

# The Hudson Valley Infrastructure (and employment) Gap

A report on the funding and workforce needs for  
roads, bridges, water and sewer infrastructure in  
the Hudson Valley

Adam Bosch  
President & CEO  
Hudson Valley Pattern for Progress



# The Hudson Valley Infrastructure Gap

*A critical shortage of funding and skilled  
workers to care for our public works*



# What is Pattern?

- Founded in 1965 by the region's academic, business, nonprofit, utility and union leaders
- Independent research and planning organization to examine issues that affect the quality of life, and provide solutions to help communities

## Original articles of incorporation

- a. To promote and preserve the health, education, safety, physical beauty, resources, economic vitality, and general welfare of the Hudson Valley region of the State of New York.
- b. Without any political aims or affiliations, to conduct factual studies of conditions in and affecting the region, to promote regional planning, research and development, and to sponsor plans and projects for the betterment of the Hudson Valley.
- c. To be of assistance to other organizations and groups who are concerned with the welfare and betterment of the Hudson Valley, and to encourage county, city, town and village planning within the region.



- 6 employees – professional planners and policy researchers
- Major initiatives on housing and main street revitalization
- Also work on infrastructure, community planning, transportation and other regional planning issues
- Events
- Training

# Research scope

- Local governments responsible for roads, bridges, water and sewer infrastructure
- Financially constrained in their ability to maintain and rehabilitate them
- 250 counties, towns, villages and cities
  - Many more individual water and sewer districts
- Federal infrastructure money on the way to make capital improvements
- Analysis of conditions, rate of investment, needs
  - Interviews
  - Surveys
  - Data analyses
  - Literature reviews
- Current infrastructure conditions
- Trends in infrastructure spending
- Practical and policy recommendations for improvement



**Wurts Street Bridge over the Rondout Creek in Kingston, Ulster County**



# Findings – Staff shortages

- Finding employees is becoming increasingly hard for DPWs and water/sewer utilities
- Baby boomer generation retiring
- Younger cohorts are smaller in number, and less interested in this work
- Difficulty recruiting in many sectors
  - Engineering
  - Certified water and wastewater operators
- Utilization of outside contractors to operate plants instead of internal employees
  - Creates problems for institutional knowledge, security, wet-weather operations, etc.
- Other industries facing the same challenge → where will the next generation of workers come from?



**Yonkers Wastewater Treatment Plant**

# Findings – Pandemic effects

- The Covid-19 pandemic caused a temporary reduction in infrastructure investments
- Governments tapped the brakes on disbursements of funds
  - Financial uncertainty
- Safety protocols
- Missed time by construction workers because of illness

**Annual Municipal Infrastructure Expenditures (in millions) of Hudson Valley Municipalities- Inflation Adjusted**

	2018	2019	2020	2018 to 2019 \$ Change	2018 to 2019 Percent Change	2019 to 2020 \$ Change	2019 to 2020 Percent Change
<b>Roads</b>	\$407	\$420	\$351	\$13	3%	-\$69	-16%
<b>Bridges</b>	\$5	\$7	\$3	\$2	29%	-\$3	-48%
<b>Sewer</b>	\$160	\$179	\$170	\$19	12%	-\$	-5%
<b>Water</b>	\$254	\$258	\$241	\$4	2%	-\$17	-6%
<b>Total</b>	<b>\$826</b>	<b>\$864</b>	<b>\$766</b>	<b>\$38</b>	<b>5%</b>	<b>-\$98</b>	<b>-11%</b>

*Source: Pattern for Progress Analysis of data from the NYS Office of the Comptroller*

# Findings – Local capacity and workload

- Densely populated cities and villages have a different capacity for work than small, rural towns
- Difference in budgets, time for planning, support for grant writing and applications for state/federal funds
  - Application and reporting processes for state/federal funds cause some smaller municipalities to avoid trying
  - Smaller municipalities do not have the internal capacity to apply
- Small municipalities still have a substantial road network
  - Fewer staff requires more broad-based skills
  - Smaller budget makes investments difficult and planning all but impossible
  - Desire to keep taxes low prevents proper cycles of investment
  - Less time for strategic planning or asset management planning
  - More prone to loss of institutional knowledge as a result of one retirement

# Findings – NYS Tax Cap

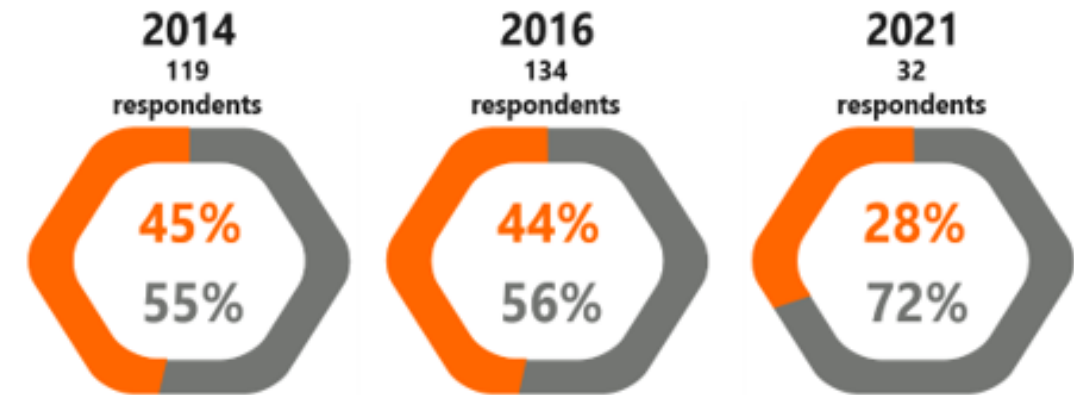
- In 2011, NYS Tax Cap limits annual increase in taxes levied to 2 percent or the rate of inflation, whichever is smaller
- Property taxes do not generally support water/sewer
- Deferred maintenance to infrastructure are not immediately felt → candidate for cuts at the local level under certain tax-cap scenarios
  - Attrition or downsizing of public works staff more likely to happen
- Capital projects are bonded and therefore not directly affected by the tax cap
- Spending on infrastructure since the tax cap was implemented has gone up \$66.7 million
  - 3 percent per year
  - 0.9 percent per year when adjusted for inflation

# Findings – Capital planning and asset planning

- The complexity and long life cycle of infrastructure systems require strategic planning
  - Capital plans
    - Outline the dates, projects and sources of funds that will be used for capital upgrades to infrastructure
    - Also look at the debt being paid off and the debt being accumulated in balance
  - Asset management plans
    - For municipalities to catalogue all their assets
    - Set schedules for regular maintenance of all systems and assets
    - Track the life-cycle replacement timeline so that assets are being rehabilitate or replaced before failure

**Does your community have a capital improvement plan?**

**Responses across the Hudson Valley...**





# Findings – Sewer and Water

- Early 2010s, NYS DOH estimated \$36 billion needed to ensure safe drinking water and sewer service
- \$61.9 million awarded to 25 projects in the last WQIP funding
- 2017 Clean Water Infrastructure Act committed \$2.5 billion toward water infrastructure and water protection
- A total of nearly \$4 billion appropriated since 2017
- Only 11 percent of the funds were spent as of March 2020
  - Reimbursement model is not working
  - State tapped the brakes on disbursement during pandemic
  - Small communities cannot get through process → bump up against bonding limits



**Kensico Reservoir, Valhalla, Westchester County**

Update: Since FY 2015-2016, \$4.9 billion allocated for clean water projects. As of March 2022, \$913.4 million, or 18.6 percent, has been expended, according to the NYS Comptroller's Office.

# Findings – Infrastructure Investment and Jobs Act

- Reauthorized and increased funds for the Highway Trust Fund, which was about to become insolvent.
- Created the *new* Promoting Resilient Operations for Transformative, Efficient and Cost Saving Transportation (PROTECT) Program.
  - Program focuses on infrastructure resiliency and hazard mitigation \$7.3 billion over five years.
- Within the Surface Transportation Block Grant, increased the set-aside for bridges that are not part of the National Highway System, thus increasing the funding available for bridges owned by counties and other municipalities.
- Created the *new* Bridge Investment Program designed to reduce the number of bridges that are in “Poor” condition or bridges that are in “Fair” condition but at risk of declining into “Poor” condition.
- Created the *new* Reconnecting Communities Pilot Program
  - Planning grants for feasibility studies for infrastructure investments that improve accessibility and facilitate economic development.
- Implemented USDOT requirements to streamline federal permitting.
- Authorized \$29.3 billion over five years for State Revolving Loan Funds (SRFs) for clean water and drinking water SRFs.

# FAST FACTS



**Nearly 80% of the Hudson Valley gets its drinking water from a public water system**

	Estimated Population Served	2020 Population	Estimated Percent of Population Served
Columbia	27,875	61,570	45%
Dutchess	202,060	295,911	68%
Greene	28,457	47,931	59%
Orange	317,281	401,310	79%
Putnam	36,916	97,668	38%
Rockland	303,513	338,329	90%
Sullivan	48,392	78,624	62%
Ulster	95,615	181,851	53%
Westchester	925,663	1,004,457	92%
<b>Hudson Valley</b>	<b>1,985,772</b>	<b>2,507,651</b>	<b>79%</b>

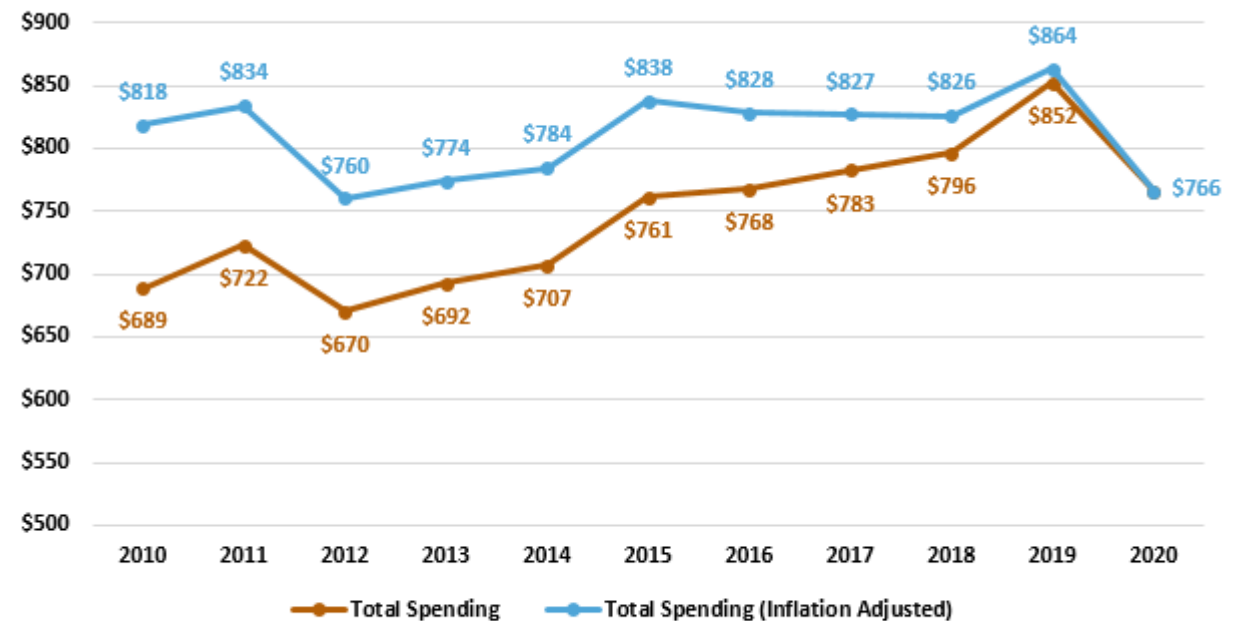
*Source: Pattern for Progress analysis of data from the New York State Department of Health and the U.S. Census Bureau, 2020 Decennial Census*



# FAST FACTS

Spending on infrastructure is essentially flat over the past decade when adjusted for inflation

Total Infrastructure Spending (in millions) of Hudson Valley Municipalities



Source: Pattern for Progress analysis of data from the NYS Office of the Comptroller

# Practical recommendations

1

## Hudson Valley municipalities need to engage in asset management planning and capital planning

- Digital asset management systems are powerful tools to track and maintain infrastructure
  - Catalogue every pump, valve, guiderail, etc.
  - Reminds your crew for regular maintenance intervals
  - Tracks life-cycle timeline for replacement
  - Provides an objective rationale for capital/expense money that budget managers respond to
  - Plugs seamlessly into your capital planning process
  - This is practical...not wonky



# Practical recommendations

## 2

### Join relevant trade associations and groups

- Municipal employees can engage with counterparts to learn about best practices, training, ideas for purchasing, and have the ability to shape policy and lobbying agendas.
  - ⓘ NYS Association of Town Superintendents of Highways
  - ⓘ American Public Works Association - New York Chapter (APWA)
  - ⓘ American Water Works Association (AWWA)
  - ⓘ New York Water Environment Association (NYWEA)
  - ⓘ National Association of Wastewater Technicians (NYWAT)
  - ⓘ New York Society of Professional Engineers (NYSSPE)
  - ⓘ American Society of Civil Engineers (ASCE)
  - ⓘ New York State Conference of Mayors (NYCOM)

# Practical recommendations

3

## Establish regular moments to convene with neighboring munis

- Cross-border collaborations yield good ideas, cost savings, identify common problems and solutions.
- Some already happen among municipal employees in the Hudson Valley.

4

## Build it now!

- Several factors will likely cause the price of capital projects to increase in the coming years
  - Labor shortages
  - Interest rates going back up
  - Material costs due to supply chain disruptions

# Practical recommendations

7

## Carefully consider cost/benefit of outsourcing work

- Outsourcing work might help when in-house staff does not have the time or expertise to complete certain projects
- Contractors are not always cheaper, and internal staff benefit from institutional knowledge of facilities

8

## Capture institutional knowledge before it's gone

- Open communication and succession planning are vital to ensure that institutional knowledge is not lost when long-time employees and senior leaders head toward retirement.
- Consider models of mentorship for younger employees, or apprenticeships
- Create written planning documents, asset management plans, SOPs and other guides as often as possible

# Policy recommendations

1

## Create an infrastructure academy

- In recognition of the demand for qualified professionals in infrastructure-related fields, NYS should create an infrastructure academy and recruit people to train at it.
- The academy could be a public-private partnership with the state administering the program and private firms in the industry providing financial support or participating as instructors
- This would mitigate the labor shortage and create a pipeline for skilled workers in well-paying jobs

# Policy recommendations

2

## **Establish the capital asset and infrastructure council recommended by Comptroller DiNapoli**

- Comptroller reports found there is no coordinated approach to capital planning and financing at the state level
- Money dedicated to the state Highway and Bridge Trust Fund was regularly being siphoned off for other non-capital purposes
- Would create a panel to guide capital replacement inventories, assessments, replacement cycles, and produce long-term assessments and strategic plans to guide investments

3

## **Provide more grant funding for planning and asset management**

- Wastewater Engineering Planning Grants provided by EFC should be replicated and expanded to provide planning grants for other types of infrastructure
- The ability to inventory, track, maintain and replace infrastructure on a regular cycle is vital and cannot be done without increasing the local capacity for planning



# Employers vs. Job Seekers

## Employers: Difficult positions to fill

### Hudson Valley

Administrative

Direct Support Professional

Laborer

CDL Driver

Registered Nurse

Administrative

Social Worker

Driver

Licensed Practical Nurse

Carpenter

Housekeeper

Sales

Accountant

Project Manager

Mechanic

Industry	2021		2022	
	Last Job	Seeking Work	Last Job	Seeking Work
Agriculture, Forestry, Fishing	<1%	1%	2%	2%
↑ Utilities	1%	1%	2%	3%
↑ Construction	4%	5%	10%	8%
Manufacturing	5%	5%	5%	4%
Wholesale Trade	1%	1%	2%	2%
↓ Retail Trade	13%	9%	10%	7%
Transportation, Warehousing	7%	7%	6%	6%
Information	2%	3%	3%	4%
Finance and Insurance	4%	4%	5%	5%
Real Estate, Rental & Leasing	1%	2%	2%	3%
↑ Prof., Scientific, Technical	4%	6%	5%	6%
↑ Management of Companies	3%	3%	4%	5%
Admin. & Waste Mgt. Services	4%	5%	3%	4%
Educational Services	6%	6%	6%	6%
↓ Health Care & Social Asst.	16%	18%	13%	11%
Arts, Entertainment & Rec.	5%	6%	5%	6%
↓ Accommodation & Food Svc.	11%	6%	6%	5%
Other Services	8%	7%	7%	6%
Public Administration	3%	6%	6%	6%

# Employers vs. Job Seekers

## Employers: Difficult positions to fill

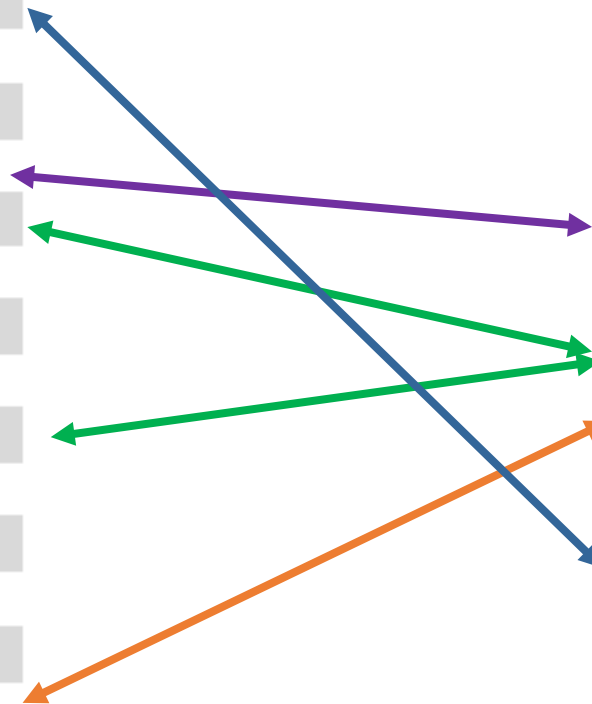
### **Hudson Valley**

Administrative  
Direct Support Professional  
Laborer  
CDL Driver  
Registered Nurse  
Administrative  
Social Worker  
Driver  
Licensed Practical Nurse  
Carpenter  
Housekeeper  
Sales  
Accountant  
Project Manager  
Mechanic

## Job seekers desire training for the following skills

### **Mid-Hudson Region**

Digital skills  
Microsoft  
Technology  
CDL  
Excel  
Health Care  
Project management  
Management  
Administrative  
Business Management



# Challenges ahead

- Housing – the Hudson Valley has built less housing than other comparable areas across the county, while constriction in the supply and migratory forces have caused prices rise significantly
- Child care – the high cost of this service is keeping women out of the workforce, causing young families to have fewer children, and is equivalent to a mortgage payment for some families
- College debt – continues to weigh down many young families, preventing them from saving for the down-payment for a home or affording children
- Demographics – our region is having fewer children, losing young people to outward migration, and facing a retirement wave from the Baby Boomers
- Generational shifts – desirable jobs, pay expectations, the desire to work remotely or have more time off

## The Pandemic Created a Child-Care Crisis. Mothers Bore the Burden.

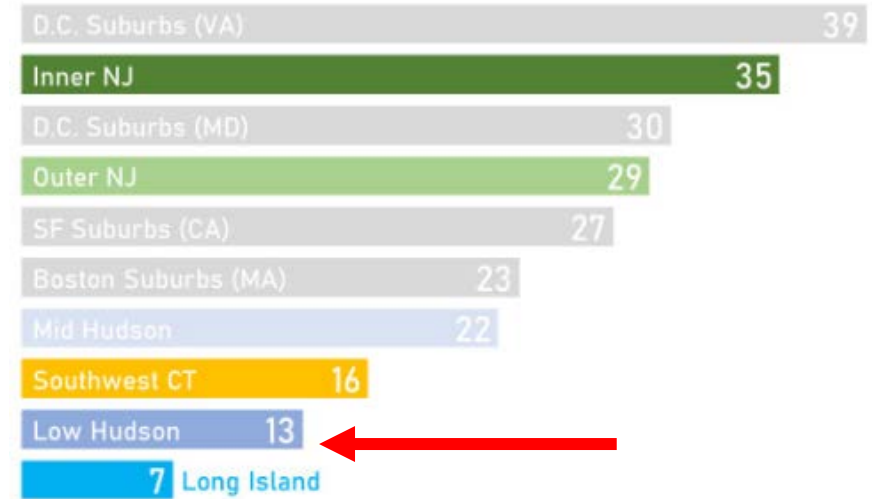
By Claire Cain Miller Photographs by Bethany Mollenkof  
May 17, 2021

This generation of women had achieved what no other had. They were part of a monumental shift in the roles women could play in American society that began in the late 1970s and continues today — “[the quiet revolution](#),” the economist Claudia Goldin calls it. In 1955, women were one-third of the American labor force — they were unlikely to attend college, and if they worked, they were mostly limited to certain jobs, like teacher or secretary. That share slowly expanded until, in January 2020, women achieved a milestone: They made up [more of the work force](#) than men.



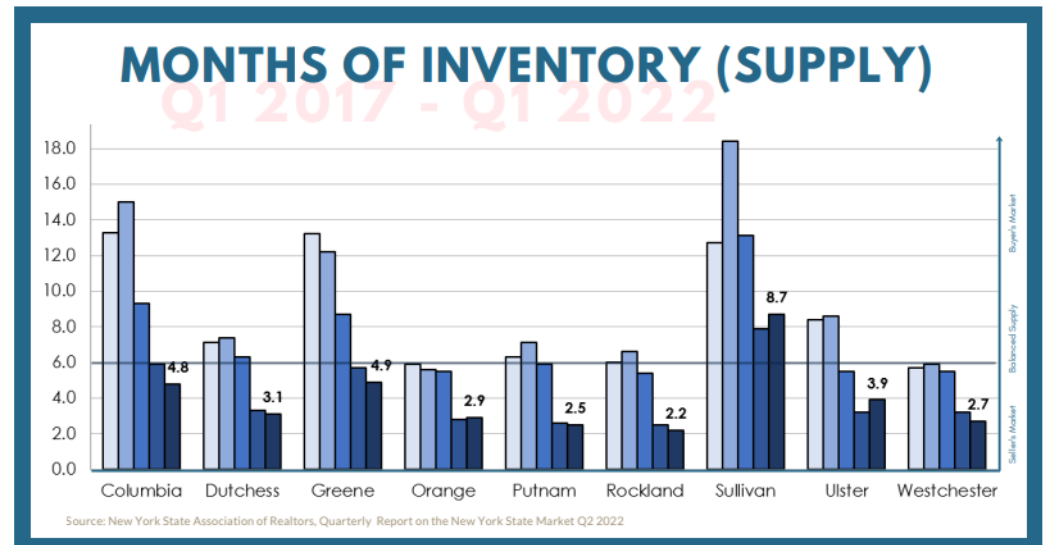
# Home ownership

- Housing activity and affordability usually leads commercial
- For two decades, our region has built less housing than comparable metro suburbs
- The cost of homes have skyrocketed in recent years due to several factors
  - Constriction in the supply
  - Migration and competition driven by the pandemic
  - Cost of materials, labor and supply chain shortages
  - And now...rising interest rates
- Westchester County only has 2.7 months of housing supply → healthy markets have at least 6 months
- Median sale price in Putnam has risen since 2019 from \$367,000 to \$505,000.



Suburban Housing Units Permitted per 1,000 Residents, 2012-2021

Sources: U.S. Census Bureau BPS Annual Files; NYC DCP Housing Database v22Q2; U.S. Census Bureau 2020 Redistricting Data



Source: New York State Association of Realtors, Quarterly Report on the New York State Market Q2 2022

# Rental housing and cost of living

## OUT OF REACH: COST OF LIVING

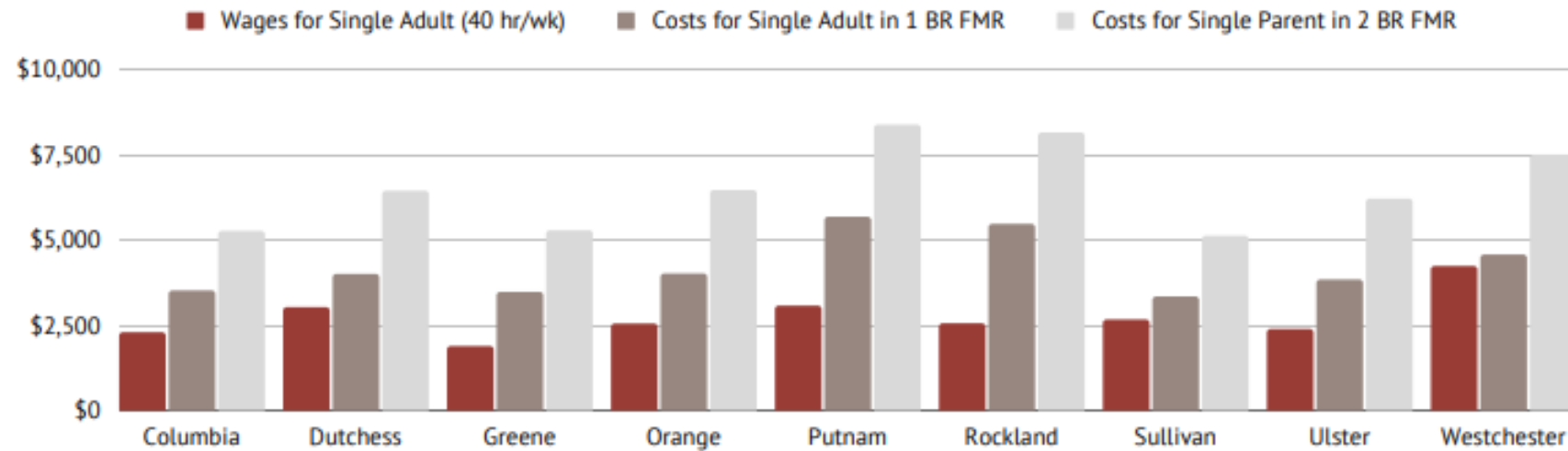
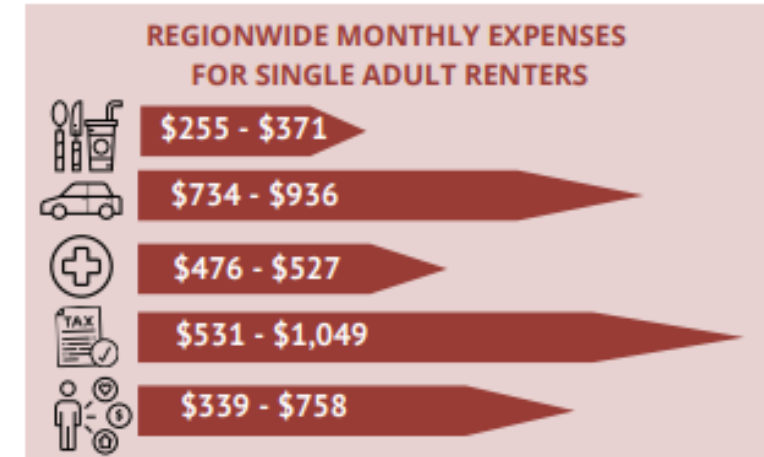


Chart 5. Monthly wages for a single adult alongside monthly costs for single adults and single parents. Sources: NLIHC 2022; EPI 2022.



- Pattern examined fair-market rents combined with modest yet adequate living expenses
- Single renters cannot afford to live in any of our nine counties without help from a roommate, spouse, working long hours, maintaining a severely restrained standard of living, or government assistance
- Single renters in Putnam County fall short by \$336 per month
- Two renters cover a 2BR by about \$400; fall short of a 2BR by less than \$1,000



# Demographics

	New York State		Mid-Hudson	
	Population	Percent	Population	Percent
Age				
Age 24 & Under	5,865,692	30.1	741,804	31.9
Age 25 – 34	2,865,358	14.7	270,544	11.7
Age 35 – 44	2,428,957	12.4	278,811	12.0
Age 45 – 54	2,548,713	13.1	323,297	13.9
Age 55 – 64	2,584,427	13.2	318,675	13.7
Age 65 & Over	3,221,702	16.5	388,835	16.7

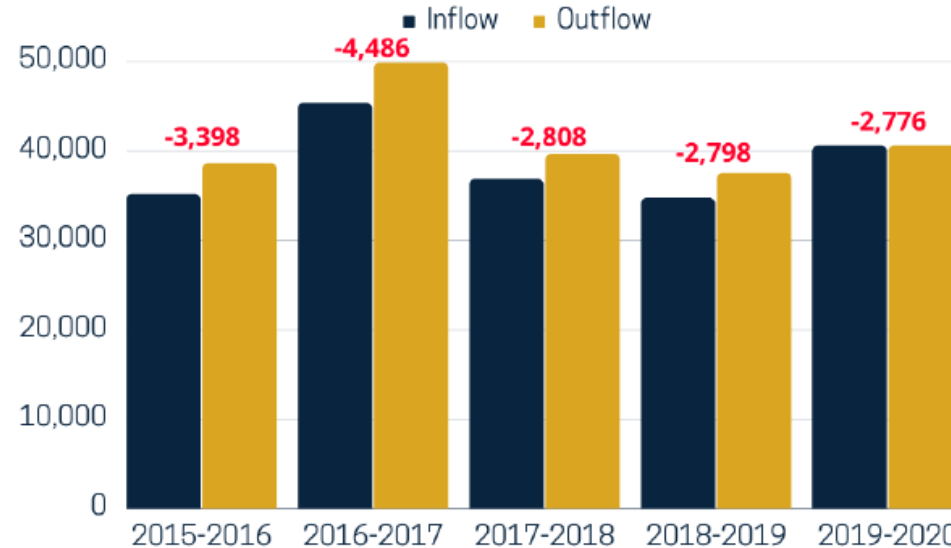
**The Hudson Valley has a workforce math problem...**

641,972 people in the two oldest workforce cohorts – 549,355 people in the two youngest =

A 92,617 difference in the size of the potential labor pool

# Demographics

## Migration inflow / outflow for Putnam County



### Westchester County Outflow

County	State	Number of People
NYC Counties	NY	9,616
Fairfield County	CT	5,486
Long Island Counties	NY	1,275
Palm Beach County	FL	851
Bergen County	NJ	790
New Haven County	CT	689
Los Angeles County	CA	427
Hudson County	NJ	403
Essex County	NJ	334
Broward County	FL	333

### Westchester County Inflow

County	State	Number of People
NYC Counties	NY	25,021
Fairfield County	CT	1,834
Long Island Counties	NY	1,193
Hudson County	NJ	650
Bergen County	NJ	421
Los Angeles County	CA	292
Palm Beach County	FL	262
New Haven County	CT	245
Middlesex County	MA	159
San Francisco County	CA	152

## Live births in Putnam County

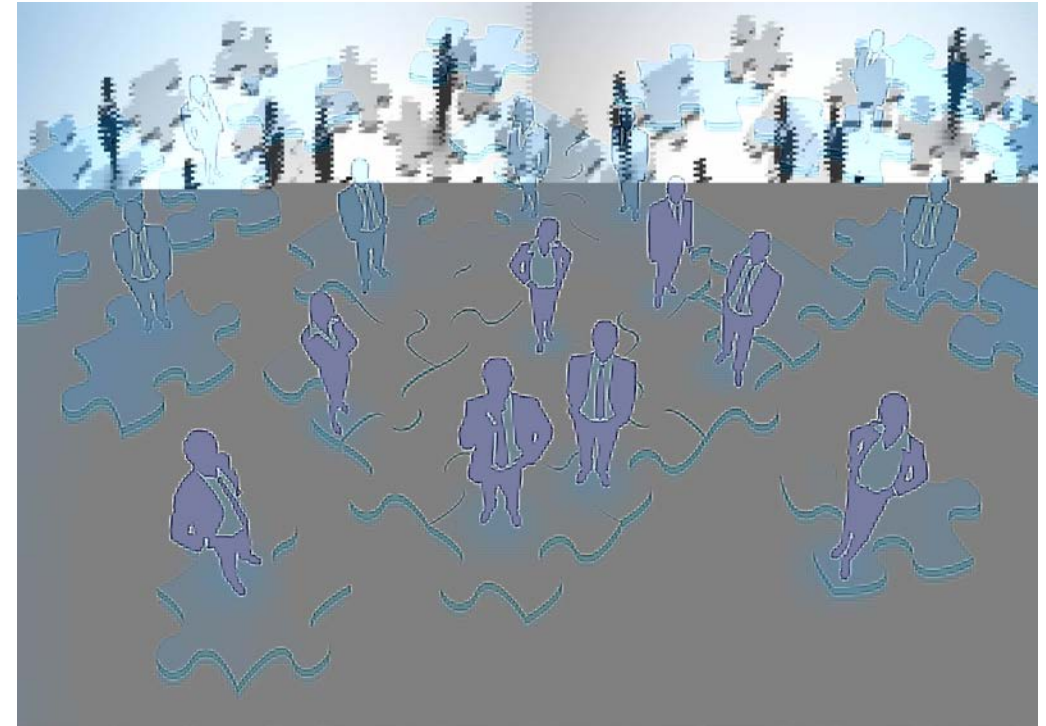
Year	Births
1997	12,655
2000	13,300
2010	11,104
2019	9,906
Change 1997-2019	- 2,749

The Hudson Valley has lost population to outward migration and families are having fewer children.

In Putnam County migration is flat and families are having significantly fewer children. Average persons per household is now 2.7.

# Conclusions

- There is misalignment between the workforce we need and the workforce we have
  - Quantity and sector misalignment
- The greatest number of openings tend to be in jobs that do not require a four-year degree
  - Construction trades, hospitality, warehouse, drivers, lower end medical services
- The cost of housing, childcare, college debt and other expenses are making it hard for young families to live here
  - They leave or they have fewer children, which exacerbates our workforce shortage
  - We are not building enough across the entire spectrum of housing
- The pandemic and other forces have created a generational change in the desires and expectations of the workforce
  - More time off and schedule flexibility is the top priority



**Business will not come to the Hudson Valley if we do not have a workforce to fill their open positions, and the housing, childcare and other supportive services to sustain that workforce**

# Questions?

**YOU'RE INVITED!**

**Hudson Valley Pattern for Progress**  
*Presents*  
**Our Annual Dinner**

**WEDNESDAY, NOVEMBER 2, 2022**  
**5:30 P.M. - 8:30 P.M.**

The Academy  
Poughkeepsie, N.Y.

For more information,  
visit [pattern-for-progress.org](https://pattern-for-progress.org),  
call **845-565-4900**  
or email [rdegroat@pfprogress.org](mailto:rdegroat@pfprogress.org)

**HUDSON VALLEY**  
**PATTERN for PROGRESS**



HUDSON VALLEY **PATTERN** *for* **PROGRESS**  
**THE PATTERN FELLOWS PROGRAM**  
2022 - 2023

## OUR SHARE OF THE REGION

**An expert review of the Hudson Valley and our part in making it work**

We invite you to join the The Pattern Fellows, a regional leadership training program for mid-career professionals. The program develops regional leaders by helping participants look beyond their personal areas of expertise, exposing them to regional thinking about their roles in the growth, equity and sustainability of the Hudson Valley.

During its 16th year the program will focus on "Our Share of the Region: An expert review of the Hudson Valley and our part in making it work." Pattern staff and expert guests will teach participants about the essential topics that drive the Hudson Valley now and in the future. Those topics include the following:

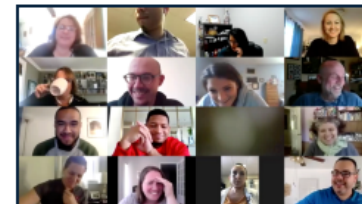
- Housing
- Water
- Healthcare
- Transportation
- Tourism
- Energy
- Solid waste
- Zoning and land use....and more!

Pattern fellows will collaborate with special guests to explore the challenges, opportunities and jobs connected to each topic. Fellows will also utilize research to consider the broader community's role in each topic. In addition, Pattern experts will teach special skills classes on communication, research skills, leadership and more.

We look forward to having you as a member of the 2022-2023 class of Pattern Fellows!

### APPLY NOW

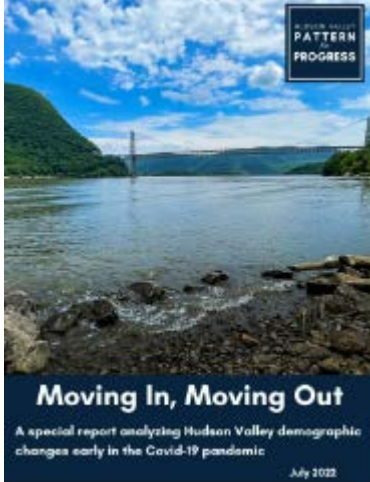
[Pattern-for-Progress.org/Fellows](https://Pattern-for-Progress.org/Fellows)



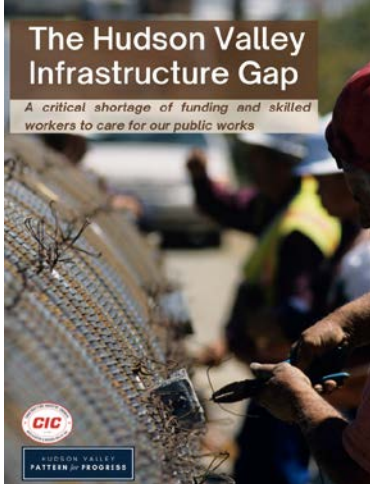
### NOMINATE

*Do you know an incredible emerging leader in your organization? An inspiring person from your community who should be a Pattern Fellow?*

**Tell us about them!**  
[Pattern-for-Progress.org/Nominate](https://Pattern-for-Progress.org/Nominate)



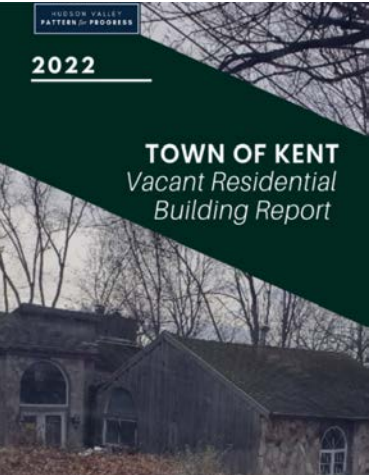
**Moving In, Moving Out**  
A special report analyzing Hudson Valley demographic changes early in the Covid-19 pandemic  
July 2022



**The Hudson Valley Infrastructure Gap**  
A critical shortage of funding and skilled workers to care for our public works  
CIC Hudson Valley Pattern for Progress



**HUDSON VALLEY**  
REGIONAL HOUSING MARKET REPORT  
HUDSON VALLEY PATTERN for PROGRESS



**2022**  
**TOWN OF KENT**  
Vacant Residential Building Report  
HUDSON VALLEY PATTERN for PROGRESS



# Get in touch...

## Construction Industry Council of Westchester & Hudson Valley

John Cooney Jr., Executive Director

Maria Donovan, Communication Director  
(914) 631-6070

## Hudson Valley Pattern for Progress

Adam Bosch, President and CEO

Eric Pierson, Senior Research Planner  
(845) 565-4900

