

HUDSON VALLEY PATTERN *for* PROGRESS

THE PATHWAY FORWARD

The Intersection of:

DIGITAL VALLEY

MAIN STREET

WORKFORCE

HOUSING

FORWARD



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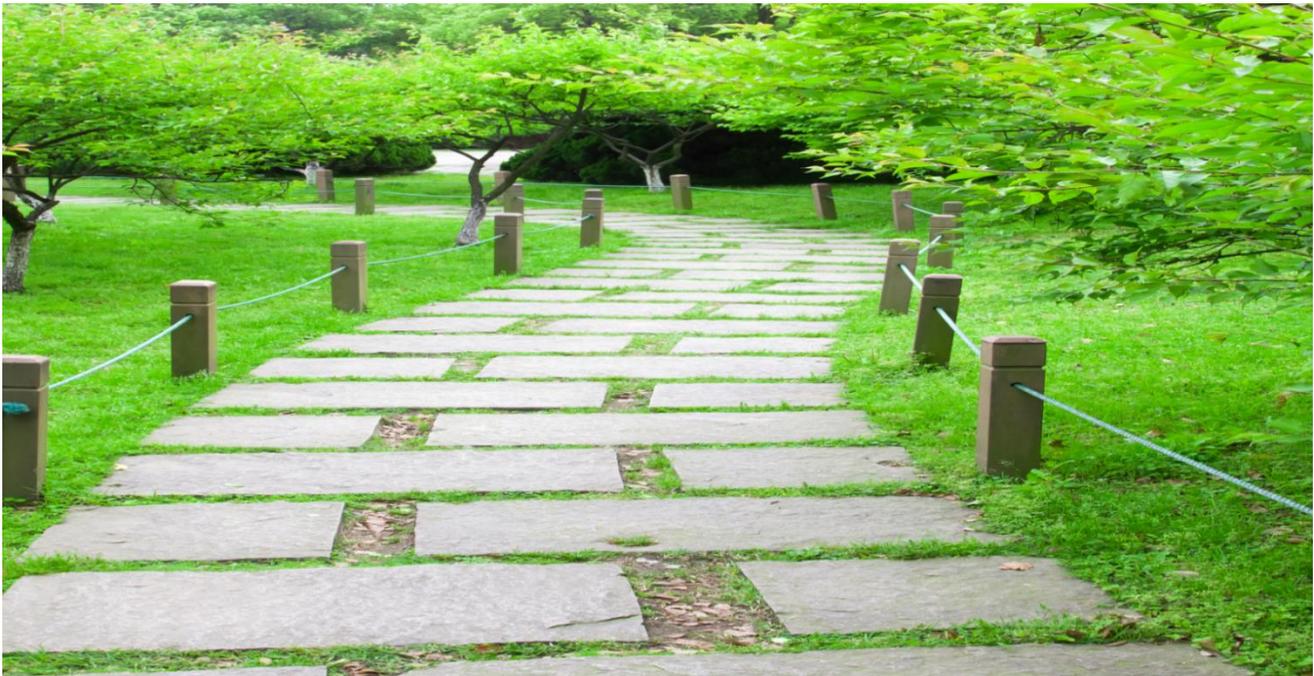
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INTRODUCTION

THE PATHWAY FORWARD – WHERE DO WE START?



As the region surveys the damage incurred by the pandemic and the economic disruption, many businesses and institutions are thinking about the best way forward.

To assist in that process, Pattern has convened several working groups of its board members to discuss and determine what happened, and to suggest what might be done in response. Pattern, as an organization, selected four priorities for immediate action as the region is set to move forward. The findings in this report reflect the collective wisdom of Pattern as an organization, representing leaders throughout the region who believe these issues are worthy of regional attention. The set of targeted recommendations and strategies outlined in “The Pathway Forward” are derived from the many issues presented by the pandemic that are urgent and require immediate attention. These identified priorities are not meant to be definitive or exclusive of others that have arisen.

Pattern considers the set of strategies included in “The Pathway Forward” as a vehicle to shine light on primary issues and spark action. This report should be viewed as Pattern’s first effort to react to the changes brought upon the region by the pandemic.

Pattern believes this stage of the “recovery” is aligned with the “K-shaped” theory predicted by some economists. A K-shape theory is the uneven and often inequitable path of economic recovery across different industry sectors and demographics. There is great disparity among socio-economic cohorts, with some thriving and others struggling post-pandemic. Adopting this perspective informs these strategies and recommendations contained in this report. Priorities may shift, as further social and economic impacts of the pandemic arise and the federal stimulus funding to support the recovery is better understood.

With these caveats in mind, Pattern suggests the region immediately needs to focus on the following four areas – Workforce, Housing, MAIN STREET Hudson Valley and the “Digital Valley.” *While these topics could stand- alone, they are also deeply entwined.*

GETTING BACK TO WORK is priority one. Both the pandemic's impact and the K-shaped recovery suggests special attention needs to be focused on those hardest hit. This is not going to be easy, as some of the most affected sectors such as small business, retail, and hospitality and tourism employ a disproportionate number of black and brown workers for whom re-employment has not occurred.

There is no other aspect of the post-pandemic world that has been so disrupted. It will take years to establish new business models.

The integration of:

- technology,
- the growing concept of remote work,
- the re-alignment of skillsets,
- supply chain issues leading to delays in production,
- the lack of housing, and
- social and economic inequality,

all combine to create enormous uncertainty in the workforce.

As traditional work hours and place of work has changed, an "equilibrium" has yet to be defined. This creates additional challenges for the post-pandemic workforce.

To address this, Pattern has worked with the economic development and workforce leaders in the nine counties in our footprint to create the Job Connection Task Force (JCTF). Pattern is grateful for the participants in this effort, as they have embraced the mission of the JCTF to improve the region's workforce as it relates to economic development. The workforce development officials have many programmatic challenges in providing employment and training services. The economic development leaders are faced with an equally daunting task - to integrate new and re-establish existing businesses throughout the region. It is critical for the workforce development programs to be elevated as an equal

partner with the region's economic leaders to ensure their efforts to attract and retain jobs are matched by the ability to recruit and supply the same. The JCTF is focused on a unique concept - building a regional workforce.



The region's workforce needs to adjust to support the most prominent industry sectors. The region needs to ensure training and apprenticeship programs are in place to better position new employees for long-term success in the workforce.

Finally, greater emphasis must be placed on preparing high school students to enter the workforce. For approximately 50% of the region, high school is the last step of their formal education. By adjusting existing programs, the region has the opportunity to help students achieve better outcomes. For those who desire, and can afford college, higher education remains an important alternative.

Getting people back to work is job one and therefore our first priority.

The nine counties in Pattern's footprint are:

Columbia, Dutchess, Greene, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester

The second strategy is **to increase the supply of HOUSING to address the lack of inventory and soaring prices**. While Pattern has long been an advocate for affordable and workforce housing, Pattern is heartened that the issue of housing for all has risen as a top priority. Like never before, elected officials have taken up the banner of the need for affordable and workforce housing.

Pattern assisted the counties of Westchester (pre-pandemic), Ulster (during the pandemic), and has recently embarked on studies in the cities of Hudson and Poughkeepsie to research the housing needs of their residents. However, it was the leadership of County Executives, and some local elected officials, that led to the prioritization of housing for all of their residents. These efforts have led to both new strategies and investment of resources to try to solve the needs of their residents.

Housing and the ability to attract and retain the post-pandemic workforce go hand in hand. In addition to

employment opportunities, the residents of the Hudson Valley also need an affordable place to live. The lack of a balanced supply of housing at all levels, from affordable to workforce to market rate, is apparent. The shortage is real.

Pattern's Center for Housing Solutions, along with its partners, will continue to look for new solutions to address this pervasive problem. Pattern cannot do this alone. The region must have a chorus of voices to express the need to increase the housing supply. Pattern urges municipalities to examine their land use, zoning regulations and comprehensive plans to be more inclusive and receptive to a diverse range of housing options. However, not all municipalities are on board and there is much work to be done. Now is not the time to place moratoriums on building.

Creating opportunities for affordable access to housing is essential to retaining our workforce and creating an equitable region.

The third strategy is the creation of **"MAIN STREET Hudson Valley"**. This program is designed to ensure that the revitalization of communities throughout the Hudson Valley, which was occurring pre-pandemic, continues. To do so, Pattern will establish "MAIN STREET Hudson Valley", which will combine current and new regional initiatives with the support of a highly experienced Board of Advisors. Its mission is to re-energize the momentum of the past ten years and to ensure the main streets of our communities are positioned to thrive. The program will seek community investment strategies that build upon the diversity of conditions within the region's cities, towns and villages. Investment strategies must provide local opportunities for employment while taking advantage of the many assets that our region has to offer. The region should understand there is no single solution

or model for promoting a main street. What worked yesterday may not work tomorrow.

Main street is not just about retail shops. The region needs to foster each community's vision for their main street, particularly in light of the economic devastation restaurants and small businesses have suffered over the last 14 months. Pattern intends to provide both resources and guidance, working in partnership with other community stakeholders, to assist in the efforts.

The main streets of tomorrow must be equitable, include housing to create walkable and healthy neighborhoods, and provide opportunities for local economic activity and entrepreneurship.



The final strategy is referred to as the **“DIGITAL VALLEY.”** This approach highlights the lack of broadband for all, and recognizes the region must advance the integration of technology and its many manifestations. People experience two worlds – one is physical, the other is virtual. The growth of the virtual world is outpacing the development of the physical environment, and planning is urgently needed to accommodate this new paradigm.

One of the most revealing fault lines of the pandemic was the inadequacy of broadband to support the needs of the region. Whether it was the lack of, the inability to access, or the unreliability of internet through existing broadband, the technological infrastructure was woefully deficient. From the ability to conduct virtual learning, to the necessity to obtain telemedicine or to work remotely, actual user experience was varied and highly dependent on last-mile problems of service or affordability. Furthermore, it was quickly determined at the onset of the pandemic, as more and more people were participating in remote work and education, that the existing broadband infrastructure could not meet the demands of the region. Nevertheless, the desire to create a “Digital Valley” is not limited to these areas. Municipal government can provide e-services more efficiently and transparently if it has high-quality broadband. However, the integrity of our cyber systems and internet technologies can be breached, which represents a major security risk.

Technology was forced to make advances in one year which otherwise may have taken a decade. As a result, it was cobbled together on a system with many shortcomings, making the region more vulnerable to future disruption. Pattern’s final strategy is to systematically and equitably create a “Digital Valley.” It should have:

- bandwidth and system architecture to serve growing demands for service,
- durability and resiliency to adapt to changing needs,
- flexibility to support the economy, workforce, housing and schools of the next generation, and
- security to ensure we are all protected from random acts of cyber violence.

Cybersecurity is not just a problem of government intelligence agencies or large corporations. As we have seen recently when cybercriminals hacked New York State’s Department of Labor or attacked local school districts with ransomware, the ability to disrupt the institutions we rely upon is vulnerable in this age of technology. It does not discriminate on size - only on opportunity. The region can no longer proceed as if this is someone else’s problem. The region can no longer rely on inconsistent and informal use of out-of-the-box hardware and software to meet our increasing need for IT infrastructure and services.

The region needs to coalesce around an integrated strategy for IT infrastructure that is equitable, resilient and secure. We need a digital roadmap for our “Digital Valley.”

HOW CAN THE REGION USE THIS DOCUMENT?

Pattern can articulate a broadband strategy, but it cannot lay conduit or install 5G.

Pattern can make the case for increasing housing, but cannot construct each home or change zoning to allow for the new housing.

Pattern can provide the tools and information to main street communities, but it is for them to choose their own direction.

Pattern can facilitate the JCTF by bringing workforce and economic development together from across all the counties, but the region must embrace its mission.

This document does not serve as a master plan for those priorities, but as an initial identification of issues, challenges and needs. Pattern fully anticipates revisiting these issues, and others, over the next several years to fine-tune the strategies and to ensure that the region's resources are being applied appropriately.

Each of Pattern's strategies contains four sections, which must all be examined through the lens of diversity, equity, and inclusion.

- Where was the region pre-COVID
- What changed during the pandemic
- Moving the region forward
- Metrics and Partners

This document outlines Pattern's suggested four priorities for immediate action in a post-pandemic world. As agendas are being set and funding secured, the region needs to find its "Pathway Forward"



WORKFORCE

WORKFORCE

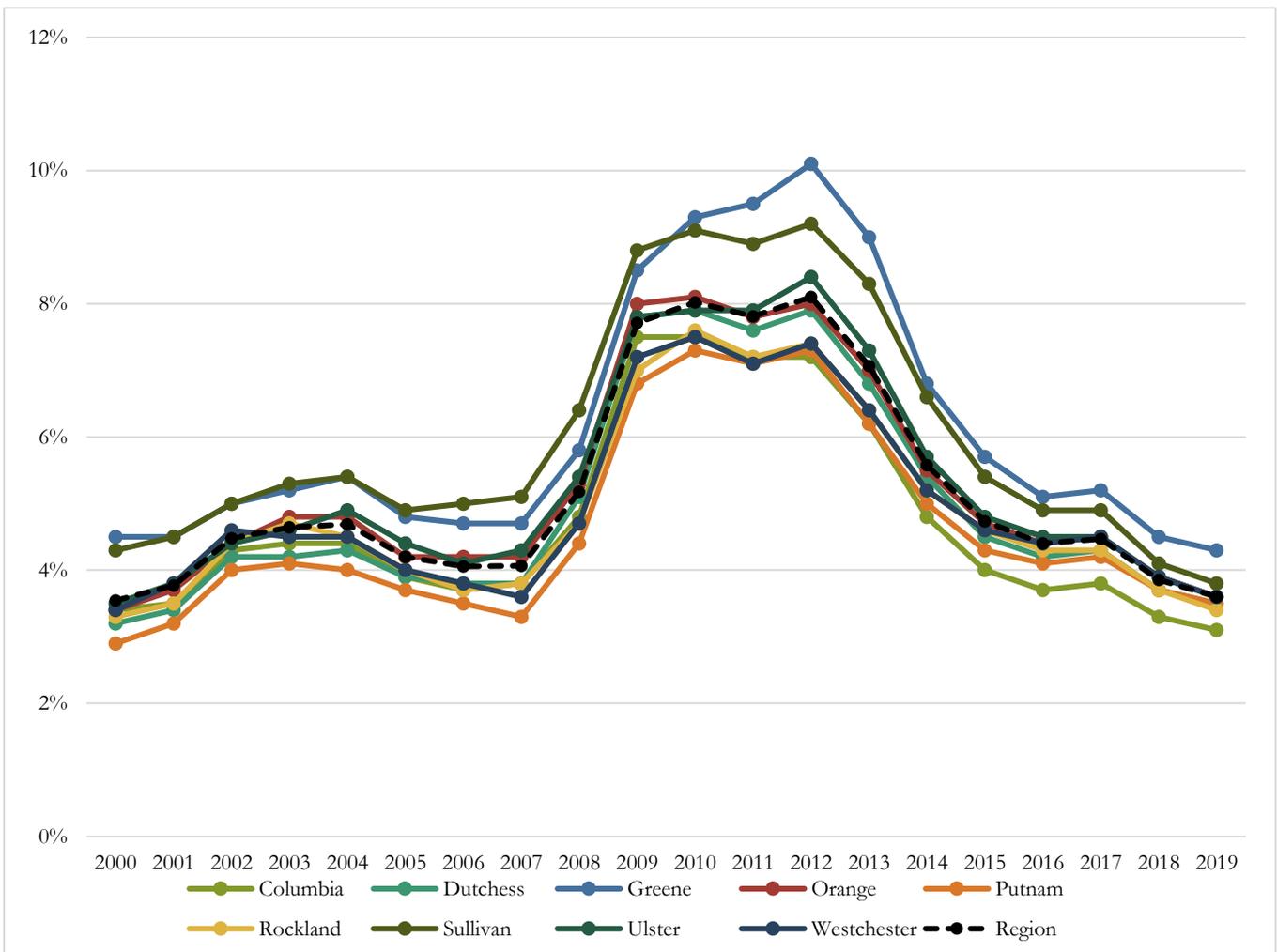
PRE-COVID

Prior to the COVID-19 pandemic, nearly all sectors of the economy were looking for employees. This was driven by a very low unemployment rate, a mismatch between the needs of employers and the skills found within the labor pool, the lack of childcare, and numerous other factors. Automation was starting to replace workers at some locations, immigration policy was preventing entry-level workers from joining the workforce, and there was a lack of workforce housing.

Workers voiced concerns that the available employment opportunities, if secured, did not pay a sufficient wage to live in the Hudson Valley. While the change in household income grew in every county over the last decade, when adjusted for inflation only Greene County saw a modest increase.

The pre-pandemic unemployment rate was near an all-time low.

AVERAGE ANNUAL UNEMPLOYMENT RATES 2000-2019



Source: NYS Department of Labor

WHAT CHANGED DURING THE PANDEMIC

The COVID-19 pandemic disrupted virtually all parts of the U.S. economy, and brought entire industries to a screeching halt. This predictably had a devastating impact on the region's workforce. As many businesses were mandated to temporarily close, and workers deemed "non-essential" were told to stay home, the region's unemployment rate skyrocketed higher than the peak of the Great Recession. Even as some restrictions were slowly lifted, many businesses never fully recovered, leaving a portion of the workforce without a job or working reduced hours.

Despite these unprecedented disruptions to the economy, the pandemic prompted innovation and new policies designed to mitigate the damage. The pandemic necessitated a paradigm shift from traditional office space and regimented work hours to remote work and flexible scheduling. Though some businesses cannot function remotely, many employers discovered that working remotely not only allowed their business to function during the pandemic, but also increased the productivity of their employees. Adaptation to the remote work paradigm marked the beginning of a new business model that may remain for years. In addition to workplace innovation, the pandemic also prompted the creation of a number of federal programs to provide assistance to businesses to keep employees on the payroll rather than going on unemployment. Although well intentioned, the rapid rollout of both state and federal assistance caused significant disruption for both employers and employees. On top of that, many state labor departments were completely overwhelmed by the number of workers filing unemployment insurance all at once.

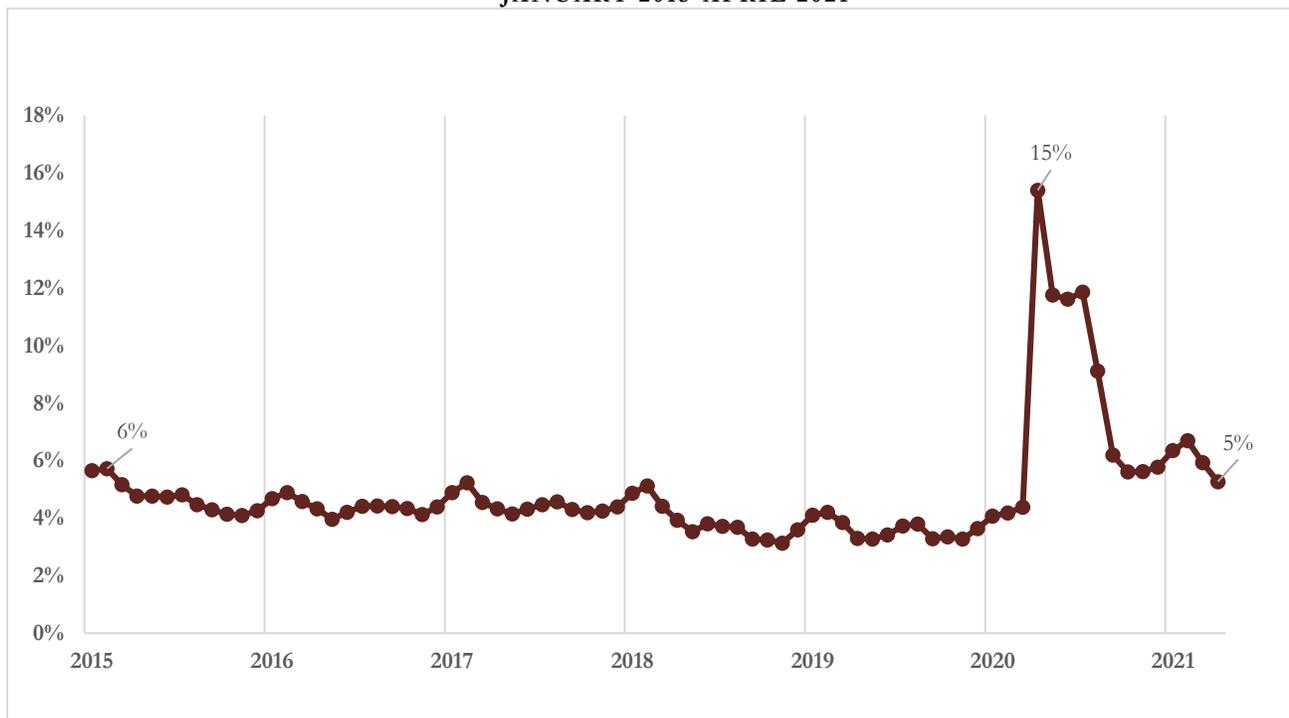
Fortunately, Pattern was one of the workplaces in the region able to successfully transition to remote work with relative ease. However, there were many industries throughout the region with workplace environments that did not lend themselves to remote work.

Pattern Goes Virtual

Prior to the pandemic, Pattern already had a one-day a week work from home policy. In March 2020, the office quickly pivoted to virtual work structure with the aid of a variety of software solutions. Zoom enabled staff to talk face to face, and Slack created an internal communication network for instant conversations.

Pattern made the decision to remain virtual for all of 2021.

**AVERAGE MONTHLY UNEMPLOYMENT RATE IN THE HUDSON VALLEY REGION
JANUARY 2015-APRIL 2021**



Source: NYS Department of Labor

METRICS AND PARTNERS

One approach that Pattern has already undertaken was the formation of the:

JOB CONNECTION TASK FORCE (JCTF)

The pandemic has caused a major disruption to our regional economy and the region needs to restructure its existing resources to assist the workforce in adjusting to these changes. This creates an opportunity to foster a new and innovative regional conversation about job creation and workforce development. Pattern asked each county's leader in economic and workforce development to participate in a nine-county task force to lead the way in making those necessary adjustments.

The pre-pandemic workforce was faced with an overall labor shortage and many other challenges:

- There was a mismatch of skills resulting in jobs going unfilled.
- Automation created worker displacement, which led to the need for “upskilling”.
- Unresolved immigration policies led to open positions in many industry sectors.
- A lack of affordable, workforce and market rate housing led to a disproportionate amount of income for shelter.
- A shortage and high cost of childcare caused some to not participate in the workforce or had a significant impact on their household budget.
- In some industry sectors a living wage rate had been difficult to achieve.
- Declining birthrates led to reduced K-12 enrollment; the region's future talent pool is smaller.

These issues were exacerbated by the pandemic.

Pre-pandemic, there were between 30% and 65% of county residents commuting outside of their home county to find employment. With the uncertainty of where employment will be post-pandemic, the county leaders for economic development and workforce development need to forge a regional bond. This bond will help to improve the region's chances of retaining and attracting employers by ensuring the availability of a strong and talented workforce of tomorrow. The ability to think regionally about the workforce will inure to the benefit of employers as well as the residents of the region.

The goals and direction of the JCTF have been set by its members. Pattern serves as the facilitator and research entity for the task force, also providing data analysis. All information is shared equally among the representatives from the nine counties.

The goal of the JCTF is to work together to bring in new businesses and stabilize and expand existing ones. County economic development and workforce heads will collaborate on a regional basis to develop a post-pandemic workforce by making the connection between where the jobs are and creating a pipeline for regional collaboration. This multidisciplinary approach is critical in order to facilitate a cross-pollination of jobs that results in a stronger, more economically viable and equitable region.

To help achieve this collaborative effort Pattern is providing highlights of successful approaches by industry sector and programs for economic and workforce development that could be replicated throughout the region. (See chart below for county industry sector priorities.) At each meeting, individual counties present opportunities and issues of concern. The other eight counties will serve as peer reviewers to assist the presenting county. Guest speakers and industry experts have been included in the meetings based upon the suggestions of the JCTF. Pattern will continue to identify representatives from specific sectors to discuss how to grow or stabilize that sector through business attraction and retention, workforce development programs and use of best practices from other regions within or outside of New York.

JCTF INDUSTRY SECTOR PRIORITIES BY COUNTY

	Columbia	Dutchess	Greene	Orange	Putnam	Rockland	Sullivan	Ulster	Westchester
Manufacturing	Solid	Solid	Solid	Solid	Shaded	Solid	Shaded	Solid	Solid
Tourism/Hospitality	Solid	Shaded	Solid	Solid	Solid	Solid	Solid	Shaded	Solid
Healthcare/BioMed/BioSciences	Solid	Solid	Shaded	Solid	Solid	Solid	Shaded	Solid	Solid
Creative Economy/Innovators/Makers	Shaded	Shaded	Solid	Shaded	Shaded	Shaded	Shaded	Solid	Shaded
IT/Data Tech/Fin Tech	Shaded	Solid	Shaded	Shaded	Shaded	Solid	Solid	Solid	Solid
Agriculture/Agri-Business/Agri-Tourism	Solid	Shaded	Shaded	Shaded	Solid	Shaded	Shaded	Solid	Shaded
Film/Film Production	Shaded	Shaded	Shaded	Solid	Solid	Shaded	Shaded	Solid	Shaded
Clean Energy/Tech	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Solid	Solid
Warehouse Distribution	Shaded	Shaded	Shaded	Solid	Solid	Shaded	Shaded	Shaded	Shaded
Food & Beverage/Production/E-Commerce	Shaded	Solid	Shaded	Solid	Solid	Shaded	Solid	Solid	Shaded
Education	Shaded	Solid	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Solid
Construction	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Solid	Shaded	Solid
Specialty Metal Fabrication/light industry	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Solid	Shaded	Shaded

The chart reflects the selected priorities by each county. Solid boxes represent a first level priority and shaded a secondary level.

These are just some of the metrics that are being used by the JCTF to chart recovery and reimagine the workforce using innovative thoughts and ideas:

- Sharing data sources (sharing license agreements; finding navigators)
- Creation of a comprehensive document highlighting the resources that the region brings
- Regional Asset Mapping - by resources that are available for workforce development including skills and location that the public can access. This would be updated semi- annually.
 - Highlight certain industry resources and create maps for priority clusters as defined by the counties above. Maps might include i.e. manufacturer location, specialized training center, buildings, resources, transportation links, (clear accessibility and collation of existing data sets)
 - Demographic information as to where the sector workforces are living, such as census tracts, so employers can see where they can draw employees from
 - Top employers by sector
- Sourcing state and federal data points to be utilized by all JCTF participants

- Blueprint for creating new training and resource academies and articulate the need for new ones
- Inventory workforce and training programs to create a regional profile of what does exist and identify where there are gaps
- Reduce duplication by identifying high performing programs through metric-based analysis and encourage the transfer of limited dollars to areas where gaps have been identified
- Create a matrix of county selected high priority sectors and work to create career pathways
- Create Regional dashboard of performance metrics as identified by the JCTF members

JCTF PARTNERS

COLUMBIA COUNTY

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- Lauren Cranna

DUTCHESS COUNTY

- Ron Hicks
- Sara Lee
- Louise McLoughlin

GREENE COUNTY

- Karl Heck
- Kathleen Drake

ORANGE COUNTY

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PUTNAM COUNTY

- Kathleen Abels

ROCKLAND COUNTY

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- NYS Department of Labor-Johny Nelson



HOUSING

HOUSING

PRE-COVID

There has been a housing crisis in the Hudson Valley region for decades. Too many residents paid a disproportionate amount of their income on housing. During the housing boom before the Great Recession, the real estate market was thriving with prices at historic highs. The housing bubble burst and prices dramatically declined, banks tightened lending rules and underwriting became very strict, and the market was extremely unstable. Mortgage interest rates remained higher than during the housing boom and median home prices continued to decline.

Starting in 2013/14, housing prices were somewhat stable and began to rise steadily in many of the region's counties, while mortgage interest rates declined as the housing market staged a comeback. Many counties in the Hudson Valley, especially the lower to mid-Hudson Valley were in a Seller's Market, as inventory of homes for sale started to decline. By 2019, five of the nine counties in the region had less than a six-month's supply of homes on the market.

MEDIAN SALE PRICE BY COUNTY 2013 TO 2019

	2013	2014	2015	2016	2017	2018	2019
<i>Columbia</i>	\$ 218,000	\$ 193,000	\$ 217,000	\$ 222,000	\$ 244,500	\$ 239,000	\$ 257,000
<i>Dutchess</i>	\$ 242,000	\$ 243,000	\$ 240,000	\$ 245,000	\$ 255,000	\$ 280,000	\$ 290,000
<i>Greene</i>	\$ 165,750	\$ 166,950	\$ 166,920	\$ 168,000	\$ 173,000	\$ 182,000	\$ 195,000
<i>Orange</i>	\$ 221,450	\$ 219,000	\$ 215,000	\$ 215,000	\$ 230,000	\$ 244,463	\$ 257,500
<i>Putnam</i>	\$ 289,500	\$ 295,485	\$ 293,000	\$ 300,000	\$ 315,000	\$ 335,000	\$ 340,450
<i>Rockland</i>	\$ 356,500	\$ 358,750	\$ 377,500	\$ 387,000	\$ 400,000	\$ 414,500	\$ 417,500
<i>Sullivan</i>	\$ 118,000	\$ 120,000	\$ 110,000	\$ 115,000	\$ 120,000	\$ 127,000	\$ 142,500
<i>Ulster</i>	\$ 207,500	\$ 199,900	\$ 192,500	\$ 200,000	\$ 215,000	\$ 230,000	\$ 249,000
<i>Westchester</i>	\$ 470,000	\$ 475,000	\$ 475,000	\$ 470,750	\$ 490,000	\$ 500,000	\$ 520,000

Source: New York State Association of Realtors

The Median Sales Price was up in every county by 2019. Overall, there was an approximate increase of about 20% in the median sales prices with the exception of Westchester County, which increased by only 10% from 2013 to 2019. Although home prices were steadily rising, only Columbia and Greene Counties surpassed their peak market years during the housing boom of 2007 and 2008, while Ulster County was near its peak year of 2007.

INVENTORY OF HOMES FOR SALE 2016 - 2019

	2016	2017	2018	2019	# Change	% Change
<i>Columbia</i>	735	712	726	666	-69	-9.4%
<i>Dutchess</i>	1,645	1,584	1,490	1,437	-208	-12.6%
<i>Greene</i>	865	811	786	635	-230	-26.6%
<i>Orange</i>	2,103	1,826	1,808	1,808	-295	-14.0%
<i>Putnam</i>	526	472	463	576	50	9.5%
<i>Rockland</i>	1,084	952	982	1,130	46	4.2%
<i>Sullivan</i>	1,159	1,136	1,290	1,287	128	11.0%
<i>Ulster</i>	1,370	1,352	1,222	1,223	-147	-10.7%
<i>Westchester</i>	2,881	2,784	2,861	3,015	134	4.7%
<i>HV Region</i>	12,368	11,629	11,628	11,777	-591	-4.8%

Source: New York State Association of Realtors

Since 2016, the region's inventory declined by nearly 600 homes, or 4.8%. Despite the decline, four counties did see an increase: Putnam and Rockland increased by 50 or less, while Sullivan jumped by 128 and Westchester by 134.

WHAT CHANGED DURING THE PANDEMIC

Due to a combination of factors the Hudson Valley housing market became “red hot.” Residents of New York City who had the fiscal means and wanted to escape the city due to fear of density and contracting COVID-19, moved into the region.

The people leaving NYC tended to have the financial resources necessary to seek properties on the higher end of the housing market. For those not interested in purchasing a home there were options: longer stays at Air BnB’s, renting, not buying, single-family homes, and leasing apartments in the new luxury, multifamily market. The result was threefold: the existing inventory was severely reduced, the price of housing jumped dramatically, and the shortage of housing on the high end forced the inventory of mid-tier housing to shrink. The demand for housing seems to be endless. Combined with the already existing shortage of affordable housing, the Hudson Valley’s supply of housing at all three levels has reached a crisis level.

The three most important statistics of the housing market include: home price, inventory and month’s supply. The median home prices have dramatically increased from 2019 to 2020, with our most northern and rural counties of Columbia, Greene, and Sullivan showing well over 20% increases. In fact, Sullivan increased by 36.8%. Simultaneously, the inventory has significantly dropped, with an overall decline of almost one-third of homes on the market. Subsequently, the inventory is extremely low with six counties having less than a four-month’s supply.

MONTH'S SUPPLY OF HOMES: 2019 TO 2020



	2019	2020	# change 2019 - 2020	% change 2019 - 2020
<i>Columbia</i>	11.3	5.0	-6.3	-55.8%
<i>Dutchess</i>	5.3	3.1	-2.2	-41.5%
<i>Greene</i>	9.5	4.7	-4.8	-50.5%
<i>Orange</i>	5.0	2.4	-2.6	-52.0%
<i>Putnam</i>	5.8	2.5	-3.3	-56.9%
<i>Rockland</i>	5.0	2.4	-2.6	-52.0%
<i>Sullivan</i>	15.1	7.7	-7.4	-49.0%
<i>Ulster</i>	6.7	3.4	-3.3	-49.3%
<i>Westchester</i>	4.0	2.8	-1.2	-30.0%

Source: New York State Association of Realtors

MEDIAN HOME PRICES

INVENTORY OF HOMES

	2019	2020	# change	% change	2019	2020	# change	% change
<i>Columbia</i>	\$257,000	\$323,000	\$66,000	25.7%	666	434	-232	-34.8%
<i>Dutchess</i>	\$290,000	\$332,000	\$42,000	14.5%	1,437	1,018	-419	-29.2%
<i>Greene</i>	\$195,000	\$240,000	\$45,000	23.1%	635	411	-224	-35.3%
<i>Orange</i>	\$257,500	\$300,000	\$42,500	16.5%	1,808	1,021	-787	-43.5%
<i>Putnam</i>	\$340,450	\$360,000	\$19,550	5.7%	576	353	-223	-38.7%
<i>Rockland</i>	\$417,500	\$458,000	\$40,500	9.7%	1,130	655	-475	-42.0%
<i>Sullivan</i>	\$142,500	\$195,000	\$52,500	36.8%	1,287	945	-342	-26.6%
<i>Ulster</i>	\$249,000	\$281,000	\$32,000	12.9%	1,223	752	-471	-38.5%
<i>Westchester</i>	\$520,000	\$603,300	\$83,300	16.0%	3,015	2,414	-601	-19.9%
<i>HV Region</i>	--	--	--	--	11,777	8,003	-3,774	-32.0%

Source: New York State Association of Realtors

IMPACTS FROM THE PANDEMIC



The impact of the housing market can be felt in many different ways on the overall economy and will likely continue as a disruptor as the region recovers from the pandemic. Basic economics suggests with limited supply and high demand – prices rise. The lack of housing inventory has greatly hampered the ability of local residents to purchase a new home or upgrade to a larger home. Rising prices made homeownership more difficult, for first time buyers, especially for the generations known as Millennials and Gen Z.

The pandemic facilitated remote work and led to a migration to the Hudson Valley. Prospective homebuyers looking to the Hudson Valley are engaging in bidding wars. Sellers often receive more than the asking price for their homes. This is good news for sellers, contractors, and tradespeople, as the influx of new residents will increase the customer base for those existing businesses.

As the region plans to reap the benefits of this real estate boom, it is essential that growth be appropriately planned for. There is currently a mismatch between the wages and the availability of housing. It is critical for existing and new residents to have a wide array of housing options. These options must include a range of homes appropriately priced for our existing residents, especially the increasing senior population and those working in historically lower wage jobs.

The Rental Market

Even though there is enormous demand for rental housing, which places stress on the existing inventory, it does stimulate multifamily development, specifically in the luxury rental market.

However, inequities in the rental market have become more evident as the pandemic disproportionately impacted low- to moderate-income residents, often people of color living in marginal neighborhoods. While the eviction moratorium temporarily prevented homelessness for many of the regions renters, the rent will come due and the risk of eviction rises. There has been federal and state funding allocated to assist renters, homeowners, and landlords, but the programs are challenging to navigate and often come with income restrictions and other regulatory requirements that are cumbersome.

The Bad News

In both single-family and multifamily development, the high cost of land, the lack of a skilled labor force, the need for supportive infrastructure, increasing taxes and construction costs, and supply chain issues for building materials hamper the ability to develop housing. The ability for developers to efficiently, navigate the local approval process is very challenging. Finally, there is a lack of political will to allow more housing, especially affordable and workforce housing. In fact, some communities are contemplating building moratoriums. Therefore, the inventory of new homes is not likely to increase for the balance of 2021.

The Good News

While the region is in a housing crisis, mortgage interest rates remain at near historic lows, which benefits new buyers and current owners looking to refinance their mortgage and lower their monthly payment. And, the increase in new residents with disposable income can provide new support for the region's ailing small businesses.

MOVING THE REGION FORWARD

There are two basic ways to increase the housing inventory; more owners put their residence on the market or new homes are developed. Housing development is difficult for the many reasons identified in the section above.

As the region looks further into 2021 and beyond, it must be acknowledged there is no single solution to these housing challenges. There are even new challenges that enter the calculus of increasing the supply of housing.

Local decision-making bodies, such as zoning, planning and municipal boards, are often filled with volunteers from the community. Without a professional background and experience in land use policy and the development process, these boards, as well intentioned as they are, are not equipped to set policy or make final determination on housing development. This antiquated system must be revisited to create a streamlined approval process.

Ten Strategies to Increase the Supply of Housing:

- 1 • **DEVELOP SMALL "SMART" HOMES** - 1,200 to 1,400SF on small lots and utilize Cluster Development to reduce costs and encourage open spaces
- 2 • **BUILD SUPER ENERGY EFFICIENT HOMES** including geothermal systems, solar panels, and high efficiency appliances to reduce monthly utility costs
- 3 • **STREAMLINE THE LOCAL APPROVAL PROCESS** to reduce development costs
- 4 • **ESTABLISH A SET-ASIDE** to include the development of affordable rental and single-family homes
- 5 • Municipalities can opt into the **5-YEAR PROPERTY TAX PHASE-IN** (NYS ORPS Section 457) for first-time homebuyers to build equity while reducing the initial tax burden
- 6 • Establish a **COMMUNITY LAND TRUST AND SHARED EQUITY MODELS** for homeownership
- 7 • Create **EMPLOYER ASSISTED HOUSING PROGRAMS** - to assist first time homebuyers enter the market and facilitate rental housing near employment centers
- 8 • **UPDATE LOCAL ZONING AND CODES** to allow for Accessory Dwelling Units and two-family homes as a way to create a revenue stream to augment income for the buyer
- 9 • **ENCOURAGE AND SUPPORT HOUSING ORGANIZATIONS** to secure government grants to assist home buyers
- 10 • **SUPPORT AND EXPAND FINANCIAL EDUCATION AND HOMEOWNERSHIP COUNSELING** programs

METRICS AND PARTNERS

Every community is slightly different and there is no one-size fits all solution to these challenges. Solutions are based on research and analysis of both qualitative and quantitative data. A sound foundation must be established in order to approach the problem from a holistic standpoint. The solutions must be established through the lens of equitable development that provides a pathway to homeownership for our ever-increasing diverse region.

The Center for Housing Solutions will continue to provide a regional perspective on the challenges facing all three tiers of housing. The Center will continue to conduct research and market analysis, design, convene and facilitate webinars and an annual housing forum, and publish a quarterly housing newsletter. The Center is available to assist municipalities in conducting local housing needs assessments to establish strategies to support the development of a range of housing opportunities.

The Center for Housing Solutions prepared a Housing Needs Assessment on behalf of Westchester County, which provided support for the County Executive’s plan to fund over \$20 million for affordable housing. The Center also conducted a needs assessment for Ulster County and a number of municipalities, including Kingston, New Rochelle, and Rhinebeck. The Center is currently working in the Cities of Hudson and Poughkeepsie on drafting affordable housing development plans and assessments. Pattern continues its efforts to examine these challenges, understand the available resources, and make recommendations for communities to implement.

By working with local housing agencies, community based and faith-based organizations, state and federal agencies, along with municipal leaders, and economic and workforce development officials, the Center will track and share local policy and best practices that support increasing the supply of housing. Specifically, the Center will track, analyze and distribute information on the residential real estate market and multifamily housing development.

PARTNERS

The Center has an advisory committee that includes:

KEVIN O’CONNOR RUPCO	KEN KEARNEY Kearney Group	CHRISTA HINES Hudson River Housing	GREG MAHER Leviticus Fund
MARY PADEN Community Preservation Corporation	MATT RAND Howard Hanna, Rand Realty	ERIC BAXTER BaxterBuilt	KYLE KIRCHHOFF Kirchhoff Companies
GIOVANNI PALLADINO Kirchhoff Companies	MANDY KELSO TD Bank	MICHAEL UCCELLINI The United Group	JOHN C. CAPPELLO Jacobowitz and Gubits, Counselors at Law, LLC

The examination of housing supply and market demand that produces a housing gap analysis must include a public education campaign. Municipalities will not magically construct affordable housing based on a report that points to a number of units needed in a city, town, village, or sub-region.

To further the goal of educating the public, the Center will create a video that depicts the need for affordable and workforce housing that engages local residents, businesses, and decision makers on housing challenges and opportunities.



MAIN STREET

MAIN STREET

PRE-COVID

Not all main streets are officially named “Main Street,” but even so - you know a main street when you see one. A main street is typically the primary thoroughfare through a town and the traditional center of commerce and social interaction in a community. Beyond this basic definition, main streets are often a crucial component of a community’s identity, a physical representation of how a community wants to be perceived.

The term main street means different things to different people. The Hudson Valley is home to many main streets of varying shapes and sizes, with historic buildings and unique architecture. For some, Main Street means a crowded city block with their favorite bodega on the corner, and for others, Main Street is a quaint tree-lined street comprised of mom-and-pop stores, local art galleries, and the local diner or coffee shop and some are simply quiet four-corners with the only commercial or retail establishments not to be found in miles. Within these different interpretations, there is a common desire: A pedestrian-friendly street full of economic, social, and cultural vitality. It is a gathering place for the residents and visitors to that community.

Like many main streets throughout the country, Hudson Valley main streets have experienced life cycles of booms, busts, and transformations as a result of economic and social trends. Within each county, you find neighborhoods in different stages of development. Many present a vibrant, cohesive identity, some were on their way to realizing their potential, and others still suffer from economic decline and disinvestment. It is time to support each community’s vision of their main street and recapture the spirit, which may have been lost.

Throughout the late 20th century, several national trends negatively impacted main streets. Urban Renewal of the 1960’s and 70’s, was designed to revitalize blighted places; instead, the program gutted and destroyed commercial districts and neighborhoods. African Americans and other minorities were disproportionately affected by Urban Renewal, and thousands were displaced. The simultaneous boom in suburban development increased dependence on cars and de-emphasized walkable neighborhoods and business districts. The onset of regional shopping malls and strip mall development pulled business away from established urban and rural main streets and online shopping has intensified the loss of retail revenue. Additionally, the cost of investment in the 19th century structures of many of our region’s main streets exceeded the cost of the new construction just outside the core community, resulting in disinvestment in downtown areas, small and large.

Despite the many factors working against main streets, there have always been those who recognized their importance and the damage inflicted by losing them. In recent years, these voices have become louder and more widespread. The increased awareness and support for main street revitalization is reflected in a rise in local initiatives and state programs that support main streets through targeted investment, physical improvements, and

SPOTLIGHT: MAIN-STREET - BEACON

The Beacon of today is very different from 15 years ago. The vacant lots and empty storefronts are mostly gone. Through code enforcement, a unified standard has been applied to the facades of buildings. The influx of a variety of stores and restaurants led to new jobs and record amounts of tourists who arrive by car and train. New residential, condominium developments are attracting new homeowners.

What makes each neighborhood different is that it reflects the communities that live there. For some Beacon has become too pricey, while for others it has achieved a level of investment and needed tax revenue for city services, which was only dreamed of just 15 years ago. Regardless of the point of view, each neighborhood must define its own balance to reflect the local vibe.

an emphasis on shopping local. Such programs include New York State’s Main Street grant program and Downtown Revitalization Initiative (DRI). There are more localized regional efforts by organizations such as Scenic Hudson, Vision Hudson Valley, and Hudson Valley Pattern for Progress.

These programs, in addition to grassroots efforts from local residents, have facilitated revitalization of several main streets throughout the Hudson Valley. Though some main streets are thriving, others in the region continue to struggle. Even those that are flourishing must grapple with the challenges of gentrification and promoting equitable revitalization. With appropriate housing strategies, assistance can be given to neighborhoods to avoid displacement.

WHAT CHANGED DURING THE PANDEMIC



The spring of 2020 is a time that Hudson Valley residents will not soon forget. The COVID-19 virus was new to us then and it was sweeping through the Hudson Valley at an alarming rate. Hospitals were overwhelmed, people were dying, and the state went on lockdown. Almost overnight, once-busy main streets were empty as non-essential personnel were mandated to stay home and businesses were forced to close down due to reduced demand, workforce scarcity, or both.

Small businesses, which are generally the backbone of main streets, were hit particularly hard by the pandemic. Compared to large national or regional companies, small business owners are less likely to have the capital or capacity to keep a business alive for months with no revenue.

Surveys of business owners confirm the devastating impacts of the pandemic. A national survey of 5,800 small business owners conducted at the beginning of the pandemic (from March 28 through April 4), and published in the Proceedings of the National Academy of Sciences, found that only three-quarters of the responding businesses had enough cash on hand to last two months or less. The same Survey

revealed the magnitude of uncertainty facing business owners at the beginning of the pandemic, as expectations about when the pandemic crisis would end varied considerably among respondents.¹

Similarly, the U.S. Census Bureau found that about a quarter of New York State businesses surveyed at the end of April 2020 expected to return to a normal level of operation in two to three months, and about a third expected it to take more than six months. By mid-May, close to half of surveyed businesses in New York expected it to take more than six months to return to a normal level of operation, and the percentage of businesses expecting it to take two to three months dropped to 12%.²

Financial relief arrived for some business owners through the CARES Act, including small business tax credit programs and the paycheck protection programs. While this helped some main street businesses weather the storm, many were forced to close their doors for good. Now, over a year after the first COVID-19 death in New York State, there is hope for a return to “normalcy” in our daily lives. As the dust settles and the business community rebounds in the region, steps must be taken to ensure an equitable recovery and improve economic resiliency.

¹ The Impact of COVID-19 on Small Business Outcomes and Expectations
<<https://www.pnas.org/content/117/30/17656>>

² U.S. Census Bureau Small Business Pulse Survey
<<https://portal.census.gov/pulse/data/>>

MOVING THE REGION FORWARD

Although the needs of every Hudson Valley community are different, there are three overarching tenets that should guide the future of main streets in the Hudson Valley: innovation, equity and resiliency.

INNOVATION

One thing the pandemic taught us is that flexibility and the ability to adapt to unexpected circumstances is not only advantageous, but in many cases, essential for survival. Everyone is understandably eager to return to a sense of normalcy, but communities should take this opportunity to reflect on how their main streets were operating before the pandemic, and assess whether “business as usual” is what really makes sense in the emerging economy of a post-pandemic world.

Throughout the Hudson Valley, there were several examples of innovative responses to the pandemic by individual business owners and local municipalities. One of the most prevalent examples of this was the rethinking of how communities use public space such as sidewalks and roads. In response to social distancing restrictions, many restaurants were allowed to expand their seating into nearby sidewalks and alleys.

Some communities, like the Village of Ellenville in Ulster County, took this idea a step farther and shut down sections of their main street to vehicular traffic, creating a temporary pedestrian plaza with public seating and local vendors. This initiative was so popular that Ellenville plans to continue these events on a monthly basis, regardless of the status of the pandemic. This example illustrates opportunity for positive change provided by innovative approaches to main streets.

EQUITY

Achieving equity can be hard to define and difficult to accomplish but is nonetheless of critical importance. Equity in the context of a main street means many things, including but not limited to:

- **Access** – Providing public spaces and physical improvements that ensure accessibility for people with vision, hearing, or other disabilities including persons with developmental challenges.
- **Welcoming** - Ensuring that our common spaces are welcoming to all and not envisioned in any way that furthers structural racism.
- **Community Outreach** – Achieving a deeper understanding of the needs of residents will help ensure that main streets reflect the community and build a sense of ownership and buy-in. Achieving this understanding starts with community outreach to solicit feedback and input on everything ranging from physical improvements, public amenities, and programming on a main street.
- **Housing Opportunity** – Communities must take deliberate action to ensure that existing residents, especially low-income residents, are allowed to participate and benefit from the revitalizing and are not pushed out of the community due to rising rents and other housing costs. Implementing inclusionary zoning and supporting the development of affordable housing is a critical first step which will have an immediate and lasting positive impact on main streets.
- **Internet** – The pandemic highlighted both the importance of reliable internet and the gap in access to reliable internet, especially among low-income residents. Public Wi-Fi, whether it be communitywide or focused on the main street, has numerous benefits. It both provides a critical service to individuals who cannot afford it and makes the main street a more attractive location for businesses and visitors.

RESILIENCY

The resiliency of a main street depends on several factors, including the socioeconomics of the community, the financial condition of business owners, the mix of business types, local land use regulations, and much more. To improve Main Street resiliency, communities must make an honest and comprehensive assessment of local conditions, identify areas of improvement and goals, and implement policies and programs to achieve those goals.

In many ways, main street resiliency is intertwined with innovation – a critical aspect of resiliency is the ability to anticipate and recognize when a new approach is necessary. Even before the pandemic, brick and mortar retail was struggling to compete with the convenience of e-commerce. Still, there are strategies that can be employed by main street business owners to attract shoppers to their stores by playing to their strengths and emphasize the advantages they have over online shopping. There is a growing demand for experience-based retail and locally produced products, both of which play into the hand of brick and mortar stores.

From a municipal perspective, main street resiliency starts with making sure local regulations are conducive to the desired outcomes. A healthy main street will include a mix of businesses to encourage visitation and window-shopping (such as restaurants, boutiques, or antique stores) and businesses that provide goods and services to local residents (such as banks, laundromats, or hardware stores). While both types of businesses are important for a main street, businesses that provide local goods and services are more resilient to economic downturns. To foster vibrant main streets, zoning codes must allow and encourage the mix of businesses desired by the community.



“MAIN STREET Hudson Valley”-THE INITIATIVE

In recognition of the importance of main streets as drivers of economic growth, social connectivity, and cultural experiences, Pattern is creating a new Initiative called “MAIN STREET Hudson Valley.” The mission of the “MAIN STREET Hudson Valley” initiative will be to re-energize the pre-pandemic momentum of the past ten years by providing tools and support systems to allow main streets, neighborhoods and community hubs to flourish in the new post-pandemic economy. Through efforts like façade renovation, adaptive re-use, marketing, code enforcement and more, communities can realize main streets as the hubs of commerce and community engagement that define their unique sense of identity.

The “MAIN STREET Hudson Valley” Initiative will include a variety of programs, services, and research designed to track metrics and build local capacity for main street revitalization. Specifically, activities of “MAIN STREET Hudson Valley” will include:

- **Mayors Forum** – A facilitated discussion among the issues facing the mayors of the region who have direct responsibility over their municipal cores.
- **Community ReBuilders** – A program administered by Pattern that advances community-based projects through education and capacity building.
- **Main Street Managers** – A new program created specifically for “MAIN STREET Hudson Valley.” Each year, Pattern will recruit a cohort of 10 individuals interested in leading the revitalization of their local main streets and equip them with the tools and knowledge to achieve that goal. In subsequent years, the previous classes will represent a network of mentors to assist new managers.
- **Thincubators** – A Thincubator is a process that brings together, either virtually or in a physical location, the members that live and work within a neighborhood to share ideas, innovate and offer potential creative solutions to improve their communities. As part of this, Pattern will ask the following questions: What does a community want to be? How can communities strike the balance between new investment and avoiding displacement? Who are the community leaders to carry forward a strategy for smart re-investment?
- **Best Practices** – While many states and communities have developed successful programs, New York does not have one clearinghouse and repository for “what works and what does not.”
- **Helping start-up small businesses** – This effort would especially focus on minority entrepreneurs who are seeking a presence on the main street and seek to improve their financial literacy. The pandemic taught us that even with a brick and mortar location it must be experiential and be able to incorporate an online presence.
- **Annual Main Street Conference** – Each year Pattern will convene a conference that would gather those who have interest to both preserving and revitalizing their main streets. The targeted audience would be the BID directors in the region, chambers of commerce, entrepreneurs and innovators, local main street champions, and participants in our programs.

Key to the core mission of the “MAIN STREET Hudson Valley” initiative is celebrating and promoting diversity and equity. This starts with inclusive outreach and deliberate amplification of voices that have been historically ignored, silenced, or left out of the conversation altogether.

Main streets in the Hudson Valley come in all shapes and sizes, and no two are the same. Whether it be small hamlets in rural areas of Columbia County, or extensively developed commercial corridors in the cities of Westchester County, every main street in the Hudson Valley matters to its community. The MAIN STREET Hudson Valley initiative will reflect this diversity of development patterns by identifying best practices and community investment strategies that make sense for the unique conditions of each community.

In the aftermath of the pandemic, communities should broaden how they measure the success of a main street. The region needs to create a new set of metrics. These metrics must be based on the overall health of a community in terms of walkability, safety, technology, diversity and the integration of residential buildings with retail and office space. The region must move forward from the learned experiences of the last 14 months for the communities to thrive.

METRICS AND PARTNERS

The “MAIN STREET Hudson Valley” Initiative will be guided by a Board of Advisors comprised of experts in community development, lending and main street revitalization:

PARTNERS

KIM JACOBS Community Capital	MARY BETH BIANCONI Delaware Engineering	JAMES LIMA JLP&D	JARED RODRIQUEZ Emergent Urban Concepts
LARISA ORTIZ Streetsense	ROBERT DADRAS Dadras Architects	DENISE FRANGIPANE Sullivan Renaissance	Leviticus Fund
MANDY KELSO TD Bank	DAVID COOPER Zarin & Steinmetz	Sterling National Bank	

METRICS

Identifying and tracking metrics will be an important way to evaluate the success of the “MAIN STREET Hudson Valley” initiative and demonstrably track the progress of main streets throughout the Hudson Valley. The following main street metrics will be tracked for participating communities:

- Photo evolution dashboard – photos will be taken of key locations on a main street at evenly spaced time intervals to show the physical changes occurring over time.
- Storefront vacancy rates – Tracking commercial vacancy rate will provide valuable information about the economic vitality of main streets. A handful of empty storefronts can have significant negative impacts on the look and feel of a main street.
- Wi-Fi Capacity – Internet access is more important than ever. Wi-Fi on a main street benefits residents, businesses, and visitors alike.
- Cleanliness Scorecard - One of the ways to attract customers and visitors to a main street is by ensuring that the appearance is clean. Many cities have tried and true programs for measuring cleanliness. Pattern will create one for the Hudson Valley.
- Develop a cohort of Main Street Managers.



DIGITAL VALLEY

DIGITAL VALLEY

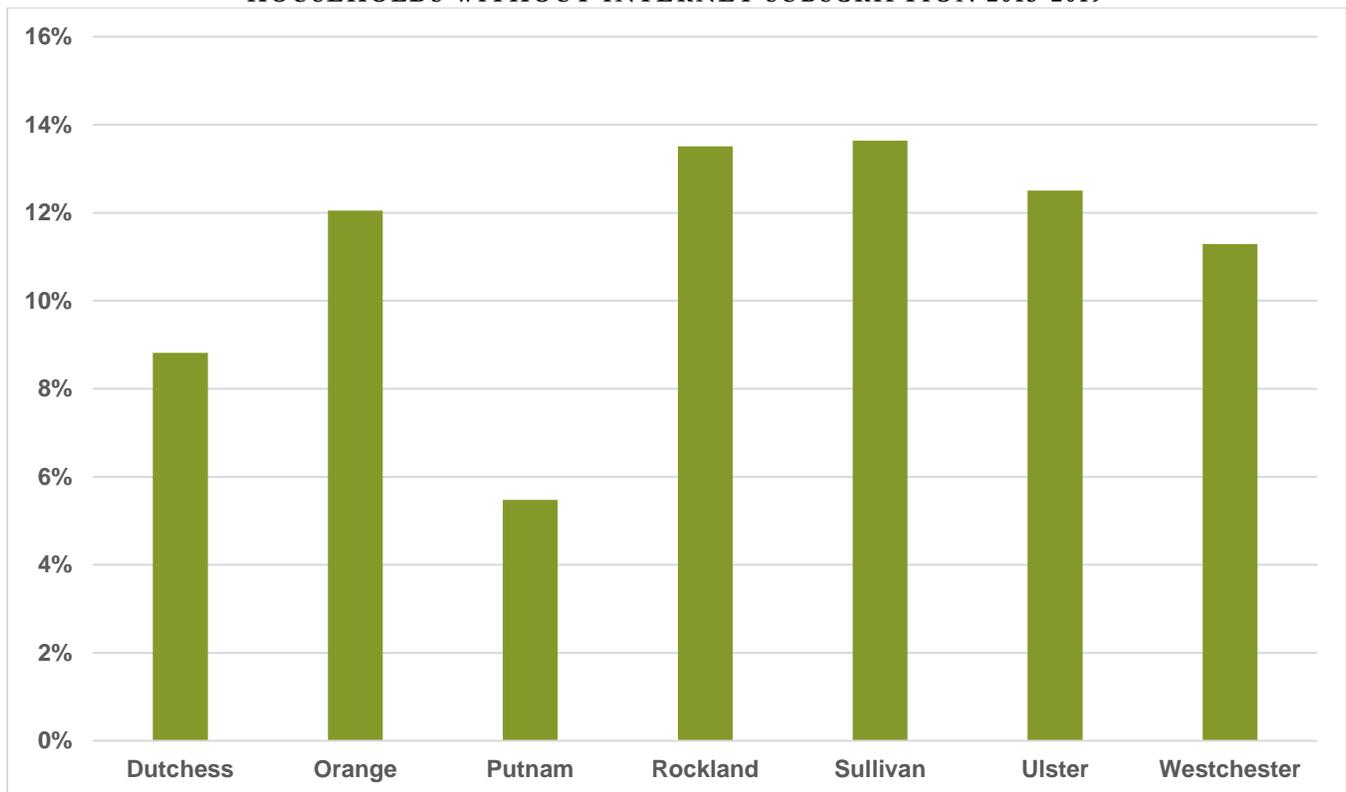
PRE-COVID

Prior to the pandemic, the region was well on a path of integrating two worlds: the physical and the emerging virtual one. With a Wi-Fi connection, people could use their cellphone as a bank, check work emails, read the news “paper”, as a navigational map, and a means to order food or goods. Universities offered online degrees, people from around the world could communicate with one another through video conferencing, and some companies existed entirely in the virtual space. Big data processing was proving to be transformative for the analysis of market trends and policies.

The region’s use and dependency upon technology and digital tools was already accelerating at an exponential rate. Yet, there were people, municipalities, and other institutions that were left out of this new way of doing things: those who lived beyond the reach of the physical infrastructure that connects individuals into the web of the internet, people who could not afford to pay monthly internet subscription rates or lacked devices to connect to this virtual space, and those without the necessary technical skills. Some households were only able to access the internet through a shared space, like an office or the library. There were also those who chose not to invest in the infrastructure they needed to participate in the virtual world.

While many aspects of modern life started to transition to greater use of technology, some institutions were hesitant, and others lacked the skills or capacity to make the switch. In-person meetings, education, doctor visits, and even in-store shopping was still the norm and government activities were still in public buildings. Opportunity to improve efficiencies and the delivery of services were being lost.

HOUSEHOLDS WITHOUT INTERNET SUBSCRIPTION 2015-2019



**1-Year data not available for Greene and Columbia Counties
Source: US Census American Community Survey 1-Year Estimate 2015-2019*

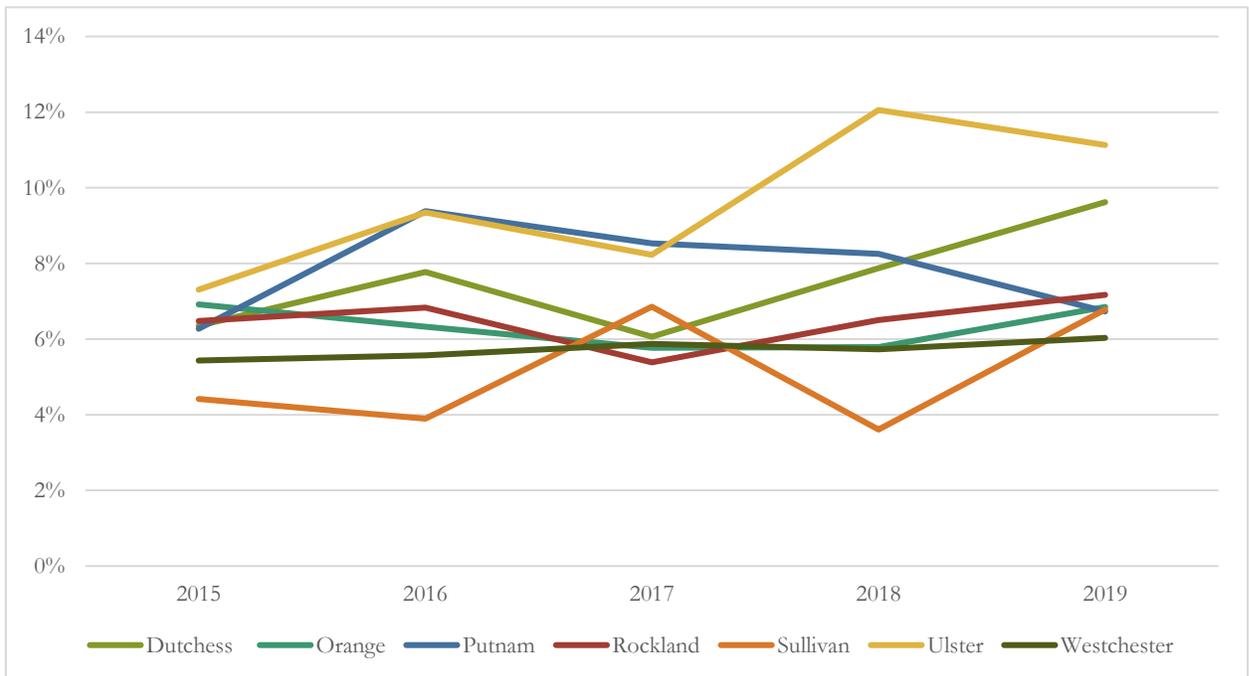
The percentage of internet subscriptions has slowly trended upwards from 2015 to 2019. While access has increased over the five-year period, somewhere between 5%-15% of households were still without an internet subscription as of 2019. To put that in perspective, if 10% of Westchester County has no internet access this could be as many as 100,000 people.

Rural areas have lower levels of internet usage and access due to a lack of infrastructure. Broadband companies invest in areas when revenue from customers is larger than the cost of infrastructure. Sparsely populated areas have less coverage and higher subscription fees than in urban areas. Even in the more densely populated county of Westchester, 14% of households do not have an internet subscription, as cost is still a barrier for many households.

HUDSON VALLEY HOUSEHOLDS WITH ANY TYPE OF INTERNET CONNECTION 2019

	Internet Subscription	Broadband of any type	Broadband such as cable, fiber optic or DSL	Satellite Internet service	Cellular data plan	Cellular data plan no other Internet subscription	No Internet access
Columbia	80%	80%	65%	7%	59%	8%	17%
Dutchess	88%	88%	80%	3%	68%	6%	9%
Greene	74%	74%	55%	8%	47%	12%	22%
Orange	80%	80%	74%	4%	62%	5%	14%
Putnam	92%	92%	83%	2%	77%	7%	6%
Rockland	83%	82%	75%	2%	65%	6%	15%
Sullivan	81%	80%	70%	5%	52%	6%	17%
Ulster	87%	86%	78%	4%	59%	6%	11%
Westchester	86%	86%	79%	4%	72%	7%	10%

PERCENTAGE OF WORKERS THAT WORK FROM HOME 2015- 2019



Residential internet access enables people who would otherwise work in an office to work from home. The percentage of people working from home was on an upward trajectory from 2015 to 2019.

WHAT CHANGED DURING THE PANDEMIC

Throughout the Hudson Valley, governments, institutions, businesses, and families were forced to adapt to the challenges presented by the COVID-19 pandemic. In many cases, technology was a key component of overcoming these problems. The integration of technology that occurred in the past year may very well have taken a decade or more without the catalytic influence of the pandemic. While these innovations are exciting, the pivot to technological solutions also brought into sharp focus the inequities of digital access in the region. As almost every dimension of modern life migrated to the virtual world including education, work, public meetings, healthcare, therapy, yoga, conferences, socializing, and more, those without adequate access were left behind.

It is difficult to overstate the pandemic's impact on the way employers and employees view the workplace. For many employees, working from home improved their work/life balance by eliminating commutes, increasing flexibility, and providing more time spent with family. The successful implementation of remote work has prompted many employers to reevaluate their needs for physical office space.

While the pandemic affected practically all lines of work, changes in the medical profession were particularly profound and noticeable as they occurred during a time when many healthcare workers were risking their lives every day to care for COVID-19 patients. The pandemic necessitated the medical profession to quickly adapt to a telemedicine model. Prior to the pandemic, telehealth had limited use; but by May of 2020, virtual appointments comprised 50% of all doctor visits. Telemedicine improved accessibility to healthcare for people with mobility challenges due to transportation, age, and other physical conditions. While telehealth certainly does not work in all circumstances, it does offer some advantages such as improved flexibility and accessibility.

Before the pandemic, many municipalities in the region struggled to integrate technology into the delivery of their services, or simply treated their digital presence as an afterthought. This quickly changed when the pandemic hit New York, as municipalities were forced to find ways to virtually communicate and provide necessary public services. In many cases, this push towards online services was beneficial to local governments, allowing for public meetings, court appearances, and payment of fees. All offer increased efficiency and savings for local governments.

However, the successful integration of new technologies and virtual solutions is a remarkable achievement and highlights the importance of access to technology. The consequences of not having a reliable internet connection during the pandemic were serious. As the region converted to virtual learning, telehealth, and remote work, municipal services, and other remote opportunities, some were able to make the adjustments seamlessly, while others were left with unequal access.

Overall, the pandemic accelerated an existing trend of an increasingly digital and virtual world. The increased reliance on technology improved life for some while simultaneously exacerbating the impact of inequitable access to technology. The use of digital technology during the pandemic demonstrated that things can, and often should, be done differently than they were done in the past.

RISKS

In this new digital age, improvements in the technology of data processing, systems sharing, and the widespread availability of digital information means more activity is occurring online. As more economic, government, health, education, and social activity moves to the digital realm, the vulnerabilities of this space also become more apparent.

Reliable energy service has never been more essential to the residents of our communities and their families. That reliability will become increasingly important with growing dependence on internet access and connectivity.

Cybersecurity is paramount in the age of technology. Hackers have extorted money from internet users since the dawn of the internet, but the level of disturbance has dramatically escalated in recent years. Some of the more common threats include tech support fraud, business e-mail compromise, extortion, and ransomware.

RANSOMWARE

“A type of malicious software, or malware, that prevents you from accessing your computer files, systems, or networks and demands you pay a ransom for their return. Ransomware attacks can cause costly disruptions to operations and the loss of critical information and data.”

– Federal Bureau of Investigation

MOVING THE REGION FORWARD

There should be a concerted effort to create what Pattern calls the “Digital Valley” that promotes strategies and policies that accelerates the Hudson Valley moving into the digital world. The region took a major step forward to exist in both the physical and virtual worlds but now needs to ensure that the digital infrastructure and technology is in place to support this transition.

The following recommendations support the “Digital Valley”:

1. Develop a regional internet access plan

To support the attraction and retention of businesses and people to the Hudson Valley, it is vital the region invests in the infrastructure that supports universal broadband. A regional internet access plan would support this goal. The access plan would include an assessment and analysis of current conditions and needs throughout the region, recommendations to bridge the gaps in service, and measurable metrics for improving internet infrastructure to further access for all.

2. Solicit the private sector to invest in broadband infrastructure

Local municipalities with broadband infrastructure challenges should encourage the extension of broadband access by leveraging private investment through public/private partnerships. By issuing request for proposals (RFPs), they can solicit service providers to meet local connection needs. They can also work to minimize barriers by relaxing permitting requirements at the local level in order to increase broadband deployment. Publicly owned spaces like rooftops should be made available for small broadband infrastructure.

The region needs to expedite the ability of broadband companies to provide access to all, unlike municipal contracts that allow utilities to operate by paying a fee. This can be done by reviewing the requirement of multiple, separate franchise agreements with individual communities and create a more unified approach to creating a common platform.

3. Public Broadband

Internet infrastructure has a high price tag. When the private sector fails to make the investment needed to provide a community with access, communities should consider spending public dollars on broadband. A Broadband Economic Feasibility Assessment will show whether community and economic benefits justify the public investment. An assessment might include the following:

- Public facility cost reductions that would result from the investment. Facilities might include municipal offices, schools, and libraries.
- Household savings if broadband is made more affordable
- Economic growth as triggered by broadband availability

4. Invest in workforce training to serve the updated network

The expansion of broadband infrastructure is an opportunity to create well-paid local jobs but requires a skilled labor force. Regional training facilities should work with local governments to develop training programs that prepare workers for entry into this field.

5. Invest in 5G, the next generation infrastructure

5G offers an internet speed that is 20 times faster than the current 4G system and has the ability to connect 100 times the number of devices. As the region works to bring internet access to all, municipalities, service providers and communities should invest in the newest technology and remove barriers to entry for new technology to help New Yorkers remain competitive in the future.

6. Invest in data infrastructure

Data infrastructure is digital infrastructure that supports the collection, sharing, and analysis of data. By investing in this type of infrastructure, it is easier to share data across systems, which increases efficiency and collaboration. At the local level, different municipal departments may collect data that is useful to other departments but because there is no system of sharing, there are missed opportunities of collaboration.

7. Enhance local power grids to build resiliency into systems

Access to safe and reliable power is critical in keeping our communities charged and digitally connected. Investing in cybersecurity, smarter controls, storm hardening and micro-grids limits the effect of widespread outages and boosts the overall resilience of our power grid.



8. Digital literacy training

Digital literacy means being able to access online employment, educational, health, government and media resources. Digital literacy requires a combination of IT skills and critical thinking skills to judge the validity of information and the authenticity of a source, and to analyze information and to communicate using digital technology.

In a digital world, it is imperative that all persons are offered the opportunity to be digitally literate. For younger persons this education can happen in school. For people no longer of school age, digital literacy resources should be made free and available at public libraries and community colleges. Special attention needs to be given to the needs of the elderly and homebound. As the “internet of things” and essential services become almost exclusively digital the region needs to make sure that all people have equitable access to it.

Gen Z is the generation that grew up with the smart phone. It is instinctual for them to go to their handheld device as an extension of their daily lives and critical thinking. The region needs to draft them as “Tech Core” ambassadors to bridge the digital literacy and learning divide, to help those that do not yet understand how to use technology. It seems that everyone – rich or poor – has a smart phone. It is important to educate those that do not understand that they have the capacity to research anything right in their hands.

9. Invest in data and systems security

The security of our IT system is essential to our community wellbeing. The region needs to increase our fluency in cybersecurity to ensure that our IT systems at all scales and in all contexts are secure from disruption. This will require a coordinated approach to ensure that systems still speak with one another to take advantage of transparency and are simultaneously protected from cyberattacks.

The region needs to invest in robust cybersecurity to protect information and to safeguard critical infrastructure. There needs to be an investment in creating redundancy within systems and in strengthening platforms.

Recent ransomware attacks on Colonial Pipeline and on nine beef plants belonging to the world's largest meat producer, JBS, serve as an alarm for the vulnerability of businesses and government to cyberattacks. These attacks resulted in direct costs to the consumer for both gas and meat products.

The F.B.I. lists precautions that should be followed to minimize the risk of a ransomware attack. They include:

- Keep operating systems, software, and applications current and up to date.
- Make sure anti-virus and anti-malware solutions are set to automatically update and run regular scans.
- Back up data regularly and double-check that those backups were completed.
- Secure your backups. Make sure they are not connected to the computers and networks they are backing up.
- Create a continuity plan in case your business or organization is the victim of a ransomware attack.

10. Continue to Invest in Recent Modes of Technology Training

Our many institutions need to continue and enhance the investments in technology education. These happen through traditional models of training, such as technology certifications, associates and bachelor's degrees in information technology from our regional institutions. There are notable initiatives that have recently started, which are critical to the future of the region. Three examples of new initiatives are below.

- SUNY New Paltz's Engineering Hub, launched just before the pandemic, had important support from Central Hudson and other donors, to help provide a pathway for technical expertise needed for the region's infrastructure and business.
- IBM pioneered the Pathways in Technology Early College High Schools (P-TECH) program, in which students graduate with an Associate's degree that prepares them to advance in careers of applied and computer science, engineering, and other STEM disciplines. IBM has also launched their TECH U program, which offers technical training on IBM systems at various locations outside of our region.
- Marist College partnered with Newburgh Free Academy (NFA) to launch a new early college program where NFA students can graduate high school with up to 26 Marist College credits in computer science, preparing them for technical careers and reducing the cost of college education.

There are other examples of this kind of innovation in planning or in process, but Pattern believes that real, sustained strategic investment in new kinds of technology training is a foundational principle of our future success.

Pattern invites the region's technology companies to take the initiative and collaborate on a training site.



BEST PRACTICE: CITY OF CHATTANOOGA, TENNESSEE

The following excerpts from the Brookings blog provides a summary of how the City of Chattanooga, Tennessee went beyond their Innovation District to advance the entire city through the use of technology and a digital infrastructure ethos. This successful approach was paramount to leading new economic development and advanced the City in terms of attraction and retention of residents and businesses.

Building a more inclusive innovation district

There was a point in the not-too-distant past when Chattanooga, Tenn.—a midsized city of about 180,000 people nestled between the Cumberland Plateau and the Appalachian Mountains of southeast Tennessee—was better known for the “Choo Choo” than being at the forefront of anything. But in the last decade, Chattanooga has launched the first fiber optic network in North America capable of delivering 1-gig (and now 10-gig) speeds to any home or business, as well as the first innovation district in a city of its size.

In 2015, the city officially designated the 140 acres of downtown as the Innovation District of Chattanooga, offering innovation economy assets including startup incubators and accelerators, venture capital firms, coworking spaces, housing, multimodal transportation, parks and plazas, coffee shops, bars, and eateries, all served by EPB’s publicly owned smart grid and fiber network.

But soon after the District gained support from prospective tenants and legacy institutions, it became clear that—while it held enormous potential as an economic driver—it also risked further segmenting a community already marked by economic and geographic divisions.

To help ensure the District didn’t deepen these divisions, in 2015 stakeholders in Chattanooga launched a digital-equity initiative, Tech Goes Home (adapted from the successful Boston model), to coincide with the launch of the Innovation District. The Enterprise Center, a nonprofit economic development partner to both the city of Chattanooga and Hamilton County, leads the program, which works with local partners to provide community members with 15 hours of digital skills training, a new device (e.g., a Chromebook or iPad), and assistance acquiring low-cost home internet. The program, which in four years has served over 4,500 residents, is designed to remove fear and instill agency for those caught on the wrong side of the digital divide. Just as important, it is meant to make Chattanooga Innovation District a place where everyone—particularly those who have previously been excluded from such spaces—feels welcome.

Empowering participation through a sense of ownership, not just by invitation

Our efforts strive to empower residents to pursue success on their own terms, make their own decisions, and participate in the innovation economy through a sense of ownership, rather than only by invitation. This takes time, ongoing consultation with communities, and a lot of hard work, but we’ve distilled a few lessons that have helped us—and can help others—get there:

- **Connect digital inclusion efforts:** As discussed above, we’ve taken on digital inclusion as a community and intentionally connected that work with our Innovation District, creating overlapping access to social networks, physical assets, and internet connectivity. See the National Digital Inclusion Alliance (NDIA) for a number of best practices.
- **Advance a collaborative model:** We’ve convened community stakeholders around Innovation District development, smart city piloting, and bridging the digital divide to promote inclusion under one unified roof.
- **Offer flexible public space and inclusive programming:** We’ve ensured that multipurpose community spaces are part of place-based innovation strategies and lowered barriers to entry through regular events such as our Innovation Ecosystem Tour.
- **Consider equity when building smart city infrastructure:** If you’re making an investment in smart city technologies, look for ways to maximize your impact by investing in digital equity at the same time—for example, by including public Wi-Fi infrastructure when adding environmental sensors or installing fiber.

Source: Brookings (<https://www.brookings.edu/blog/the-avenue/2020/01/14/how-chattanooga-tenn-is-leveraging-digital-inclusion-to-open-its-innovation-district-to-all/>)

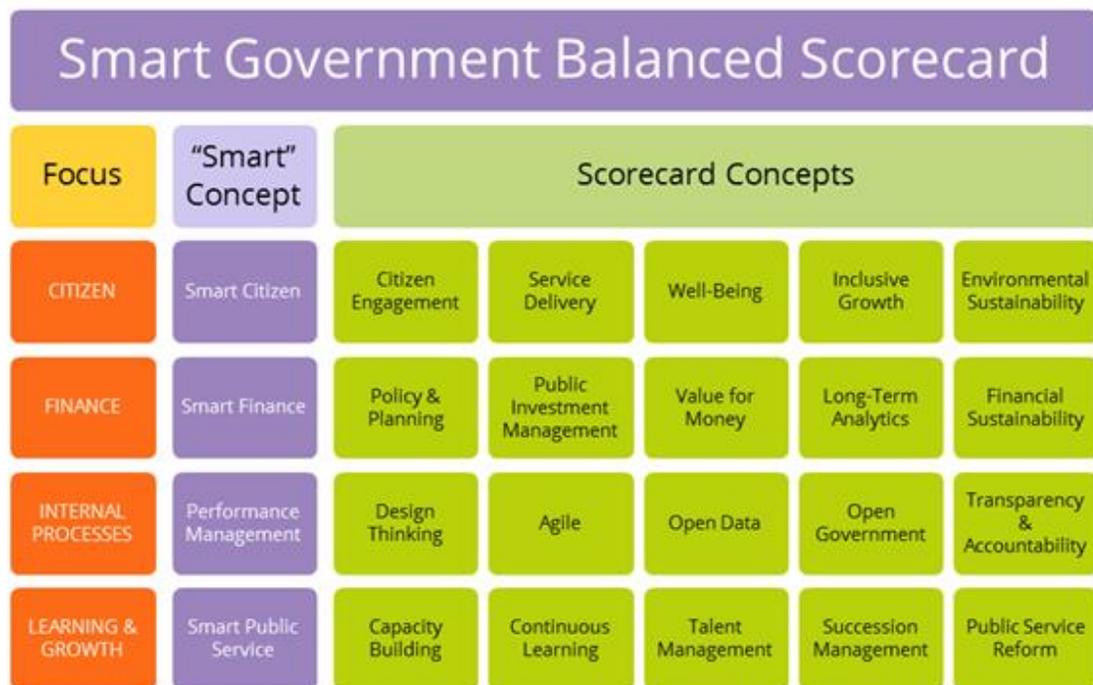
METRICS AND PARTNERS

METRICS

Over the next few months, Pattern will research and share proposed best practices for implementing these recommendations across all industry sectors, both private and public. While Pattern is aware of several initiatives, we will look for other partners that have the training and knowledge to fully develop a roadmap for the integration of technology into the region.

The creation of a “digital roadmap” for the Hudson Valley that may include things such as: the implementation of municipal digital report card which could provide a way to measure progress on increasing digital access, and government efficiencies through the use of data sharing, online services, and other digital

This chart is an example of what could be created as a municipal report card that measures metrics related to the integration of technology and municipal services. Each scorecard would be tailored to address specific projects and initiatives to support the needs of the community through more efficient delivery of government services.



Source: Freebalance.com

PARTNERS

Pattern seeks to identify and convene a working group of industry and IT professionals throughout the Valley who can serve as advisors to this effort. Since everyone benefits from a safer, more resilient, more transparent IT network, residents, businesses, municipalities, healthcare institutions, and educational institutions (primary, secondary, post-secondary) will all be considered as part of the stakeholder group.

ACADEMIC INSTITUTIONS

Training ground for next generation of IT specialists; workforce development for existing labor force

UTILITIES

Opportunities to harden power distribution grid; opportunities to expand last-mile access (really, last 100-feet access) to broadband service; opportunities to secure vital water/wastewater infrastructure

PRIVATE SECTOR

Invite IT heads of major corporations to share best practices, leverage Hudson Valley innovation in IT

PUBLIC SECTOR

Development of common platform for system architecture; sharing of best practices

AGENCIES & ELECTED OFFICIALS

Commitment of resources; development of common regulations and strategies



CONCLUSION

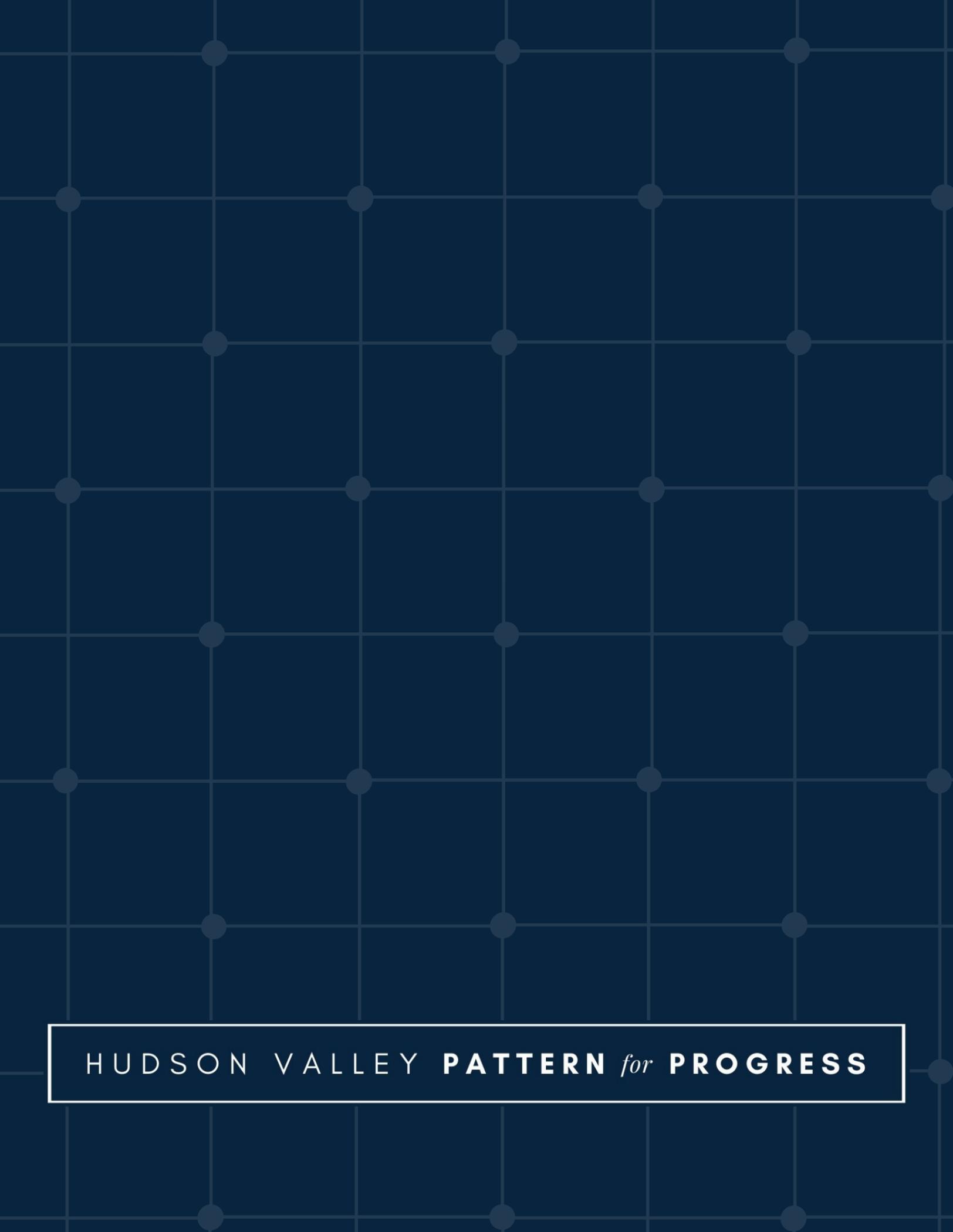
FORWARD

Pattern believed pre-pandemic there were issues that needed to be addressed throughout the region, as described in our report, *Out of Alignment*, released in November 2019. In many ways, the pandemic heightened our awareness of those issues and some of the built-in inequities we had overlooked. In addition, there are many new challenges the region is now facing. As described in the introduction, Pattern will be concentrating its efforts on these four strategies. It is our sense of how to move the Hudson Valley region forward at this time.

The American Rescue Plan Act is a current source of funding for municipalities, not-for-profits, and private organizations. We urge them to consider this funding to assist them in implementing the recommendations contained within the four strategies in “The Pathway Forward.”

Pattern welcomes your participation and support.

Please email us at rdegroat@pfprogress.org with your ideas, willingness to be involved, and your thoughts on how best to move into this post-pandemic world.



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