CLIMATE CHANGE & WORKFORCE OPPORTUNITY: THE SILVER LINING

A STUDY OF NEW YORK CITY

NYC LMIS
LABOR MARKET INFORMATION SERVICE

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NEW YORK CITY & CLIMATE CHANGE:

A FOCUS ON INFRASTRUCTURE

Like the world around it, New York City is vulnerable to the threats posed by climate change. As these challenges continue to accelerate and evolve, protecting the vast infrastructure that serves the City's 8.5 million[1] residents is fundamental to ensuring their safety. This includes shoring up transportation, water, waste, sewer, energy, and telecommunications systems[2], and accomplishing it requires significant investments of resources.

ACCORDING TO EXPERTS CONVENED TO STUDY CLIMATE CHANGE IN NYC[3], IN THE NEXT THIRTY YEARS NEW YORKERS MAY EXPECT TO SEE...

- ↑ an average temperature increase of between 4.1 and 5.7°F
- ↑ an increase in how often the temperature is at least 90°F three days in a row
- ↑ average annual precipitation increase between 4 to 11%
- ↑ sea level continue to rise by another 11 to 21 inches

IN RESPONSE TO CLIMATE CHANGE THREATS THE CITY HAS INVESTED OR LEVERAGED[4]:

- ↑ over $11.6 billion for infrastructure-focused projects
- ↑ $500 million to improve the energy efficiency of more than 1 million buildings
- ↑ over $340 million to improve the City's parks and streets

THE SILVER LINING. Many organizations, individuals, and the City itself have mobilized in New York, dedicated to mitigating the current and anticipated effects of climate change on buildings and transportation infrastructure. This has created new and growing work opportunities, especially for individuals who have struggled to attach to the labor market. These opportunities are evident in labor market data trends, observations from the workforce development community, and the goals and priorities of policy-makers. Together, they reflect a silver lining amidst the ominous cloud of climate change.

Work responding to climate change in New York City is organized into different categories for this research:

Project type. Initiatives responding to climate change threats fall into two broad categories in New York City:

RECOVERY includes work to rebuild and repair damage from the severe weather that is becoming more common in and around New York City. This includes rebuilding homes, and repairing roads, buildings, and transportation. The most visible example of this is the response to the widespread Hurricane Sandy damage in 2012.

RESILIENCY includes the many projects and initiatives focused on preparing New York City and its residents for the future effects of climate change. This includes upgrading buildings with more energy efficient systems, making improvements to the City's coastal defenses, and updating transportation systems.

Job Type. The background and credentials required for these infrastructure-support job opportunities vary:

"OPPORTUNITY-TO-ATTACH" JOBS: THESE ARE LOW-BARRIER-TO-ENTRY JOBS THAT CAN BE A STRONG FIRST STEPPING STONE TO A MIDDLE-SKILLS CAREER PATH.

- → Formal educational requirements or credentials do not exceed a high school diploma or equivalent, and often do not require it
- → Previous work experience not required
- → Previous trainings or licensure not required

"MIDDLE-SKILL" JOBS: THESE JOBS OFTEN REQUIRE SOME TRAINING OR EDUCATION AND ARE STABLE AND OFTEN TRADE-BASED.

- → Formal educational requirements or credentials do not exceed an associate degree or some college experience
- → Previous work experience not required
- → Some trainings or licensure may be required

USING LABOR MARKET DATA SOURCES, AN ANALYSIS IDENTIFIED BUILDINGS AND TRANSPORTATION INFRASTRUCTURE SUPPORT JOBS THAT FIT INTO "OPPORTUNITY-TO-ATTACH" AND "MIDDLE-SKILL" CATEGORIES.

TO BE INCLUDED, EACH JOB:

- Has at least 1,500 positions in NYC
- Is growing in demand and is projected to continue growing until at least 2024
- Has a median annual salary that pays a living wage in NYC ($33,561 before taxes)

TABLE 1: OPPORTUNITY-TO-ATTACH JOBS

	Number of Jobs in NYC, Q1 2018*	10-Year Growth Projections, NYC (2014-2024)*	Median Wage, NYC*
Cement Masons and Concrete Finishers	3,290	21.1%	$84,870
Construction Laborers	20,250	21.0%	$44,370
Helpers—Electricians	3,530	35.2%	$34,250
Helpers—Pipelayers, Plumbers, Pipefitters, and Steamfitters	1,790	33.2%	$39,110
Painters, Construction and Maintenance	5,720	14.7%	$48,940

TABLE 2: MIDDLE-SKILL JOBS

	Number of Jobs in NYC, Q1 2018*	10-Year Growth projections, NYC (2014-2024)*	Median Wage, NYC*
Carpenters	15,640	13.1%	$68,260
Electricians	20,110	32.3%	$87,880
Hazardous Materials Removal Workers	2,780	21.2%	$72,950
Maintenance and Repair Workers, General	50,480	15.6%	$45,300
Operating Engineers and Other Construction Equipment Operators	1,920	18.8%	$112,570
Sheet Metal Workers	3,160	25.0%	$63,140
Shipping, Receiving, and Traffic Clerks	12,000	3.1%	$34,590
Structural Iron and Steel Workers	2,160	20.0%	$91,080

DATA SOURCES USED IN ANALYSIS

- American Community Survey (ACS) 2016 5-year estimates
- MIT Living Wage Calculator for New York County
- New York State Department of Labor, NYC Occupational Employment Statistics (OES)*
- North American Industry Classification System (NAICS Codes)
- Standard Occupational Classification (SOC) system
- US Department of Labor, Bureau of Labor Statistics data

THE WORKFORCE DEVELOPMENT COMMUNITY PERSPECTIVE

LMIS disseminated a Workforce Development Community survey in January 2018 to gather "on-the-ground" observations and input about climate change's labor market effects. The online survey was anonymous and sent to LMIS's national listserv membership of approximately 1,300. 94 individuals participated[5].

Participants' responses (reported in Table 3 below) indicate a strong shared belief that the effects of climate change are being felt in the labor market. Approximately three-quarters of respondents reported that new jobs are being created as a result of climate change (75%), and that even existing jobs are evolving in response to climate change (71%). More broadly than individual jobs, over half (59%) of respondents reported that new industries are developing. By contrast, only 2% of survey participants reported a belief that climate change does not affect the labor market.

TABLE 3: EFFECTS OF CLIMATE CHANGE AND/OR NATURAL DISASTERS ON LABOR MARKET

Effects of climate change and/or natural disasters on labor market	Number of respondents	Percentage of respondents
Entirely new jobs within existing industries are being created	68	75%
Existing jobs in existing industries now require an increase or diversification in skills	65	71%
Entirely new industries are being created	54	59%
Existing jobs in existing industries are becoming obsolete	41	45%
Climate change and/or natural disasters do not affect the labor market	2	2%
Unsure	2	2%
Other "write-in"	1	1%
Did not respond	3	N/A

THE PUBLIC POLICY PERSPECTIVE

LMIS convened a focus group of senior officials from New York City and State-level government and quasi-government organizations in May 2018 to learn their perspectives on climate change, natural disasters, and New York City's labor market. Central themes that surfaced during the focus group include:

- → The need for "resiliency planning" to be a pillar of all infrastructure initiatives and a shared priority for all new construction and reconstruction projects.
- → A recognition that there will have to be financial collaboration across sectors (government, private, and philanthropic) to fund resiliency and recovery goals, especially as climate change effects become more pronounced and severe weather increases.
- → Especially for capital projects that are inter-disciplinary mega-contracts, there is a lot of opportunity for training local communities in jobs that support implementation.
- → Because recovery and resiliency work is a relatively new focus in New York and requires high levels of cross-sector cooperation, there have been and continue to be some challenges around effective collaboration – particularly regarding contract bidding and hiring processes. These struggles interfere with optimally supporting New York communities though improved infrastructure and employment opportunities.

[1] Ann. N.Y. Acad. Sci. 1336 (2015) 9–17 C_ 2015 New York Academy of Sciences., https://nyaspubs.onlinelibrary.wiley.com/toc/17496632/1336/1
[2] https://www.census.gov/quickfacts/fact/table/newyorkcitynewyork/PST045217
[3] https://onenyc.cityofnewyork.us/visions/resiliency/
https://www1.nyc.gov/assets/orr/pdf/NYC_Climate_Resiliency_Design_Guidelines_v2-0.pdf
[4] https://onenyc.cityofnewyork.us/goals/infrastructure-2/
[5] Survey participants were instructed to choose "all that applied" to an array of possible effects of climate change and/or national disasters on the labor market. 89 individuals selected a total of 230 effects or wrote-in their own, while two respondents reported being unsure of the effects and three did not respond to the question.

EXAMPLES OF RECOVERY AND RESILIENCY INITIATIVES INCLUDE:

BUILD IT BACK

Created in response to the extensive damage caused by Hurricane Sandy, this City program repairs, rebuilds, and elevates homes in waterfront communities.

NYC COOLROOFS

Density and energy use make cities hotter than surrounding suburbs, a phenomenon being intensified in NYC by global warming. This partnership initiative retrofits the rooftops of schools, nonprofits, low-income housing, cultural institutions, and community buildings to make them energy-saving and reflective. This keeps the buildings cooler during heat waves and lowers energy usage.

NYC DAYLIGHTING

As intense storms become more common in NYC and the City's average temperature increases, power grids are at risk. Maximizing sunlight and technology like solar panels can reduce energy demand and provide the City a safety net for power outages.

SHORING UP SUBWAYS

As weather patterns become more extreme and precipitation levels increase, the NYC subway infrastructure is increasingly vulnerable to flood damage that will disrupt service. The MTA is preparing by flood-proofing New York City's subway system.

THE LIVING BREAKWATERS PROJECT

As sea levels rise around NYC, beaches are eroding, endangering both beachfront neighborhoods and important non-human ecosystems and habitats. Building oyster reefs can help restore beaches and create new habitats.