

The background of the slide is a photograph of construction equipment. In the foreground, several yellow and green hard hats are hanging on a red metal structure, likely part of a crane or scaffolding. The image is slightly blurred and has a dark, semi-transparent overlay to make the white text stand out.

# Shape, scale, and trajectory: An overview of current and future transportation sector employment BROOKINGS

Joseph  
Kane

Brookings Metropolitan Policy Program  
jkane@brookings.edu

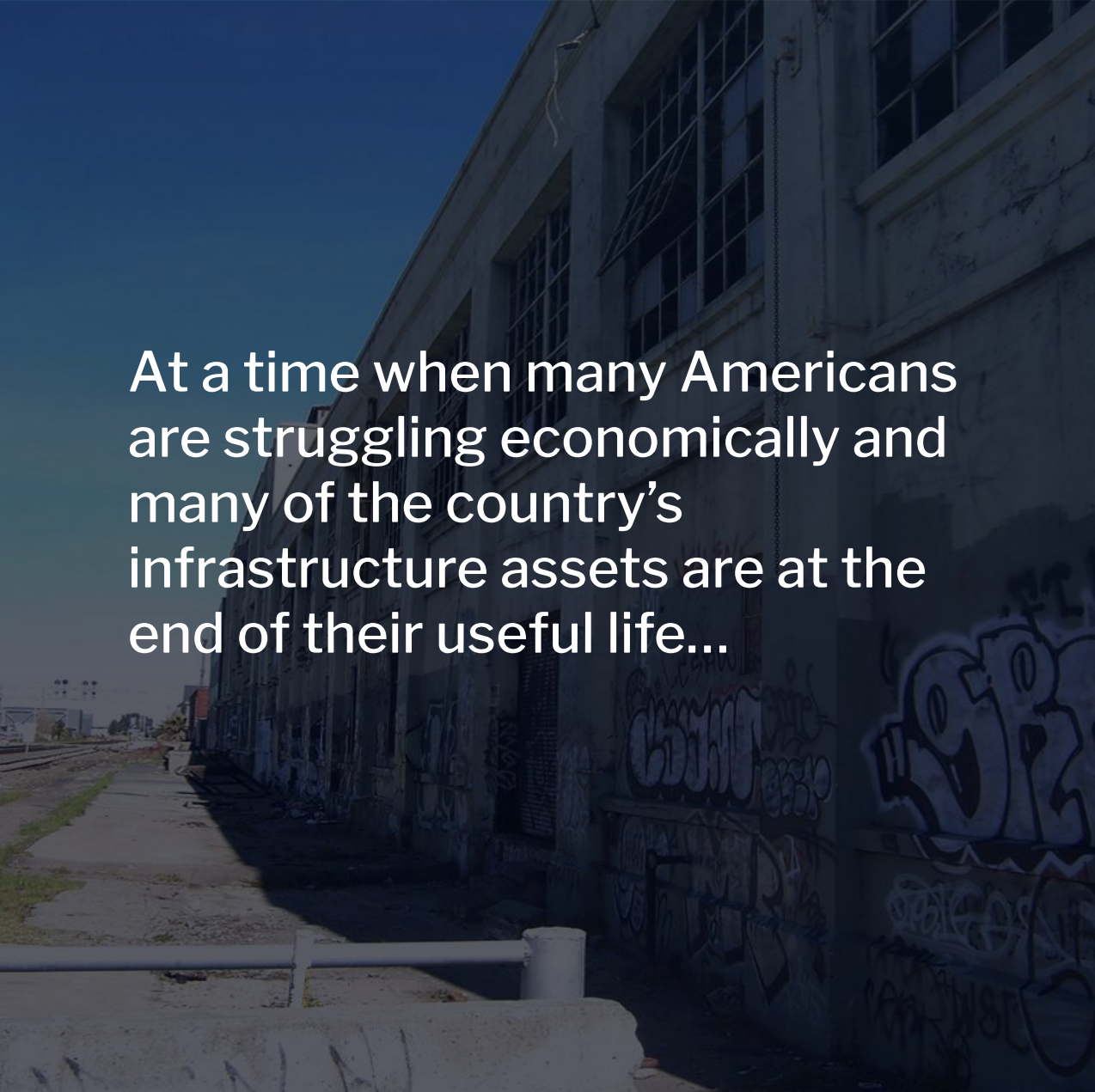
October 21, 2019

*Photo source: Unsplash*


# Examining Current Trends



# The infrastructure workforce opportunity



At a time when many Americans are struggling economically and many of the country's infrastructure assets are at the end of their useful life...



...there is an infrastructure **and** economic opportunity for all workers across all skill levels across all regions



# Who are infrastructure workers?

The infrastructure workforce captures the wide range of workers who are directly involved in the **construction, operation, design, and governance** of the country's various infrastructure systems



Major occupations include **skilled trades** and **administrative and management** positions



**Bus and Truck  
Mechanics**  
153,230 workers



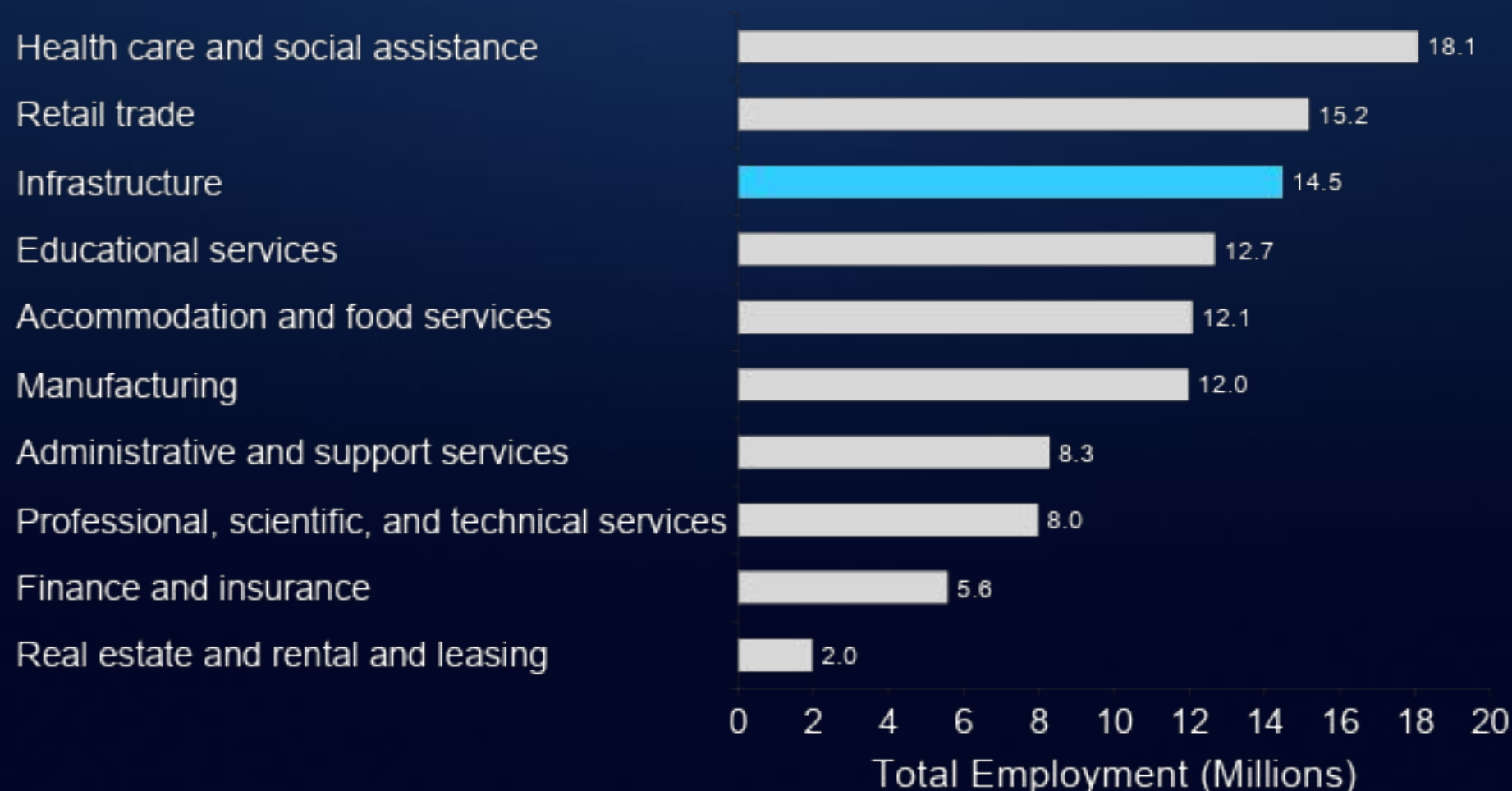
**Operating  
Engineers**  
134,470 workers



**Stock Clerks**  
134,170 workers

# Infrastructure workers account for 11 percent of all workers nationally

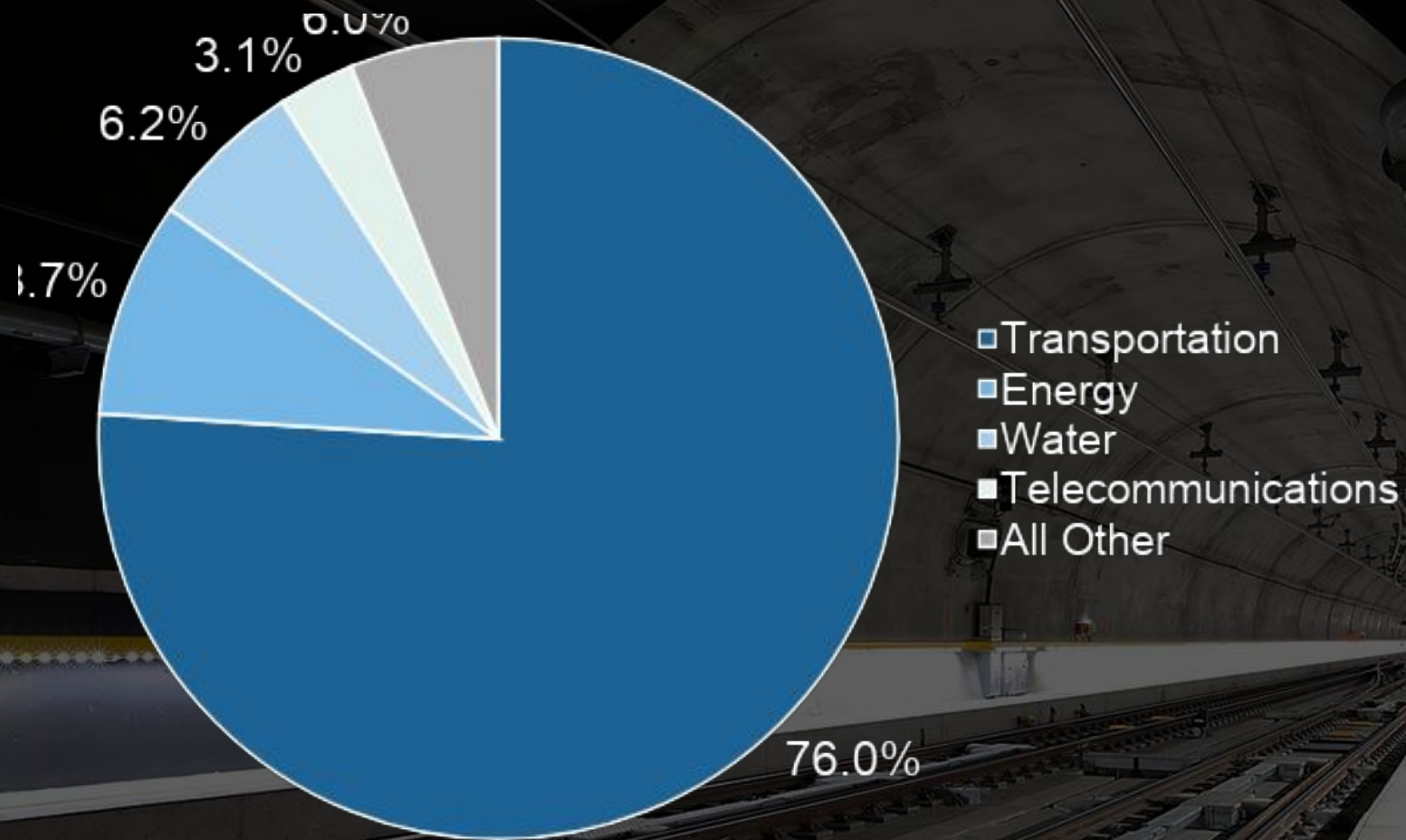
## Employment in infrastructure vs. other sectors





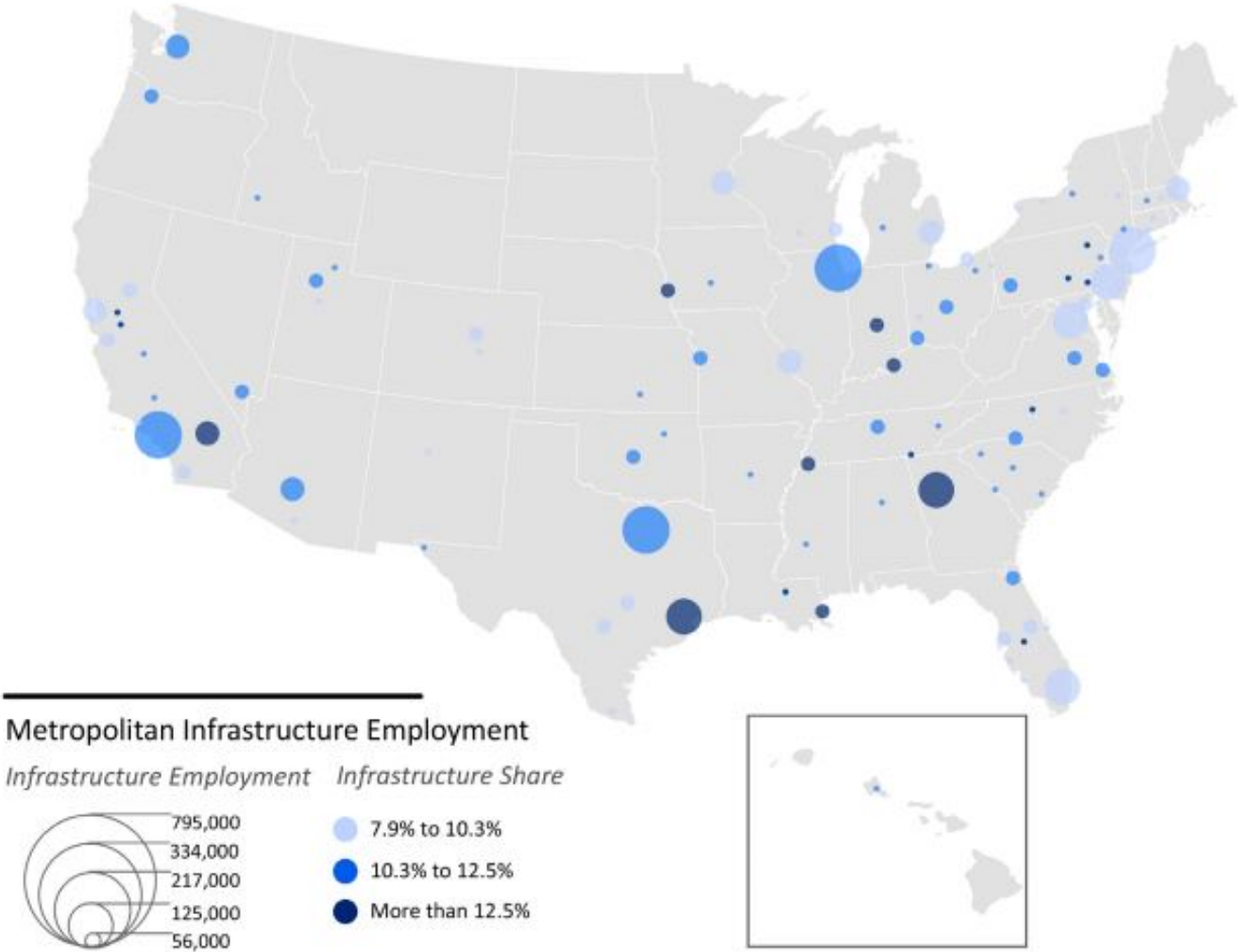
# Most infrastructure workers are involved in transportation, particularly freight

Share of infrastructure employment, by sub-sector



# Infrastructure workers are found in every market across the country

Infrastructure Jobs in the 100 Largest Metropolitan Areas by Total Employment and Share of Employment



Source: Brookings analysis of BLS Occupational Employment Statistics.

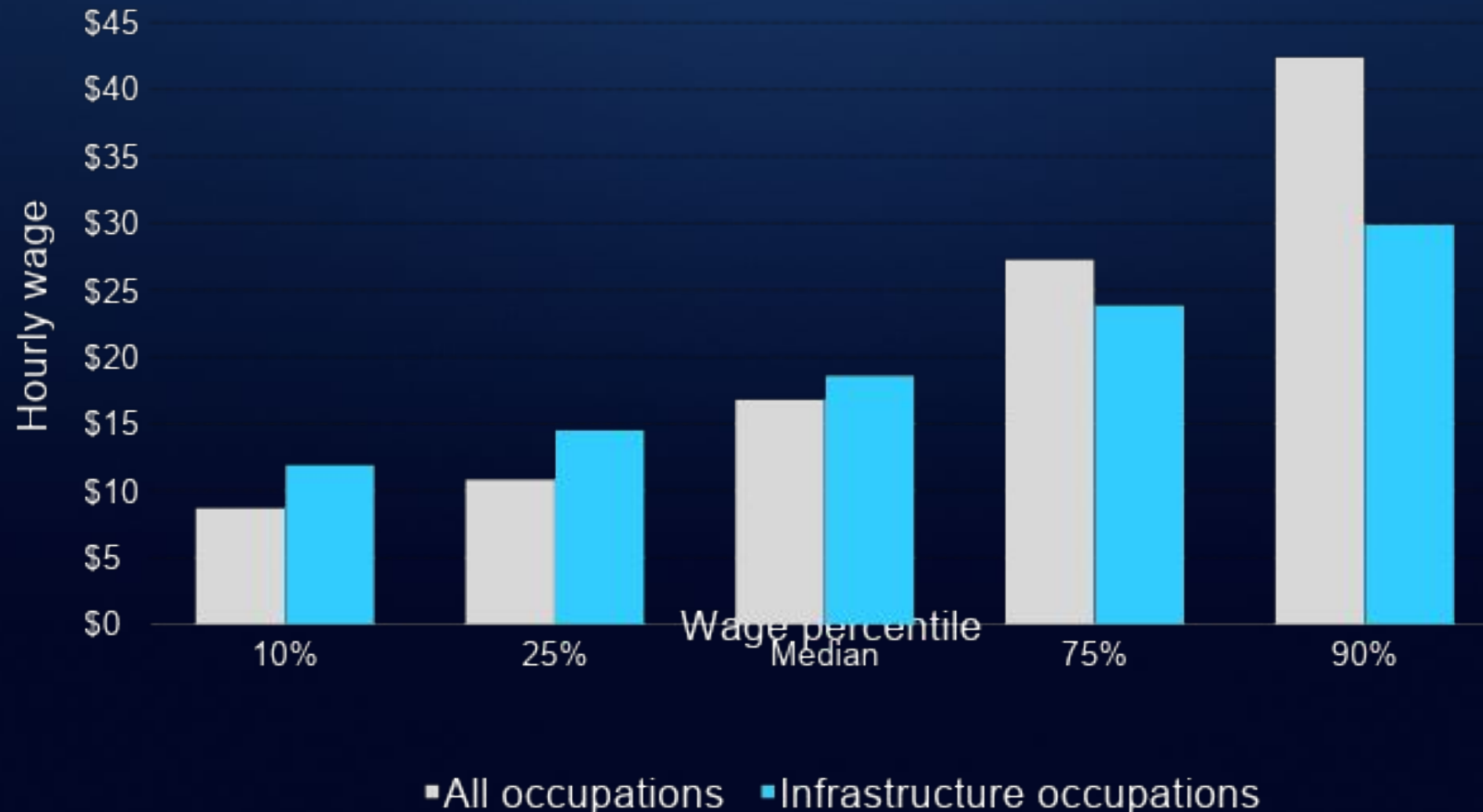


Photo source: Unsplash



# Infrastructure occupations pay higher wages, particularly at the 10<sup>th</sup> and 25<sup>th</sup> percentile

## Wages, infrastructure occupations and all occupations



# Infrastructure jobs offer a more livable wage in most places

Minneapolis-St.  
Paul-Bloomington, MN-WI

**\$13.8**  
Infrastructure  
Workers

10<sup>th</sup> Percentile  
Wage

**\$9.0**  
All  
Workers

San Jose-Sunnyvale-Santa  
Clara, CA

**\$14.2**  
Infrastructure  
Workers

10<sup>th</sup> Percentile  
Wage

**\$9.7**  
All  
Workers



Infrastructure workers often need less formal education and rely more on work experience and on-the-job training

12%

Share of infrastructure workers  
with a bachelor's degree or higher

80%

Share of infrastructure workers  
with short- to long-term on-the-job  
training





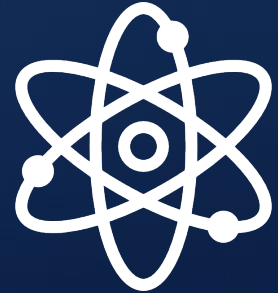
Infrastructure workers often possess high levels of knowledge in 11 different content areas



Law & Government



Telecommunications



Physics



Mechanical



Engineering



Building & Construction



Design



Geography



Chemistry



Public Safety & Security



Transportation

# The infrastructure sector lacks younger talent to replace an aging workforce

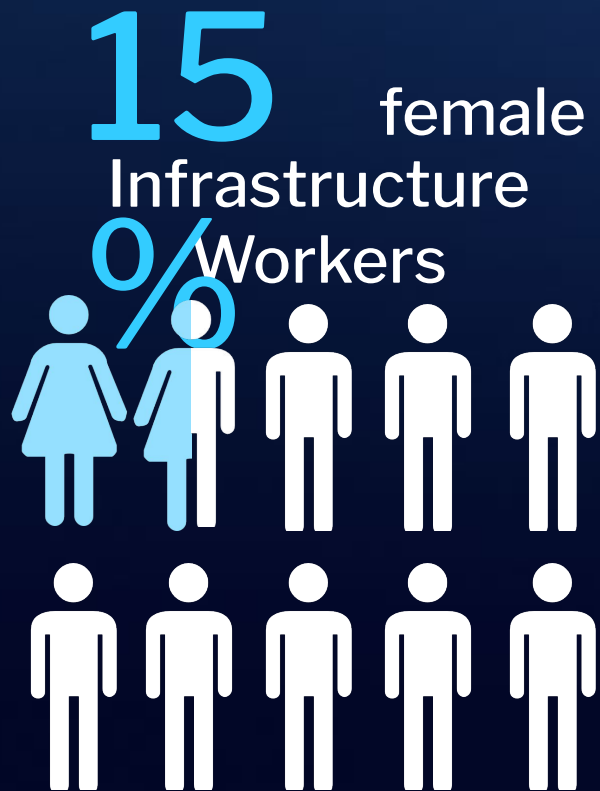
Median  
Age

53.2	42.2
years	years
Bus Drivers	All Workers Nationally

Share of younger  
workers  
(≤24 years of age)

10.2	12.5
percent	percent
Infrastructure Workers	All Workers Nationally

# Women are largely absent from the infrastructure workforce





Looking Ahead

A dark, moody photograph of a person in a light-colored shirt working in a control room. The person is seen in profile, looking down at a console with various buttons and screens. The background is filled with vertical structural elements, possibly part of a large machine or a building's interior. The overall tone is industrial and somewhat somber.

# 3 Million

infrastructure workers will need to be  
replaced  
over the next decade due to retirements  
and other  
employment shifts





Photo source: Wiki user Dllu





*Photo source: Flickr user Steve Jurvetson*

Workers in “digital mobility” refer to all those workers involved in the full lifecycle of AVs and other transportation technologies.



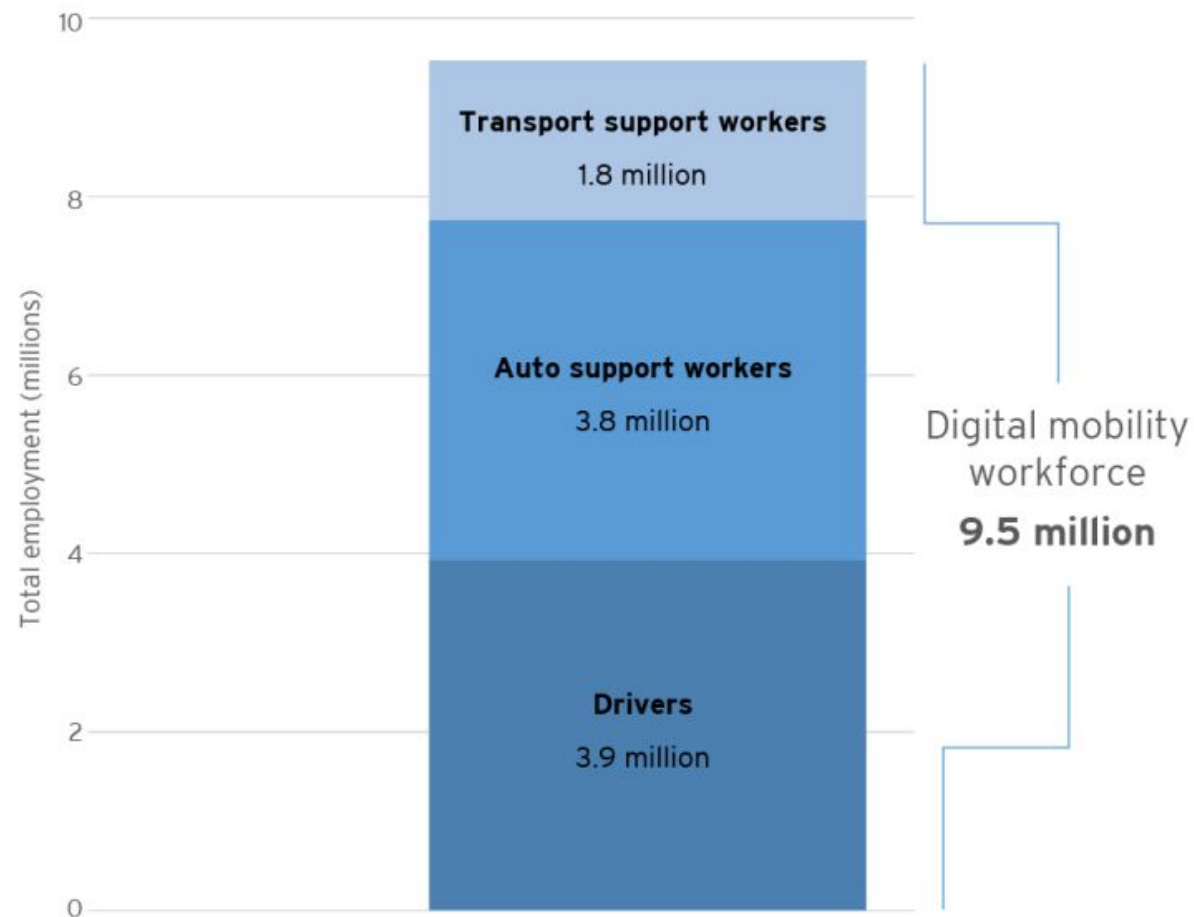
# Workers in digital mobility include 9.5 million workers across 329 occupations



Photo source: Unsplash

FIGURE 1

Workers in digital mobility by occupation category  
2017



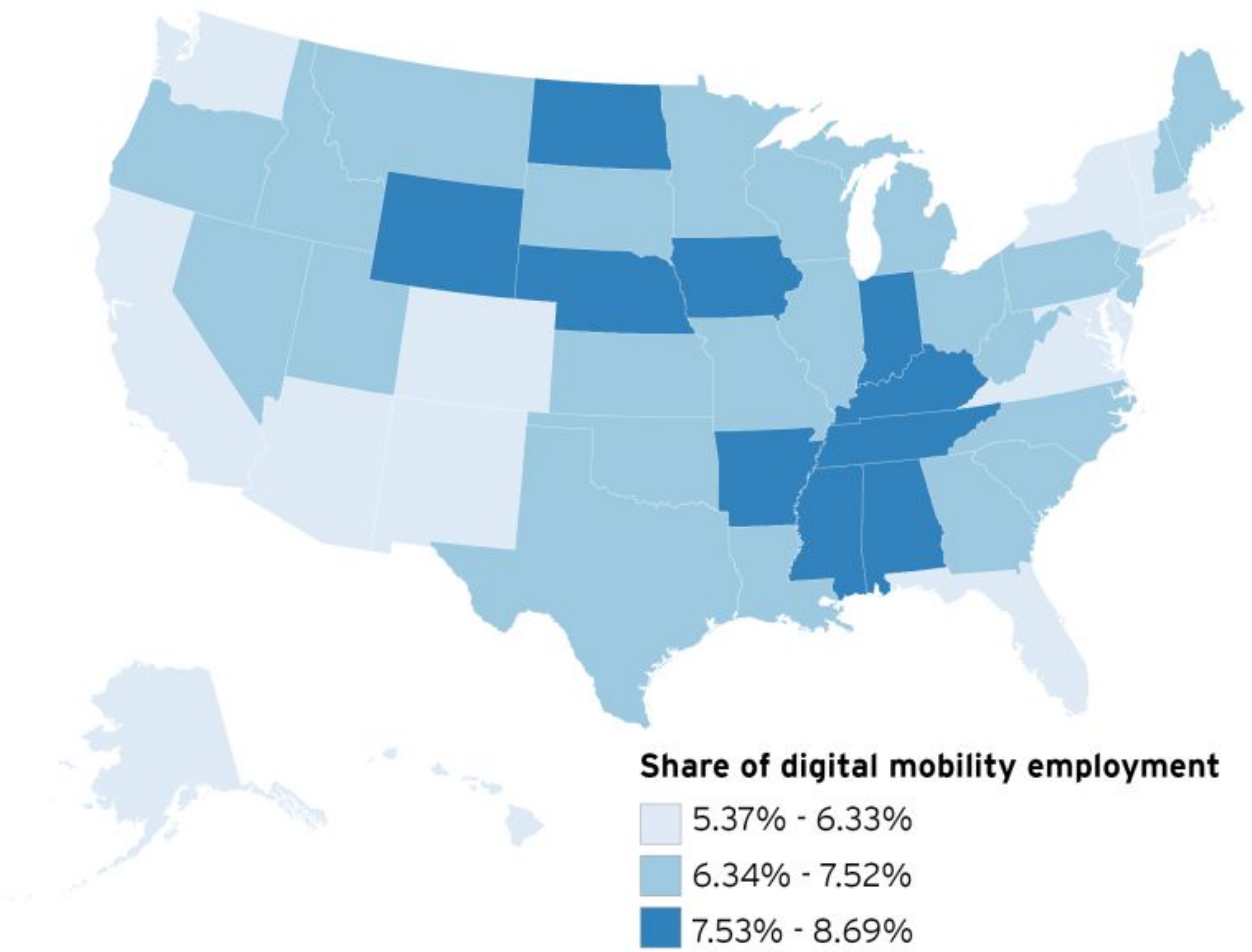
Source: Brookings analysis of BLS Occupational Employment Statistics



# Digital mobility workers are concentrated in transportation and manufacturing hubs

MAP 1

Share of digital mobility workers by state, 2017



Source: Brookings analysis of BLS Occupational Employment Statistics



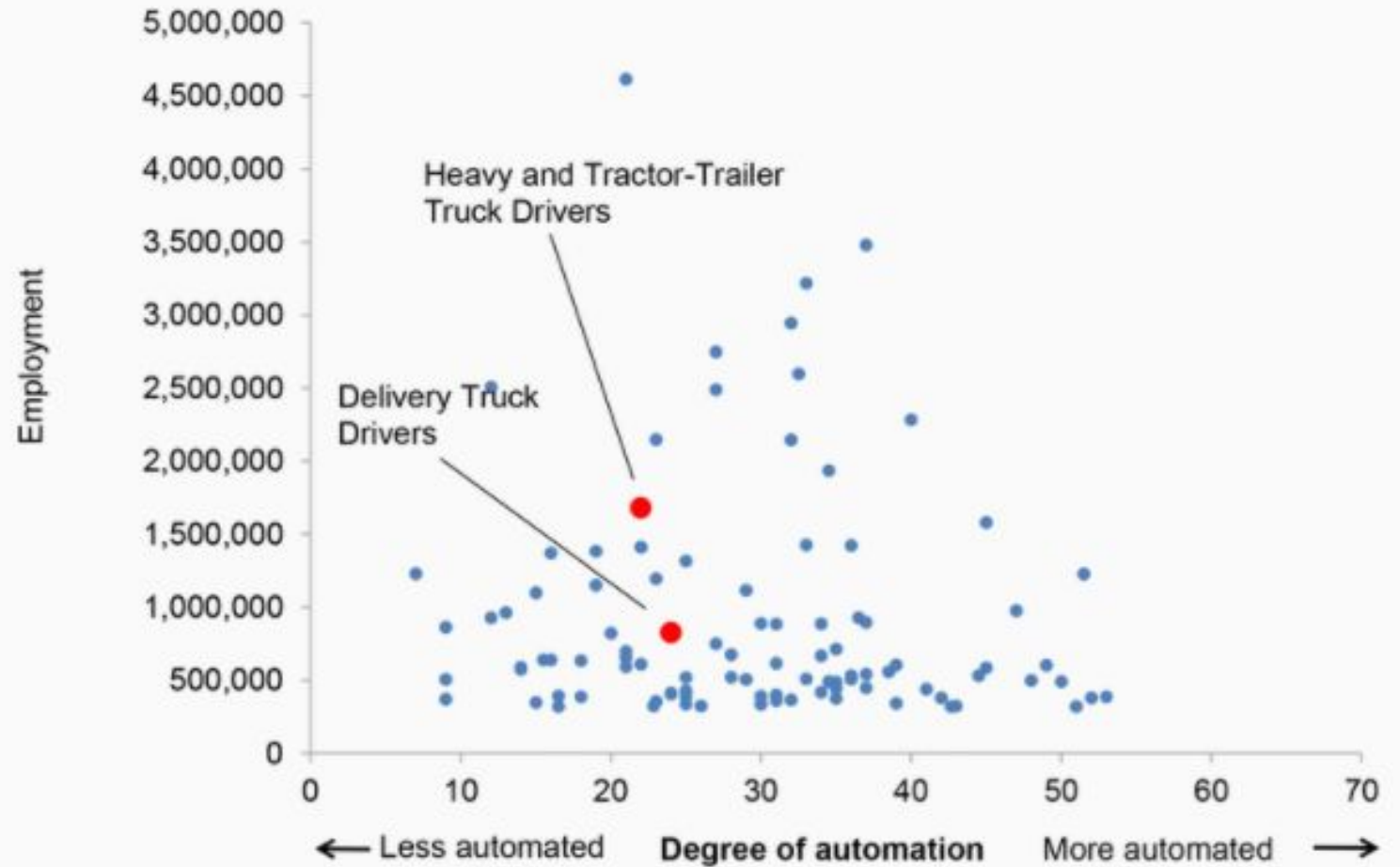
Photo source: *Unsplash*

# Need to think about skills, training, and varying degrees of automation



Photo source: Unsplash

**Degree of automation for the 100 largest occupations, by employment, 2015**



Source: Brookings analysis of O\*NET and BLS Occupational Employment Statistics data

**B** Metropolitan Policy Program  
at BROOKINGS



# Recognizing barriers to hiring, training, and retaining infrastructure workers

An aging sector that lacks diversity and struggles to attract workers



Difficulties defining needed skills and creating portable, versatile credentials



Challenges onboarding prospective workers and developing talent





There needs to be a **new infrastructure workforce playbook** to accelerate thinking and action

1. Employer-driven actions, developed and executed internally
2. Regional actions, driven in concert with other community partners
3. National- and state-level actions, designed to build additional financial and technical capacity locally

The background of the slide is a photograph of construction equipment. In the foreground, several yellow and green hard hats are hanging on a red metal structure, likely part of a crane or scaffolding. The image is slightly blurred and has a dark, semi-transparent overlay to make the white text stand out.

# Shape, scale, and trajectory: An overview of current and future transportation sector employment BROOKINGS

Joseph  
Kane

Brookings Metropolitan Policy Program  
jkane@brookings.edu

October 21, 2019

*Photo source: Unsplash*