,752
25	\$3,543,633	\$169,127,335	26	1,235	423	693	2,351	\$72,212,298	\$95,064,615	\$336,404,248
26	\$3,374,889	\$172,502,224	25	1,259	431	707	2,398	\$73,653,274	\$96,961,602	\$343,117,101
27	\$3,214,180	\$175,716,403	23	1,283	439	720	2,442	\$75,025,633	\$98,768,258	\$349,510,294
28	\$3,061,124	\$178,777,527	22	1,305	447	733	2,485	\$76,332,641	\$100,488,881	\$355,599,049
29	\$2,915,356	\$181,692,883	21	1,326	454	745	2,526	\$77,577,410	\$102,127,571	\$361,397,864
30	\$2,776,529	\$184,469,412	20	1,347	461	756	2,564	\$78,762,905	\$103,688,228	\$366,920,545
TOTAL		\$3,510,611,755	1,347	25,627	8,777	14,394	48,798	\$1,498,925,901	\$1,973,276,251	\$6,982,813,907
Annual Average			45	854	293	480	1,627			