



JOBS FOR THE FUTURE

NEW PARTNERS FOR SMART GROWTH

GREEN INFRASTRUCTURE STRATEGIES FOR COMMUNITY RESILIENCE: PLANNING, MAINTENANCE, & WORKFORCE DEVELOPMENT

Emerging Lessons from NatureWORKS: A National Urban
Green Infrastructure Workforce Study
Sara Lamback | February 11, 2016



- > Introduction to JFF
- > Overview of NatureWORKS
 - The NatureWORKS Definition of Green Infrastructure
 - Goals and Actions to Date
- > Characteristics of the “GI” Workforce
- > GI Installation and Maintenance Occupations
- > Key Findings and Takeaways
- > Discussion and Questions



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ABOUT JOBS FOR THE FUTURE & THE NATUREWORKS STUDY

HOW JFF WORKS: SCALING SOLUTIONS



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Develop
Evidence-Based
Innovations



Build Systems
and Field
Capacity



Advocate and
Influence Policy

← ALIGNMENT ACROSS SECONDARY—POSTSECONDARY—WORKFORCE →



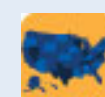
STRUCTURED PATHWAYS: Lead the expansion of streamlined college and career pathways



CREDENTIALING SYSTEMS: Champion the development of integrated credentialing systems



EMPLOYER ENGAGEMENT & INVESTMENT: Increase employer investment and leadership in career advancement policies, practices, and programs



**PLACE-BASED/
REGIONAL SYSTEM
ALIGNMENT:**

Drive the creation of regional strategies that align and redesign education and workforce systems to support economic development and create opportunities for career growth



POLICY ADOPTION: Develop and drive the adoption of local, state, and federal policies



LEARNER-CENTERED INSTRUCTION: Advance research, practice, and policy around learner-centered instructional strategies and delivery approaches

NatureWORKS is a national urban green infrastructure workforce study. It aims to better understand urban green infrastructure jobs and careers.

NatureWORKS is funded through the USDA Forest Service Urban and Community Forestry Challenge and the Kresge Foundation.

GREEN INFRASTRUCTURE is a collection of natural lands, working landscapes, open spaces, and appropriate construction interventions that conserves ecosystem functions and provides benefits to human populations.





This study aims to:

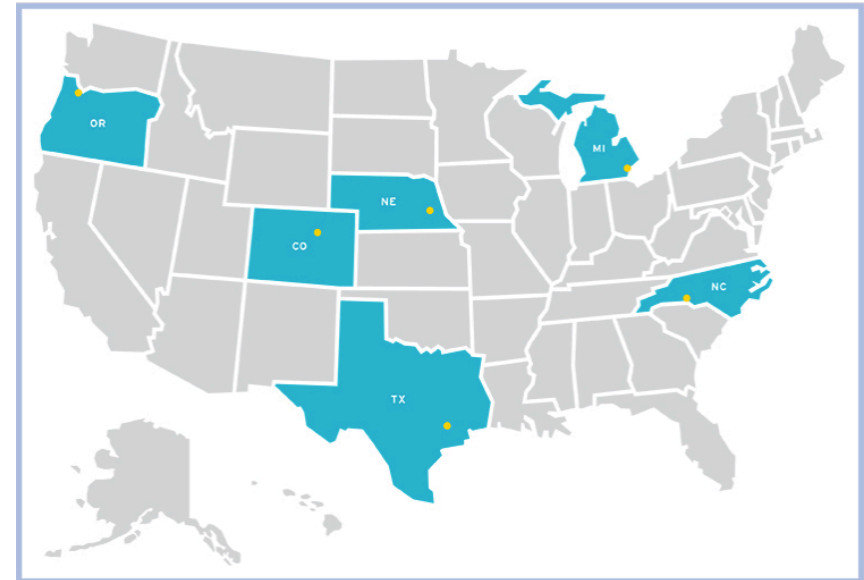
- > Analyze green infrastructure (GI) activities and related public and private employment in select cities
- > Analyze traditional and real-time labor market data to understand employment trends in GI industries
- > Identify wages of GI jobs and compare to related industries
- > Identify promising strategies for expanding GI employment in both the public and private sector

NATUREWORKS “DEEP DIVE” CITIES



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- > Ann Arbor, MI
- > Austin, TX
- > Charlotte, NC
- > Denver, CO
- > Lincoln, NE
- > Portland, OR





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CHARACTERISTICS OF THE GI WORKFORCE

HIGHLIGHTS FROM RESEARCH IN LINCOLN, NE



- > Consulting Engineers
- > Landscape Architects
- > Existing Contractors (Landscaping, Tree care, Excavation, Nurseries, Pavement, Horticulture, Construction, Water and Sewer)
- > City Staff
 - Inspectors
 - Maintenance
 - Arborist
 - Engineers
 - Naturalists
 - Environmental Specialists
 - Planners



WORKFORCE NEEDS AND RECOMMENDATIONS: LINCOLN



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- > Design of GI projects has generally been effective
- > Local contractor bids are rising
- > Lincoln is considering a certification for the construction and maintenance of GI projects
- > Currently, the maintenance of GI projects is the biggest concern



STORMWATER REGULATORY DRIVERS: LINCOLN



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- > Floodplain and detention requirements
- > New growth area standards
 - No net increase in flow/ elevations
 - Minimum corridor standards
 - Compensatory storage requirements
- > Stormwater Quality Requirements
 - Effective February 1, 2016
 - Maintenance plan required



- > Use simpler planting plans
- > Engineered soil mix (50/50 compost and sand) is particularly effective
- > Build Best Management Practices last
- > Create separate contracts for plantings with two years of maintenance
- > Plan training for construction and maintenance





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GI INSTALLATION & MAINTENANCE OCCUPATIONS

SELECTED GI OPERATIONS & MAINTENANCE OCCUPATIONS (DENVER)



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Title	Wage Range
Arborist Technician I	\$17.69 - \$25.82
Arborist Technician II	\$19.33 - \$28.23
Arborist	\$25.03 - \$40.05
Arboreal Inspector	\$22.40 - \$32.71
Park Horticulturist	\$16.92 - \$24.70
Horticultural Worker	\$16.18 - \$23.63
Gardening Technician	\$14.80 - \$21.61
Park Seasonal Laborer	\$10.99 - \$12.31
Utility Worker	\$14.80 - \$21.61
Senior Utility Worker	\$16.18 - \$23.63
Crew Supervisor	\$23.10 - \$33.73
Equipment Operator	\$16.92 - \$24.70
Equipment Operator Specialist	\$17.69 - \$25.82
Heavy Equip. Operator	\$19.33 - \$28.23
Building/Grounds Supervisor	\$17.69 - \$28.30
Facility Maintenance Technician	\$19.33 - \$28.23
Cement Finisher	\$20.21 - \$29.51



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KEY TAKEAWAYS

INITIAL FINDINGS AND TAKEAWAYS



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- > Many cities already have a vibrant public and private workforce that is (theoretically) well positioned to take on expanded green infrastructure work
- > Contractors and public employees need additional training on GI installation and maintenance
- > Many GI installation and maintenance jobs require little formal education beyond high school
- > National and local efforts are underway to establish GI workforce and site certifications (Water Environment Federation, Center for Watershed Protection, Sustainable Sites)
- > Some GI occupations have certifications of increasing value (e.g., green roofs, pervious pavement, arboriculture)
- > Tracking development of Asset Management Plans and Best Management Practice (BMP) manuals is a strategy to track changing workforce needs
- > A healthy market niche for specialty GI contractors, including community-based social enterprises, and volunteer/service corps organizations already exists
- > Equity issues in entry-level GI jobs require contracting tools like resident, minority, and female employment goals; M/WBEs; and contracts with community groups
- > Opportunities for integrating installation and maintenance of stormwater, watershed, climate change resilience, and “traditional” green infrastructure are being missed



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QUESTIONS/COMMENTS



- > See the NatureWORKS Website:
 - <http://www.jff.org/initiatives/natureworks>
- > We regularly publish interviews, guest blogs, and other information on the GI workforce through the JFF blog:
 - <http://www.jff.org/blog>
- > Please email Sara Lamback if you would like to receive emails and other updates on NatureWORKS!
 - slamback@jff.org

We look forward to your involvement in this exciting project!

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