



Job Projection and Tracking Guide



Green for All State and Local Initiatives
greenforall.org/resources



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INTRODUCTION

Agencies and other organizations that **collect and analyze data on Green Infrastructure (GI) projects** – including hours worked per employee, number of employees per project, and project costs – **reap significant benefits**. Organizations that track project information on GI projects like rain gardens, bioswales, or green roofs, **can make reliable projections about the type and number of jobs that future GI projects will create**. These organizations can also **defend claims about the connection between GI investment and economic benefits**, and they can **win over constituents who are swayed by job outcomes** rather than value-based arguments. Organizations that track GI project information can **show the public the returns from tax dollars invested in GI**, they can **formulate accurate budgets – including budgets for operations and maintenance – and they can gauge their performance relative to their policy goals**.

This guide is a resource for agencies and other organizations responsible for overseeing GI projects, and it highlights **the fundamental importance of using sound and persuasive data to foster investment in green jobs**. It also **calls on agencies that invest in Green Infrastructure to increase their efforts to track project job outcomes**. Unless they

collect data on GI project outcomes, agencies and other entities cannot demonstrate the benefits that GI projects create. By providing information in this guide about the benefits of, and challenges to, job tracking and job projection, Green For All's goal is to promote investment in green water infrastructure

“You can’t measure success if you can’t count the outcomes your program is delivering.”

KELLY HAINES

CLEAN ENERGY WORKS OREGON

while also creating quality jobs that provide family-supporting wages.¹

One successful example of job tracking and projection that we present is Clean Energy Works Oregon (CEWO), a residential energy retrofit program that generates demand for

green services and creates quality jobs. One reason CEWO enjoys such notable success is that it can verify its accomplishments with the data it collects. CEWO uses a streamlined software program to track the number of energy efficiency jobs it creates for traditionally under-represented groups across Oregon. At the same time, CEWO's experiences can be applied broadly, as this guide will show by describing job tracking methods in Milwaukee, San Francisco, Madison, Los Angeles, and St. Paul.

USE THIS GUIDE TO...

- Discover why job projection and job tracking are important tools and understand key challenges to data collection and analysis
- Learn how agencies across the U.S. track jobs and use the provided templates to develop your own job data collection system
- Develop persuasive messages that highlight the local economic impact of investments in Green Infrastructure

JOB PROJECTION

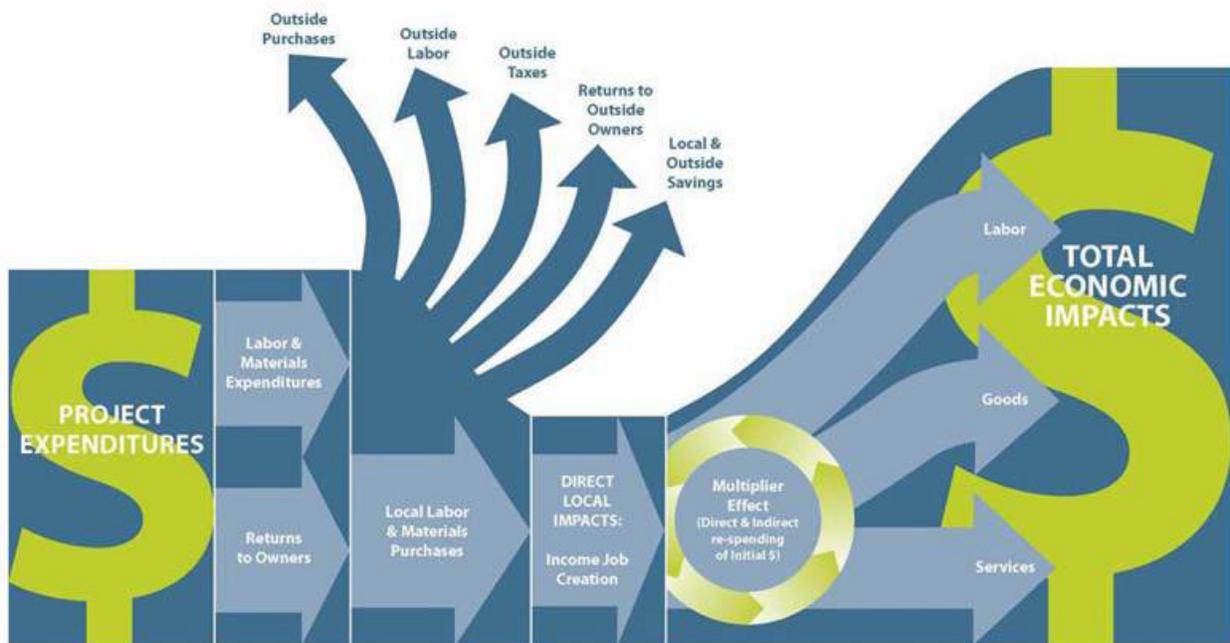
WHY IS IT IMPORTANT TO UNDERSTAND JOB PROJECTION AND TO PROJECT THE NUMBER OF GREEN INFRASTRUCTURE (GI) JOBS?

Understanding how job projection works is critical to developing broad support among members of the public and decision makers who are persuaded by measurable economic benefits rather than values-driven arguments. Making reliable job projections provides a concrete way to assess and highlight the comparative benefits of GI over traditional infrastructure. Unlike job tracking, which only captures direct jobs, job projections can also estimate indirect and induced jobs. This helps paint a more complete picture of economic

impact. The fact is that **investment in GI is more likely to happen and good GI jobs are more likely to be created if we use sound and defensible job projections.** Furthermore, understanding and addressing limitations of job projection models will improve the ability of your agency, company, or organization to accurately project GI jobs and GI costs and to plan future GI projects accordingly.

HOW CAN WE ESTIMATE THE ECONOMIC BENEFITS OF GREEN INFRASTRUCTURE (GI)?

Job projections provide estimates of a project's total economic impacts, but **job projections do not offer perfectly accurate forecasts,**



Graphic 1 (Source: Northern Economics)

INPUT-OUTPUT MODELS AND THE ECONOMIC IMPACT OF GI PROJECTS

Graphic 1 can be used to understand the economic impact of a GI project. If, for example, a **green roof** were to be constructed;

Initial project expenditures would be split between labor and materials costs and returns to owners.

1. Next, some of the green roof expenditures would “leak” outside the local economy via non-local purchases, hiring of non-local labor, and returns to non-local owners.
2. At the same time, **local workers would benefit financially because they would be employed to build the roof, and local businesses would reap the benefits of spending on materials**, including plants, asphalt, concrete, waterproof membranes, filter fabric, sand, and a drip system.
3. Local workers employed to construct the green roof, and local employees and owners of businesses who provide materials required to construct the roof, will subsequently spend some portion of their earnings on other local services, goods, and labor.
4. In turn, those local service providers, local providers of goods, and local laborers will use some portion of their incomes to pay for other local goods, services, and labor.

nor is a projection necessarily applicable to other settings. For a projection to be accurate,

local conditions must be incorporated into the projection model, including the locality’s level of idle resources, the state of the local economy, and the type of funding used for the project.

With these issues in mind, input-output models represent one way to estimate economic consequences of particular actions or events, including GI construction and maintenance. **Input-output models are flexible and detailed, and they are widely used.**²

Graphic 1 depicts the total economic impacts to a particular industry, taking into account initial project expenditures and dynamics of the implementation process.

As the graphic shows, a portion of initial project expenditures flow to non-local interests while the remainder of those expenditures benefit local labor and materials suppliers. The graphic also shows that input-output models incorporate multiplier effects, where a multiplier measures the amount of total economic activity created by each additional dollar spent in the local economy. Such models are intended to **accurately estimate total economic effects of local expenditures where direct, indirect, and induced impacts combine to produce the sum of economic impacts of those expenditures.**³

LIMITATIONS OF JOB PROJECTIONS

An input-output model, and **any model used to project jobs, is only as good as the data collected for the projection.** Using accurate data from past GI projects will produce more accurate estimates of the economic impacts of future GI projects.

Along with challenges inherent in collecting complete and accurate data on GI projects, it is easy to over or undercount “green jobs.” Those architects, landscapers, designers, construction workers, and others who devote only a fraction of their work hours to GI projects should not be labeled as “green” employees. Conversely, studies that estimate potential jobs may under-report GI jobs because they consider investments made by

public utilities and sewer districts, but they ignore investments by parks departments, transportation agencies, private developers, and others.

Still, job projections take into account several variables and dynamics, and they offer a way to calculate the overall economic impact, including the number, cost, and economic returns of jobs created, pursuant to a given project. Despite potential pitfalls associated with them, job projections represent an important tool for assessing financial costs and benefits of GI projects.

In the next section, we discuss job tracking in San Francisco, St. Paul, Los Angeles, Madison, Milwaukee, and Oregon to provide an overview of different approaches to collecting employee data.

JOB TRACKING

This section presents information that Green For All gathered by speaking to employees of agencies and organizations about various job-tracking methods as applied to public works, redevelopment, energy efficiency, and water department expenditures.

WHY TRACK GREEN INFRASTRUCTURE (GI) JOBS?

Tracking GI jobs **makes an organization’s job projections more credible**, because those projections are based on reliable data. In addition, job tracking makes the connection

between GI investments and economic benefits apparent, and it galvanizes support among a range of constituents who may be more motivated by job outcomes than by clean water outcomes. Tracking also offers a **direct way for the public to gauge returns from tax dollars spent on GI projects**. Last, tracking allows agencies, companies, and other entities to **develop accurate budgets – especially for operations and maintenance – and monitor performance against policy goals**.

Through our research, we learned about policies that mandate job reporting, we

CASE STUDY: LOS ANGELES, CALIFORNIA

Tracking Agency	The Department of Public Works, Bureau of Contract Administration (BCA) administers the Labor Compliance Program. BCA monitors and enforces prevailing wage requirements to ensure that contractors working on City projects comply with relevant local, state and federal statutes and regulations, including the local hire ordinance. Information collected by BCA allows the public, City Council, and Board of Public Works to see which contractors are in compliance with hiring requirements.
Tracking Method	BCA manages the information that individual contractors submit. BCA is transitioning to an electronic certified data input system in part because it routinely collects such a vast amount of data. The new system will allow contractors to input information directly.
What works well?	Contractors are motivated to regularly provide BCA with complete information, because BCA can withhold payment if contractors fail to comply with reporting standards. BCA has 17 staff members who oversee data management and compliance, and BCA has authority as a state-certified agency to enforce compliance by contractors.
What can be improved?	Modernizing the data entry process will reduce BCA's workload and will create a more efficient collection system.

CASE STUDY: MADISON, WISCONSIN

Tracking Agency	The Department of Public Works, Affirmative Action Division (AAD) monitors contract compliance for construction and procurement contracts from contract award through final payment to ensure that contractors follow local, state, and federal regulations on public works projects. In particular, AAD monitors affirmative action compliance.
Tracking Method	One AAD employee loads timesheet information into a program pre-customized by AAD's IT specialist to track and save all demographic and employee hour information. AAD uses timesheet information to determine which contractors, if any, regularly fail to meet project requirements.
What works well?	AAD's system is configured to fit its needs. Contractors provide information because they are legally obligated to do so and because AAD can withhold payments or debar contractors if they fail to comply. If a contractor fails to provide employee information, City, state, or federal agencies may also step in to take action against that contractor based on the seriousness and nature of the violation.
What can be improved?	AAD wants to streamline the process to reduce the amount of data entry required. AAD also recommends standardizing the forms contractors submit to make the process faster and easier for the contractors and to encourage compliance. AAD shares its oversight duties with engineers responsible for overseeing public works. As a result, disagreements sometimes arise regarding how the Department of Public Works should respond to a contractor that fails to comply with reporting requirements, with AAD viewing compliance enforcement as its primary goal and engineers prioritizing project completion.

determined which resources were necessary for job tracking, and we discovered some challenges involved in tracking. Our research on tracking revealed that data collection on job outcomes from investments in GI is limited, and we have summarized our findings so that more entities will be able to effectively track job information in the future.

Along these lines, the Capital Region Watershed District (CRWD) in St. Paul, Minnesota, which manages and protects part of the Mississippi River Basin, **is reaping the rewards of collecting detailed information about labor, equipment, materials, and services costs for each CRWD project.**⁴

CRWD has limited resources – a \$4 million annual budget and 8 staff members – but it has made tracking project costs a priority. CRWD is transitioning to a **system that will allow its employees to load worksite data directly into handheld devices, a step that will reduce staff workload and increase data accuracy.**

Thanks to its tracking measures, **CRWD can ascertain costs of current GI projects, it can measure comparative benefits of GI versus traditional infrastructure, and it can effectively estimate costs of future infrastructure projects.**

HOW RESOURCE-INTENSIVE IS JOB TRACKING?

Resources devoted to tracking differ greatly across cases, but our research demonstrates that any entity, regardless of size or budget, has the capacity to effectively track employee information. For example, the Bureau of Contract Administration (BCA) in Los Angeles, which oversees contractor compliance for **projects upwards of \$50 million**, relies on **17 staff members** to compile and examine employee data provided by individual contractors as part of their certified payroll information. By contrast, one Contract Compliance Specialist in the San



Francisco Office of Community Investment and Infrastructure (SF OCII) devotes **12 hours or less per week** to reviewing information provided by individual contractors on redevelopment projects.⁵ SF OCII uses *Elation* software to track project information, and it relies on several *Elation* employees

CASE STUDY: MILWAUKEE, WISCONSIN

Tracking Agency	The Metropolitan Milwaukee Sewerage District (MMSD) provides water reclamation and flood management services for Greater Milwaukee. MMSD's Office of Procurement & Contract Management (OPCM) ensures that contractors meet women and minority owned business participation, certified payroll, and local workforce requirements.
Tracking Method	OPCM is transitioning to an on-line system called Contract and Vendor Management System (CVMS) developed by B2Gnow and LCP Tracker. This web-based software system will replace paper reporting and facilitate compliance-reporting requirements for firms doing business with MMSD.
What works well?	In the early stages of implementation, contractors have provided valuable input on the system. The OPCM is providing monthly training sessions and is working to provide a data mapping option so that payroll information can be downloaded directly from the contractor's accounting software into the Contract and Vendor Management system. By transitioning to an online system, OPCM hopes to reduce the number of staff hours it uses to currently ensure contractor compliance and reduce the administrative workload to contractors.
What can be improved?	Inform contractors who view data reporting as a burden about the reasons for and benefits to such collection systems. Provide technical assistance for smaller contractors regarding use of the new system to encourage more complete reporting.

CASE STUDY: ST. PAUL, MINNESOTA

Tracking Agency	Capitol Region Watershed District (CRWD) is a special purpose local unit of government in St. Paul. Eight staff members carry out the programs, activities and initiatives of CRWD.
Tracking Method	In the past, CRWD staff would load employee-provided time information for watershed projects into a spreadsheet, but CRWD is switching to a system where employees will load data directly via mobile devices, and this new system will allow information to be gathered from job sites. In the future, employees will upload data, and a CWRD staff person will review and compile that data.
What works well?	CRWD shows that internal agency assessments can spur improvements, and it stands as an example of an agency that took the initiative to track and use project information. CRWD began tracking data absent statutory or legal requirements because it recognized the importance of tracking operations and maintenance costs per project.
What can be improved?	CRWD is working with a water resource engineering company to create a customized, automated, web-based GIS practices system for a more efficient and accurate way to track hours and project costs.

to maintain the system. In **Milwaukee**, the Metropolitan Sewerage District’s Office of Procurement and Contract Management (PCO) previously relied on **one supervisor and one or two other employees to review contractor-provided employee information** for each public works project and to enter the data into a spreadsheet. Now PCO is switching to a system that will **require even fewer staff hours**.

HOW CAN AGENCIES AND OTHERS ENCOURAGE CONTRACTORS TO PROVIDE JOB INFORMATION?

In most cases, contractors **are required** to track employee information to meet **prevailing wage, affirmative action, local hire, women and minority-owned**

business or other local, state, or national requirements. If contractors fail to provide required information about their employees, they may face **serious consequences, including fines, debarment, or legal action**.

In other instances, agencies and other entities **can draft contracts** that require contractors to provide information about hours worked per employee for every employee and every project. Whether data reporting is legally required or is simply desired by an agency, **spelling out when, and in what form data must be reported, is an absolute necessity** for obtaining quality data over the course of a project.

The next table summarizes our research findings on different data reporting policies and associated penalties.

ISSUES WITH COLLECTING EMPLOYEE
DEMOGRAPHIC INFORMATION

Based on our interviews, one key reason that **agencies and other entities collect job information is to measure the impact their projects have on disadvantaged communities.** Collecting demographic information is essential to determining whether affirmative action, targeted hire, or women/ minority-owned business enterprise goals have been met, where meeting those goals represents an important way to address the needs of underrepresented communities.

Clean Energy Works Oregon (CEWO) represents an example of an organization that collects and uses employee data, including demographic information. CEWO makes it a priority to **educate employers about why**



data collection is essential to the success of its program, which provides quality green jobs in Oregon.

CEWO also makes the provision of employee demographic information a **contractual requirement.** To date, only a few contractors have refused to provide CEWO with

CASE STUDY: SAN FRANCISCO, CALIFORNIA

Tracking Agency	The City and County of San Francisco’s former Redevelopment Agency, now Office of Community Investment and Infrastructure (OCII), tracks compliance information for privately-funded redevelopment projects. OCII collects data to determine whether local hiring goals have been met.
Tracking Method	OCII uses web-based software (Elation) to track information. Contractors input employee hours, worker addresses, and other project information on a weekly basis for OCII’s use. One OCII compliance specialist reviews and verifies contractor information.
What works well?	Having contractors upload information directly, rather than having OCII staff upload information from certified payrolls provided by each contractor, has streamlined OCII’s data management process.
What can be improved?	San Francisco’s government is highly fragmented, and, as a result, so is its approach to data collection and management. This fragmentation makes it more difficult to compile data for the City and County as a whole and complicates project assessment.

POLICIES REQUIRING JOB TRACKING AND ASSOCIATED PENALTIES

	<i>Policy</i>	<i>Penalty</i>
Los Angeles	Local hire and prevailing wage requirements	Payment withheld from contractors
Madison	Local hire, prevailing wage, and targeted hire requirements ⁶	Payment withheld from contractors; possible debarment
Milwaukee	Local hire requirements	Payment withheld from contractors; possible debarment
St. Paul	None	None
San Francisco	Local hire requirement	None by OCII; possible penalties enforced by Labor Standards or other agencies
Clean Energy Works Oregon	Contractual agreement	Contractors may not be hired for future projects

demographic information about their employees.

However, **confidentiality and other legal concerns can limit the collection of quality demographic information.** Some contractors

feel uncomfortable requiring employees to provide demographic data, because they believe it is illegal for them to ask employees to provide it. Employees and employers have also voiced concerns about how data will be used, and they are less likely to report

DO DATA TRACKING SYSTEMS REPRESENT REDUCTIONS IN PERSONNEL?

Based on our interviews, data tracking systems did not bring about reductions in the number of staff in their offices. Instead, these systems allow employees to meet their workplace demands by spending less time attending to the minutiae of data entry and data review. In addition, data collection and management systems make it possible for employees to create meaningful and accurate summaries and reports that require minimal effort and offer valuable insights into their organization’s accomplishments. Employees of organizations that use data collection and management systems find that such systems allow them to spend more time on important projects, such as assessing how a given public works project is progressing, or determining whether their organization is effectively meeting policy goals.

demographic data if they believe individual employees will be identified in public reports.

It is against the law to require individual employees to provide demographic data as a condition of employment or to use demographic information to discriminate against them. The Equal Employment Opportunity Commission provides that

employers cannot hire, fire, or otherwise discriminate based on race, gender, age, or other select characteristics.⁷ At the same time, employers are legally allowed, and may be legally required, to track demographic characteristics if the information is aggregated and is not used to make employment decisions about any particular individual.

BEST PRACTICE EXAMPLE: CLEAN ENERGY WORKS OREGON (CEWO)

CEWO is a non-profit program that restores communities and helps revive the local economy by encouraging owners to transform energy-wasting homes into comfortable, energy efficient living spaces. The graphic below provides a summary of some of CEWO's accomplishments.⁸

HOW DOES CEWO SUCCESSFULLY TRACK AND USE EMPLOYEE DATA?

1. CEWO INVESTED IN CUSTOMIZED SOFTWARE TO SIMPLIFY AND IMPROVE DATA MANAGEMENT

CEWO uses a software program, developed by Spatial Dev International and Energy Savvy to **handle more than 1,500**

simultaneous projects. Lender, customer, and project data are also integrated and are accessible to contractors, customers, program managers, and lenders. CEWO's program makes an immense amount of data easy to access in one place, and program administrators and stakeholders **benefit from data integrity and availability.**

2. CEWO USES DATA TO TRACK PROJECT COSTS AND MEET LOCAL HIRING GOALS

CEWO uses data to track stages of homeowner improvements and to regularly assess how to optimize its program. In addition, every contractor provides CEWO with information on their employees' race,

2200+ Homes
transformed by CEWO

300+ Jobs
created by CEWO

\$26 Million
generated in economic
development

2.4 kWh
of annualized
electricity savings

4,715 Tons
of CO₂ equivalent
saved each year

598K Therms
in expected natural gas
savings each year

Source: CEWO data through October 2012

gender, and zip codes, which CEWO reviews for accuracy.

3. CEWO DEDICATES RESOURCES TO ENFORCE ITS DATA COLLECTION POLICY AND TO ENSURE DATA ARE ACCURATE AND COMPLETE

Contractors may not be required to provide certified payroll for projects that receive no government funding. Thus, instead of reviewing certified payroll, **CEWO's contracts ensure that CEWO can conduct audits of its contractors every six months to review and verify their data.** CEWO employs a Workforce Specialist, who spends roughly 10 hours per week reviewing data that contractors enter electronically.

PROMOTING GREEN INFRASTRUCTURE USING A JOBS FRAME

As noted, organizations that track GI job information benefit from doing so. However, agencies and organizations may also have to demonstrate that a GI project provides **concrete benefits to the locality** in which it is constructed, so developing a **message that resonates with members of the public and decision-makers is critical to building support for publicly-funded GI**. Below, we present messages that resonate – or fail to resonate – with members of the public and decision-makers.⁹ In addition to these specific messages, we also set out general guidelines

“It is important that the data and stories you provide are local, scalable, concrete and believable.”

SPITFIRE STRATEGIES

Messages to use	Messages to avoid
Green jobs are part of the solution	Green jobs are THE solution
American ingenuity will produce jobs	Government will produce jobs
We are creating additional jobs and expanding the economy	Green jobs instead of traditional jobs
Protections, safeguards, innovation	Regulation
Protecting the environment reduces the challenges the next generation will face	You have to choose: clean environment or economic development

that agencies and other organizations can use to better communicate with the public about Green Infrastructure.

FIVE GUIDELINES TO FOLLOW WHEN COMMUNICATING ABOUT GREEN INFRASTRUCTURE

1. Define problems, but always present problems alongside, and in light of, concrete solutions.
2. Detail the co-benefits: public health, public safety, and jobs.
3. Capitalize on public support for conservation and recycling.
4. Emphasize that the goal is not to start from scratch, but to improve existing infrastructure.
5. Beware that hyper-technical language can turn people off.

RECOMMENDATIONS / NEXT STEPS

Our research on CEWO and the other entities discussed in this guide show that there are **clear steps any entity can take to begin tracking job information**:

- ❑ Invest in an easy-to-use and comprehensive data collection and reporting system.
- ❑ Find an approach to meet your needs: track data on paper, use a combined paper / electronic system, or invest in a customized, fully electronic system.
- ❑ Use a nimble system that is robust enough to produce good reports.
- ❑ As long as reporting requirements are legal, include them in all contracts.
- ❑ Standardize and normalize data requirements so contractors will view them as standard practice.
- ❑ Take actions to protect data integrity and confidentiality, including hiring a database manager to consistently review and analyze reported data.
- ❑ Use reported data in summaries and reports, communicate results, and make reports easy to find in order to promote data management and reporting.
- ❑ For agencies with already existing compliance or purchasing departments and the necessary infrastructure to track job information, make use of those resources.
- ❑ Use data and stories that are local, scalable, concrete and believable to communicate how your organization has made an impact.

CONCLUSION

This guide shows that job projection and tracking serve several purposes. By tracking data associated with GI projects, **organizations can assess project costs, develop accurate budgets, and monitor their organization’s performance in light of policy goals.** GI proponents can also use verified project information to **persuade key constituencies of the benefits of GI investment.** In particular, data gathered via job tracking can be used to **highlight short-term and long-term local economic benefits of GI projects.**

This guide has described a variety of approaches to tracking and projection to show that the **resources required to collect and use data can be minimal but the benefits are substantial.** This guide also **provides a roadmap** for any organization ready to compile and use project data to promote innovation and job creation, improve public welfare, and promote environmentally sound approaches to stormwater management.

“We operate in a fishbowl, and collecting accurate data about the benefits that our public dollars have on our economy makes our operations transparent and defensible.”

JOSE GALVAN, MILWAUKEE

METROPOLITAN SEWERAGE DISTRICT

APPENDIX A: EXAMPLE GREEN JOB PROJECTION GUIDES

ANALYSIS OF JOB CREATION IN PLANYC (2008)

From: The Louis Berger Group, Inc.

Summary: This study provides estimates of the number of new capital plans/construction jobs and operations and maintenance jobs likely to be created by PlaNYC initiatives in land, transportation, air quality, energy, and climate change. The study also provides descriptions of the methodologies and data used to arrive at the job projections.

Get it: http://www.nyc.gov/html/om/pdf/2008/pr110_planyc_job_creation_analysis.pdf.

GREEN JOBS METRICS: A GUIDE TO EFFORTS TO QUANTIFY THE GREEN ECONOMY (2012)

From: Headwater Economics

Summary: This guide provides an overview of sources quantifying green jobs. The guide also reviews job projection approaches, and it examines and critiques competing methodologies used to arrive at green job projections.

Get it: <http://headwaterseconomics.org/energy/clean/green-jobs-metrics>.

COUNTING UP TO GREEN: ASSESSING THE GREEN ECONOMY AND ITS IMPLICATIONS FOR GROWTH AND EQUITY (ECONOMIC POLICY INSTITUTE BRIEFING PAPER # 349, OCTOBER 9, 2012)

From: Ethan Pollack

Summary: This report discusses some of the challenges involved in defining and measuring green jobs, and it uses Bureau of Labor Statistics data to arrive at green job projections.

Get it: <http://www.epi.org/publication/bp349-assessing-the-green-economy>.

SIZING THE CLEAN ECONOMY: A NATIONAL AND REGIONAL GREEN JOBS ASSESSMENT (2011)

From: Mark Muro, Jonathan Rothwell, Devashree Saha, Battelle Technology Partnership Practice, Brookings Institution Metropolitan Policy Program

Summary: This report discusses the difficulties inherent in defining and measuring green jobs, and it summarizes findings on the clean economy of 100 of the U.S.'s largest metropolitan areas. The report also outlines areas of growth in the clean economy and presents several case studies.

Get it: http://www.brookings.edu/~media/Series/resources/0713_clean_economy.pdf.

APPENDIX B: WHAT INFORMATION DO THEY TRACK?

CONTRACTOR INFORMATION

- Contractor name
- Prime or subcontractor
- Contractor's license number
- Contractor's address
- Contractor's phone number

EMPLOYEE PERSONAL AND DEMOGRAPHIC INFORMATION

- Name
- Social Security number (or last four digits)
- Address (or zip code of residence)
- Ethnicity/Race
- Gender
- Marital status
- Dependents
- New hire? If yes, date of hire
- Training program
- Health insurance coverage
- Veteran
- Disabled
- Previously incarcerated
- Registered apprentice

EMPLOYEE JOB-RELATED INFORMATION

- Employer
- Job class or category (see Appendix C, below)
- Work classification
- Hours worked per day of the week
- Hours worked per date
- Project worked on
- Contract name
- Total hours worked
- Total pay rate
- Gross amount earned for project
- Gross amount earned for all projects
- Net wages per week
- Check number
- Employee deductions, contributions, payments

APPENDIX C: EXAMPLES OF GREEN STORMWATER JOB CATEGORIES.

Using a standardized approach to categorizing and/or coding green jobs simplifies data collection and analysis. O*NET has categorized and coded green jobs, and an organization interested in tracking GI project information can use O*NET's approach to track data in a consistent way. O*NET's coding system also provides an idea of the range of green jobs. For example, the Pacific Institute used O*NET information to organize occupations in the area of sustainable stormwater management as follows:

Research & Development

17-2051.00 Civil Engineers, 17-2081.00 Environmental Engineers, 19-1013.00 Soil and Plant Scientists, 19-2043.00 Hydrologists, 19-1031.00 Conservation Scientists, 19-2041.00 Environmental Scientists and Specialists

Design & Planning

17-3011.00 Architectural and Civil Drafters, 17-1011.00 Architects, 17-1021.00 Cartographers Photogrammetrists, 17-2051.00 Civil Engineers, 17-3031.00 Surveying and Mapping Technicians, 11-9121.00 Natural Sciences Managers, 19-2043.00 Hydrologists, 19-3051.00 Urban and Regional Planners

Installation

47-1011.00 First-Line Supervisors/Managers of Construction Trades and Extraction Workers; 11-9021.00 Construction Managers; 47-4011.00 Construction & Building Inspectors; 47-2031.00 Carpenters; 47-2051.00 Cement Masons and Concrete Finishers; 47-2061.00 Construction Laborers; 47-2071.00 Paving, Surfacing, and Tamping Equipment Operator; 47-2111.00 Electricians; 47-3015.00 Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters; 47-3012.00 Helper—Carpenters; 47-4091.00 Segmental Pavers; 47-2181.00 Roofers

Operations & Maintenance

37-1012.00 First-Line Supervisors of Landscaping and Groundskeeping Workers; 37-3011.00 Landscaping & Groundskeeping Workers; Operating Engineers and Other Construction Equipment Operators; 47-2073.00 49-9042.00 Maintenance and Repair Workers; 53-7072.00 Pump Operators, Except Wellhead Pumpers; 47-4071.00 Septic Tank Servicers and Sewer Pipe Cleaners; 51-8031.00 Water and Liquid Waste Treatment Plant and System Operators; 45-2092.00 Farmworkers and Laborers, Crop, Nursery, and Greenhouse; 11-1021.00 General and Operations Managers

Source: Eli Moore, Heather Cooley, Juliet Christian-Smith, Kristina Donnelly, Kris Ongoco, Daryl Ford, Pacific Institute Draft Document, Sustainable Water Jobs: A National Assessment of Water-related Green Job Opportunities, 2/14/13

ENDNOTES

1. For more information about High Road Agreements, see http://www.cleanenergyworksoregon.org/wp-content/uploads/2012/06/HighRoad_Short_2012.pdf.
For an overview of Green Infrastructure benefits and examples, see http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm
2. One frequently used software model is IMPLAN, which incorporates local inputs and outputs. For an overview of IMPLAN, see <http://www.ci.richmond.ca.us/DocumentCenter/Home/View/6474>.
3. Induced impacts may include increased sales in given locality.
4. Doneux, Mark, Administrator of Capitol Region Watershed District, Stormwater BMP Performance Assessment and Cost Benefit Analysis, Mississippi River Forum, January and February 2011, Saint Cloud and Saint Paul Minnesota. Available at <http://www.nps.gov/miss/naturescience/loader.cfm?csModule=security/getfile&PageID=271394>.
5. The Office of Community Investment and Infrastructure is the successor to San Francisco's Redevelopment Agency and its new title was not yet official at the time this guide was written.
6. Local hire agreements focus on hiring from a particular community; targeted hire agreements focus on hiring from a particular demographic group.
7. For additional details, see information provided at: <http://www.eeoc.gov/laws/practices/index.cfm>.
8. Available at: http://www.cleanenergyworksoregon.org/cewo-by-the-numbers/cewo-by-the-numbers_11_30_12.
9. Green For All's National Working Group Call from December 19, 2012, which included members of GFA's Stormwater Infrastructure Working Group, provides additional information about focus group testing and which issues may be important to members of the public with respect to stormwater infrastructure investment and rate increases. The recorded call is available at: <http://greenforall.org/programs/communities-of-practice/water/stormwater-infrastructure-working-group-swig>.



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