



National Institute of Environmental Health Sciences
Your Environment. Your Health.

Evaluation of the Economic Impact of the NIEHS Worker Training's Minority Worker Training Program

October 6, 2014

Bryan Engelhardt*, Ph.D., College of the Holy Cross

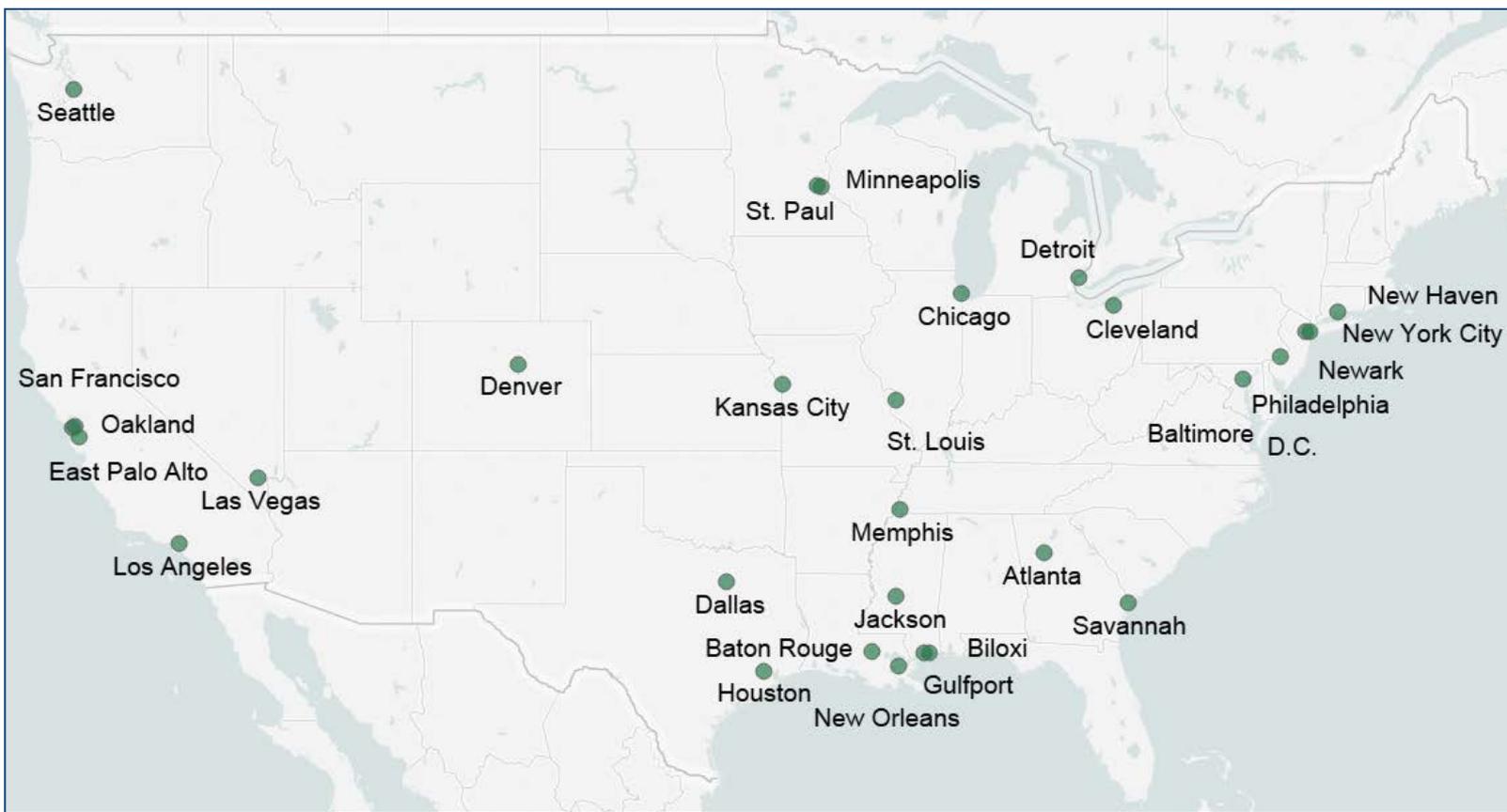
**The analysis was completed in collaboration with Robert Baumann,
College of the Holy Cross, and Kathy Kiel, College of the Holy Cross**

Overview of the NIEHS Worker Training's Minority Worker Training Program (MWTP)

- The MWTP has provided instruction and job skills for roughly 9,600 minority individuals since 1995.
- The primary MWTP goals are to
 - Increase the number of underrepresented minorities in the construction and environmental remediation industries through job readiness programs,
 - Provide construction skills training; environmental worker training including hazardous waste, asbestos and lead abatement training; and safety and health training.



Program Locations



Purposes of WETP Benefits Study

- To respond to NIEHS Strategic Goal 10, in particular part (b)

Evaluate the economic impact of policies, practices, and behaviors that reduce exposure to environmental toxicants, through prevention of disease and disabilities, and invest in research programs to test how prevention improves public health and minimizes economic burden.

- To evaluate, quantify, and document the wide range of benefits of WETP Minority Worker Training Program
- To develop methodology for WETP Benefits
- Share the results with stakeholders

Overview of Initial Findings

- Seven pecuniary benefits between 1995 and 2013
 - Value added benefits
 1. \$1.6B in higher earnings for its graduates,
 2. \$181.2M less workplace injury costs,
 3. \$23.7M less hiring costs,
 4. \$22.1M less crime related costs,
 5. Undetermined environmental savings,
 - Government savings in revenue and transfers
 6. \$395.3M less in transfers and \$316.2M more in taxes, and
 - Community support
 7. \$2.3M last year in contributions from firms and non-profits.

1. Earnings Benefits: Components

- Employment Effect:
 - Statistical analysis of graduates versus non-graduates finds an increase employment rate of 58% for graduates
- Hours Effect:
 - Statistical analysis of graduates versus U.S. population with same characteristics finds an increase in 2.8 hours worked per week
- Wage Effect:
 - Statistical analysis of graduates versus U.S. population with same characteristics finds an increase in compensation of \$4.77 per hour

1. Earnings Benefits: Cumulative Effect

- Benefit per participant in 1st year
 - $\approx (\text{change in employment}) \times (\text{change in hours worked})$
 - $\times (\text{change in wages})$
 - $\approx \$18,900$
- Benefit per participant over work life
 - $= \$165,965$
- Total MWTP earnings benefits
 - $= \$165,965 \times 9600 = \1.6B

1. Earnings Benefits: Sensitivity

- Total benefit without employment effect
= $\$152,350 \times 9600 = \1.46B
- Total benefit without employment or hours
= $\$141,080 \times 9600 = \1.35B
- Total benefit without employment, hours and 15% annual depreciation in wage effect
= $\$38,635 \times 9600 = \371M

2. Reduced workplace injury costs

- Reduced injury rate of 3% per year from training
- \$35,000 cost per injury in construction
- Benefit per participant over work life
 - ≈ reduced injury rate x cost of injury x years worked
 - ≈ \$18,900
- Total MWTP workplace injury cost reduction
 - = \$18,900 x 9600 = \$181.2M

3 & 4. Reduced hiring and crime costs

- Total MWTP hiring costs reductions
 $\approx \$2,400 \times 9600 = \23.7M
- Crime cost savings per participant over initial four years
= Reduction in victimization and incarceration costs
 $= \$1,488 + \$816 = \$2,304$
- Total MWTP crime costs savings
 $= \$2,304 \times 9600 = \22.1M

5. Environmental cost savings

- Job Placement
 - 8.6% in hazardous waste industry
 - 9% in asbestos abatement
 - 3.3% in lead abatement and mold remediation
 - 13% in the environmental industry
- Difficult to assign additional value added, in addition to earnings, from the environmental impact of workers. However, clean up often contains “externalities” not incorporated in earnings.
- Using earnings as an estimate, workers in these industries have produced roughly \$500M in value added

6. Government revenue and transfer savings

- Components
 - \$0.25 reduction in cash/near cash transfers per \$1 earned
 - \$0.20 increase in taxes per \$1 earned
 - \$1.6B additional earnings from MWTP
- MWTP government savings from MWTP
 - = Decreased Transfers + Increased Taxes
 - = $0.25 \times \$1.6B + 0.2 \times \$1.6B$
 - = \$712M

7. Community support and Leverage

- Contributions
 - \$1.9M in matching funds in past year
 - \$350,000 in in-kind transfers
 - Many contributions are multi-year commitments
- Grantees stated this type of program would not exist without the NIEHS initiating and supporting it.

Recap of quantifiable benefits and support

- Quantifiable Benefits
 1. \$1.6B in earnings,
 2. \$181.2M in injury costs,
 3. \$23.7M in hiring costs,
 4. \$22.1M in crime costs,
 5. \$395.3M less in transfers and \$316.2M more in taxes, and
 6. \$2.3M in cash and in-kind transfers from community last year

Unfinished Work for MWTP and WETP

- Quantify Environmental Benefits
 1. What would happen if workers were not trained and hired?
 2. What projects did trainees work on and what fraction of work did they complete?
- Bullet proof measure of the effect of training on injury
 1. Collect large sample of injury rates before and after
 2. If classes are full, randomly stagger participants into the program and collect information on injury rates for those assigned to class early versus later



Conclusion

One story among many:

“Steve is a 2013 graduate who started with a struggle when entering the training. He had legal issues and a bad attitude to match. Throughout the training, the walls in his life began to break down and he began changing the company that he kept...When it was time for the job fair, he was presented with several offers for him to begin work. He is now working for [Company X] as a Construction contractor/supervisor.”

-2013 Dillard progress report

This study was made possible by contract number 273201000083U from the National Institute of Environmental Health Sciences (NIEHS), NIH.