

WNYLRC LEAP Committee

Asset Mapping Project Summary

The scope of the work of the Western New York Library Resources Council's (WNYLRC's) Committee for Library Education, Advancement and Partnerships (LEAP Committee) is to, "build and maintain awareness and support of libraries, their programs, staff, and their value to regional stakeholders, partners, and communities." To that end, our work has included efforts to, "facilitate activities to educate stakeholders on the relevance of libraries to their communities." Our asset mapping project was initiated for this purpose.

Our goal was to gather data from our member libraries of all types in order to gain a better understanding and make more evident, the resources available to the communities they serve in the region that can, in the words of the Institute of Museum and Library Services, "Advance the role of libraries as community anchors that enhance civic and cultural engagement, facilitate lifelong learning, promote digital inclusion, and support economic vitality through programming and services." The "digital inclusion" piece was a key focus of the surveys since the pandemic had made very evident the inequities in our society that were precluding many individuals from full participation in civic life as a result of their lack of broadband, devices, and digital skills in some combination. Libraries can and should be at the forefront of efforts to address digital inequities and to meet the changing needs of the communities in which they are located.

The resulting data shows there is uneven opportunity and ability among our libraries to be responsive to the digital inclusion needs of their communities. Some of these conditions and possible explanations are found in the report, as well as several suggestions for ways to change the role of libraries in the current digital equity ecosystem in Western New York. We feel this approach could be replicated across New York State to explore further regional differences and potential ways to address the inequities through more substantial investment in our libraries.

The initial survey was developed and data collected by Robert Beutner, GISP, CAPM, Director of Digital Learning at Hobart & William Smith Colleges. Survey analysis and data reporting was completed by Amanda Horner, MPH, CHES®, as an independent contractor. The report was edited and completed by Ms. Horner and Heidi Ziemer, MA, Outreach & Digital Equity Coordinator, Western New York Library Resources Council.

Why an Asset Mapping Survey?

Even before the pandemic began in early 2019, libraries, including those throughout Western New York, had been experiencing an increased demand for online services. The rise in e-books and open education resources; the trend of businesses and government to move services and products to online platforms; and a move toward patient portals in health care are just some of the ways that people were confronting new ways of obtaining and providing information before the pandemic.

A consequence of the pandemic is that this transformation in ways we all locate, access, and use information took place more rapidly than expected. Not only is it true that increased uses of e-commerce, shifts to online learning, and the rise of telehealth services are challenging adult learners' ability to navigate digital platforms with confidence, but they are also being confronted by increased automation and the integration of technology into many jobs as well as everyday activities, meaning there is an ever-growing list of platforms and processes to which we must all adapt, from our earliest years on (Bergson-Shilcock, Taylor, and Hodge 2023).

The continued emphasis of virtual ways in which we work, study, and manage our personal lives has created opportunity gaps in how certain groups of people have been able to adapt and move forward. We have moved far ahead in identifying issues of the "digital divide" that once centered simply on having access to broadband. "Digital adoption" is a critical factor to consider when developing policies, programs, and services to meet the information needs of current and future generations.

The inequities of access to digital resources have been well documented in research and data analysis in many sectors, including K-12 and higher education, health services, social services, business, and workforce development. The inequities commonly stem from factors such as affordability, adaptability, and physical accessibility. With digital literacy¹ becoming essential for success in most personal, civic, educational, and career pursuits, educators of all age groups across the country are searching for guidance on what digital skills to teach.

Libraries of all types expect to play a role in helping to address challenges in our local communities around digital inclusion and workforce development. In fact, libraries are often cited as critical "community anchors" for providing people with access to digital devices, skills, and broadband (Taglang 2015). We need to find out how prepared our libraries are to take on and grow in these new roles so they can receive the resources and support needed to successfully respond to their constituents.

This is especially important now because New York State received \$2.2M in funds to develop a Statewide Digital Equity Plan in 2023 (ConnectALL Office n.d.). Over the next several years, New York will be eligible for an additional estimated \$50-80M in funds to implement the Plan once it has been approved. Eligible uses of grant funds—funds that may be accessible to libraries—will include:

- Deploying or upgrading Internet in unserved or underserved areas or improving service to community anchor organizations (such as libraries)
- The adoption of digital equity programs and services addressing unique needs of highly impacted population groups
- Workforce development programs and vocational training (ConnectALL Office 2023).

¹ "The ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills" (American Library Association n.d.-a; National Digital Inclusion Alliance n.d.).

Asset mapping creates a way to view the different resources of institutions like libraries, measuring the capacity of institutions serving their communities. This can be oriented around solving a particular problem, such as digital equity. The WNY Asset Mapping Survey was developed by WNYLRC's Library Education Advancement & Partnerships (LEAP) Committee over the last year to help identify areas in the region where digital equity resources can be found (broadband, device, skills training access and related resources like maker spaces), as well as current and future plans for enhancing these services to local communities served by all library types.

Method

An initial mixed-method survey of WNYLRC member institutions was developed and sent out via email in early 2023. Responses were collected using ArcGIS Survey123 (ESRI n.d.-b), cleaned and prepared for preliminary mapping in ArcGIS Online (ESRI n.d.-a) in summer 2023.

In late 2023, survey data were exported from ArcGIS Online for additional data cleaning in R (R Core Team 2021) and Excel (Microsoft 2019). Data for a subset of library service questions were visualized in Excel². Updated maps were produced in ArcGIS Online and aesthetically refined using a third-party raster graphics editor.

Results

Across the six-county WNYLRC service area³ 240 libraries responded to the survey. Survey responses provided data on:

- Populations served
- Staffing
- Library space allocation
- Makerspaces
- Entrepreneurship resources
- Digital inclusion activities
- Budgeting for technology services

The survey was completed by nearly all public, academic and hospital libraries in the region. It was completed by many school and cultural libraries as well⁴.

Important Takeaways

One of the immediate findings is that there is a publicly accessible library in nearly every community of the Western New York region. Despite this positive number, libraries are struggling to maintain adequate levels of services, and are severely constrained in making any new advances in services due to chronic shortages in staffing and funding.

² For any given survey question, respondents who selected "Not Applicable" or who left the survey item blank were counted as unknown data and excluded from that question's corresponding visualization

³ Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans; along with some respondents from Allegany

⁴ Response rates: public, 95% (n=89/94); academic, 91% (n=20/22); hospital, 100% (n=11/11); cultural, 48% (n=12/25); K12, unknown (108 respondents; survey instructions requested responses only from schools with full- or part-time librarians)

Librarians in Western New York

According to the WNYLRC Asset Mapping Survey, on average, one part-time and fewer than two full-time professional librarians work in a given library (see Appendix B: Library Staffing Statistics). Furthermore, the map illustrates that few libraries in WNY have large numbers of full-time professional librarians on staff (see Appendix A: Map of Full-Time Professional Library Staff in WNY).

The table below shows estimated library employment rates (per 10,000 population) per county for the libraries participating in the WNYLRC Asset Mapping Survey. The numbers of libraries, and their corresponding employment rates, vary by county—with Cattaraugus, Chautauqua, and Genesee Counties reporting the highest employment rates (per 10,000 population) for professional librarians and all library staff.

County	Estimated Library Employment Rates per County (All Library Types, 2023)	
	Total Professional Library Staff per 10,000 Population	Total Library Staff per 10,000 Population
Cattaraugus (n=27)	5.40	13.18
Chautauqua (n=41)	6.27	12.36
Erie (n=116)	3.77	5.93
Genesee (n=5)	6.84	10.53
Niagara (n=26)	3.98	5.18
Orleans (n=8)	4.25	7.00
Region Total (n=223)	4.12	6.77

“Total Professional Library Staff” includes full- and part-time professional librarians for all library types. “Total Library Staff” includes professional librarians, full-, and part-time paraprofessionals for all library types. Calculations exclude Allegany County respondents (n=3), libraries serving multiple counties (n=9), digital libraries (n=2), libraries without location data (n=1), and libraries that did not respond to this question (n=3). Rates do not account for missing data from libraries that did not respond to the survey. Rates based on 2020 county population estimates (New York State Department of Health 2023).

To further illustrate staffing issues in librarianship, the following table uses state-level data sources to compare employment across a selection of different professions—demonstrating how public libraries, as an example, have much lower staff levels compared to other public service-based professions. Employment rates for full time-equivalent public library staff with a Master’s degree in Library Science are particularly low at less than two librarians for every 10,000 people in New York State.

Profession	Employment Across Different Professions in NYS	
	Total Employed	Per 10,000 population
FT-equivalent public library staff (Master of Library Science, 2020)	3,591 ^[1]	1.86
FT-equivalent public library staff (librarians, 2020)	4,382 ^[1]	2.27
FT-equivalent public library staff (all positions, 2020)	12,262 ^[1]	6.34
FT-equivalent state & local police (2020)	61,886 ^[2]	32.00
Active physicians (all specialties, 2019-2020)	75,749 ^[3]	39.17
Public school teachers (2022)	213,835 ^[4]	110.59

Rates based on 2020 NYS population estimate (New York State Department of Health 2023). ^[1]Institute of Museum and Library Services 2020. ^[2]Korhonen 2023. ^[3]Association of American Medical Colleges 2021. ^[4]New York State Education Department, n.d.

New York State currently offers professional library training through seven ALA-accredited schools in Albany, Buffalo, Syracuse, Long Island, and New York City (American Library Association, n.d.-b). At the same time, the library profession appears de-prioritized in our public institutions. For example, New York State law does not require a professionally certified librarian at every public or school library in New York State. Only public libraries serving a population over a certain size are required to hire professional librarians⁵. Pre-K-12 schools must have their own libraries⁶, but only libraries in secondary schools (grades 7-12) must have a certified school librarian⁷. Charter schools are exempt from school librarian requirements.

In terms of academic libraries, in 2022 WNYLRC conducted the WNYLRC Libraries Open Data Project to extract, analyze, and visualize academic library salary data from the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS) (Western New York Library Resources Council [WNYLRC] 2023). This project found that, among 18 academic institution members of WNYLRC, the number of employed full-time librarians declined by 25% from 2013 to 2021 (from 138 to 103 full-time librarians) (WNYLRC 2023).

⁵ “State Compilation of Codes, Rules, and Regulations of the State of New York,” 8 CRR-NY § 90.8 (2021), <https://govt.westlaw.com/nycrr/Document/I3651ccb2c22211ddb29d8bee567fca9f>; see also “State Compilation of Codes, Rules, and Regulations of the State of New York,” 8 CRR-NY § 90.7 (2021), <https://govt.westlaw.com/nycrr/Document/I3651a5acc22211ddb29d8bee567fca9f>

⁶ “State Compilation of Codes, Rules, and Regulations of the State of New York,” 8 CRR-NY § 91.1 (2021), <https://govt.westlaw.com/nycrr/Document/I365268f2c22211ddb29d8bee567fca9f>.

⁷ “State Compilation of Codes, Rules, and Regulations of the State of New York,” 8 CRR-NY § 91.2 (2021), <https://govt.westlaw.com/nycrr/Document/I365268f5c22211ddb29d8bee567fca9f>.

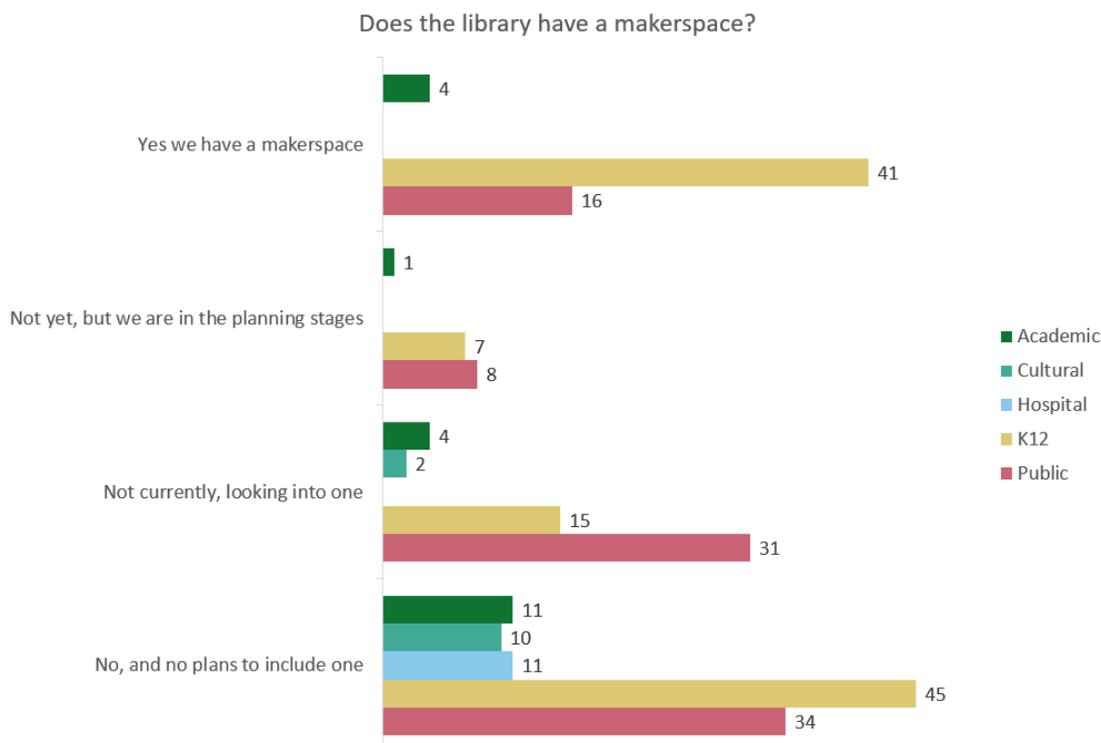
In a world where information needs grow more complex and newer skills are needed to access and evaluate information, these trends of low and declining employment of information professionals presents a significant concern.

Entrepreneurship and Makerspaces

[StartupBlink](#) ranks the United States among the top startup ecosystem countries in the world (StartupBlink 2023)—but not everyone has equal access to this unique ecosystem. Typically these startup spaces (“incubators”) require paying fees for membership, rental, and tuition that can be costly to people from underserved communities (such as low-income individuals, people of color, people with disabilities, veterans, seniors, and new Americans), as well as physically inaccessible from where they live (e.g., rural residents).

In the words of the company, [NextFab](#), maker spaces “*cut down barriers to providing access, technology, and community, and to create a place to learn, grow, and build*” (NextFab, n.d.). The growth of makerspaces in the country are introducing people to new technologies like 3-D printers and laser cutters, boosting entrepreneurial activity in American communities. Here in Western New York, the number of small business startups has also been rapidly developing as an important sector for economic growth. Libraries can and should be included in this ecosystem. [Invest Buffalo Niagara’s list of incubators and accelerator spaces](#) (Invest Buffalo Niagara, n.d.) should consider adding libraries to their portfolio of offerings to would-be entrepreneurs. But libraries also need to invest more in the resources needed to develop makerspaces that address the needs of people interested in starting a small business.

The survey shows that, among 240 libraries in WNY, only 25% have makerspaces, most often K-12 (n=41) and public libraries (n=16). However, sixty-two percent of libraries without a makerspace have no plans to establish one.



While the WNYLRC Asset Mapping Survey did not explore the reasons why a library may not want to have a makerspace, there are several possible explanations to consider:

- it is not seen as affordable⁸;
- there is not enough space in the library⁹;
- there is not enough staff to support one (see staffing discussion above);
- there is no interest in the community to have one;
- or that makerspaces may not fit with the library's services (e.g., hospital libraries).

A follow up survey or focus group could help identify the specific reasons, but in any event, it seems unlikely a community would not be at all interested in a makerspace, so the remaining reasons all point to the lack of resources the library would need (staff, physical space, funding) to have one.

One committee member from an academic library stated,

"If makerspaces did become more entrepreneurial, then introducing outside volunteers might be the best way to go. They'd have to come from organizations incentivizing employees to take that time, or perhaps they'd rely on interns? Or a [University at Buffalo] practicum student [in Information and Library Science] coming in for a workshop

⁸The 2020 Public Libraries Survey (Institute of Museum and Library Services 2020) shows considerable geographic variations in average total operating revenue for NYS public libraries; for example, large suburban libraries had an average total operating revenue of \$108.07 per person in their service area, compared to \$42.64 per person in the service area for distant rural libraries. This variation may affect the level of resources available to fund library services in a given geographic area. (Data for other library types were not included in the survey.)

⁹Of libraries that reported their size in the WNYLRC Asset Mapping Survey (n=126), 56% have 5,000 square feet or less of space. Due to the high level of missing data for this question (48% of libraries did not respond), a complete analysis of library size distributions for each library type by makerspace status was not feasible.

project, assessing the growth and effectiveness of the experience? We have such a wealth of local resources to pull from. This has to be possible.”

This is assuming no additional staffing for the library or additional training and duties for existing staff at libraries. But even to develop an outreach plan to recruit business sector volunteers would require additional time and funding.

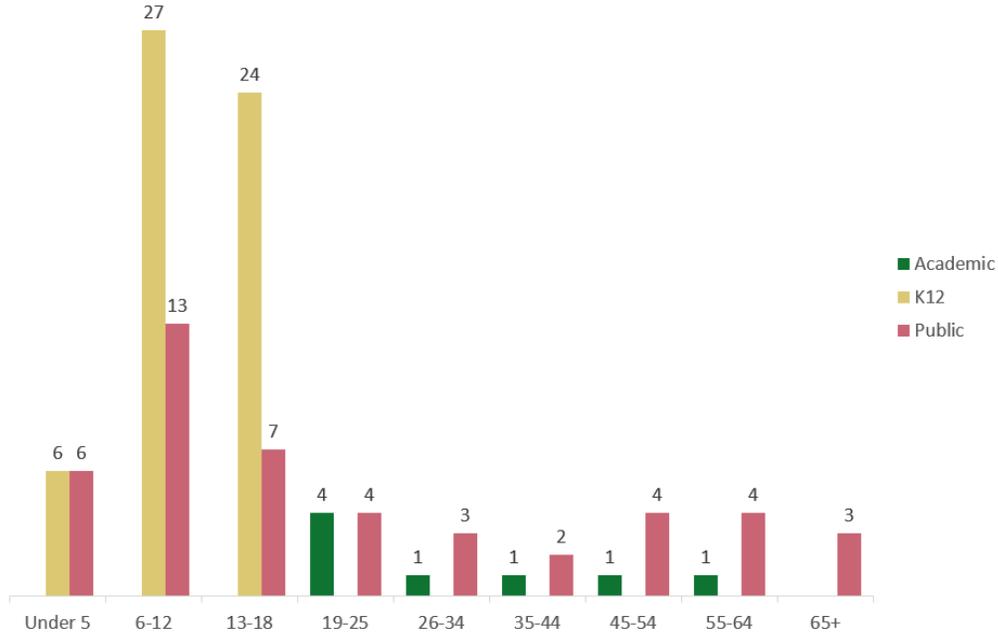
A committee member from an academic library pointed out the need for more space in existing libraries, or the possibility of rethinking library spaces in general by saying,

“If a makerspace for many libraries is one room with many incentives for children, then how would young adults or older adults have the room for their own endeavors? Central [Buffalo & Erie County Public Library Central Branch] I think has a really great example of multiple rooms that have to be booked ahead of time for use. Tools like the 3D printer can only be used if you've received training for it to prevent accidents. But if you don't have that space, how do you moderate for children and adults who want serious recording, workshops, etc.? Maybe "makerspace" becomes more of an overarching concept, a set of unified experiences, for some libraries, especially if certain experiences are reliant on outside relationships.”

Again, this would require additional time and resources for existing libraries to explore and test possibilities of new collaborations with other organizations to meet the needs of all age groups using makerspace resources.

As previously stated, of the respondents to the WNYLRC Asset Mapping Survey that currently have a makerspace (n=61), 67% are located in K-12 institutions. Comparing the age demographics served by makerspaces across K-12, public, and academic libraries, few makerspaces in the region serve adults ages 19 and older (see figure below).

What age groups typically use the makerspace?
For respondents that indicate having a makerspace



Makerspaces in school libraries can be advantageous to young people, giving them opportunities to adapt project-based learning (PBL) behaviors that better prepare them for the workforce world as they grow older. With the addition of new technologies in school makerspaces, the experience adds a STEM-based skill set; the most commonly-reported technologies among school makerspaces (n=41) in the WNYLRC Asset Mapping Survey were art supplies (90%), Legos (63%), gaming (54%), and robotics (49%).

Makerspaces in public libraries provide similar technologies and skill-development benefits as those in school libraries, but, in addition, provide people of all ages with an opportunity to become an entrepreneur, innovator, or both. Yet more must be done to expand makerspace access for adults in WNY.

Workforce Development & Digital Skills

According to the [National Skills Coalition](#), “a majority of jobs (52%) require skills training beyond a high school, but not a four-year degree. But too few of America's workers — just 43% — have had access to the skills training necessary to fill these in-demand careers” (National Skills Coalition, n.d.-b). In New York State, these numbers are very close (49% and 37%, respectively) (National Skills Coalition, n.d.-a). The [NSC further reports](#), “as we emerge from the pandemic and the pandemic recession, groundbreaking new research by National Skills Coalition and Federal Reserve Bank of Atlanta that analyzed millions of “help wanted” ads found that fully **92 percent of jobs now require digital skills**” (Bergson-Shilcock et al. 2023, emphasized by authors). Their conclusion: “we must make public investments to remedy the digital skill divide – and we must focus those investments with the goal of closing gaps in racial, gender, age, and geographic equity” (Bergson-Shilcock et al. 2023).

From basic or “foundational” digital skills to more advanced and occupation-specific digital skills, libraries are affordable and accessible ways for people to gain proficiency in digital technologies for many job-related functions. Just as with Entrepreneurship, libraries do and should continue to play a vital role in helping remedy the divide. Libraries could play a significant role in their communities by raising awareness of the benefits of digital skills training, regardless of whether or not they directly provide that training. Libraries could be the catalyst for encouraging people to become more proactive in their skill building and understanding the connection between digital skills and economic or educational opportunities.

According to respondents of the WNYLRC Asset Mapping Survey (n=234), nearly every library (84%) in the region offers some type of digital skills training¹⁰. Much of that training (n=197) is “one-to-one deskside coaching, informal” (77%) or “help desk-style troubleshooting, as needed” (70%). “On-demand, by request” is the most common frequency with which digital skills training is offered (46%).

Conversely, the least common styles of digital skills training are scheduled small- and large-group workshops (37% and 21%, respectively). Few libraries offer digital skills training through full semester courses (5%) or on a weekly or quarterly basis (11% and 13%, respectively).

Many libraries are therefore not offering regularly scheduled digital skills training programs. Staffing issues may partly underlie this service gap: 43% of all libraries surveyed expressed a desire for more staff dedicated to digital skills training and makerspace support, regardless of whether and to what extent the libraries already provided these services. Most of the time, among libraries offering digital skills training (n=197), the professional (86%) or paraprofessional librarian (26%) provides that training. Volunteers (6%) and contractors (4%) are rarely identified as digital skills trainers.

While WNYLRC did not survey libraries on the contents of their budgets or annual plans in the present study, a follow-up survey or focus group may yield further information regarding the extent to which the lack of regular digital skills training in libraries may relate to budgetary or planning issues as well.

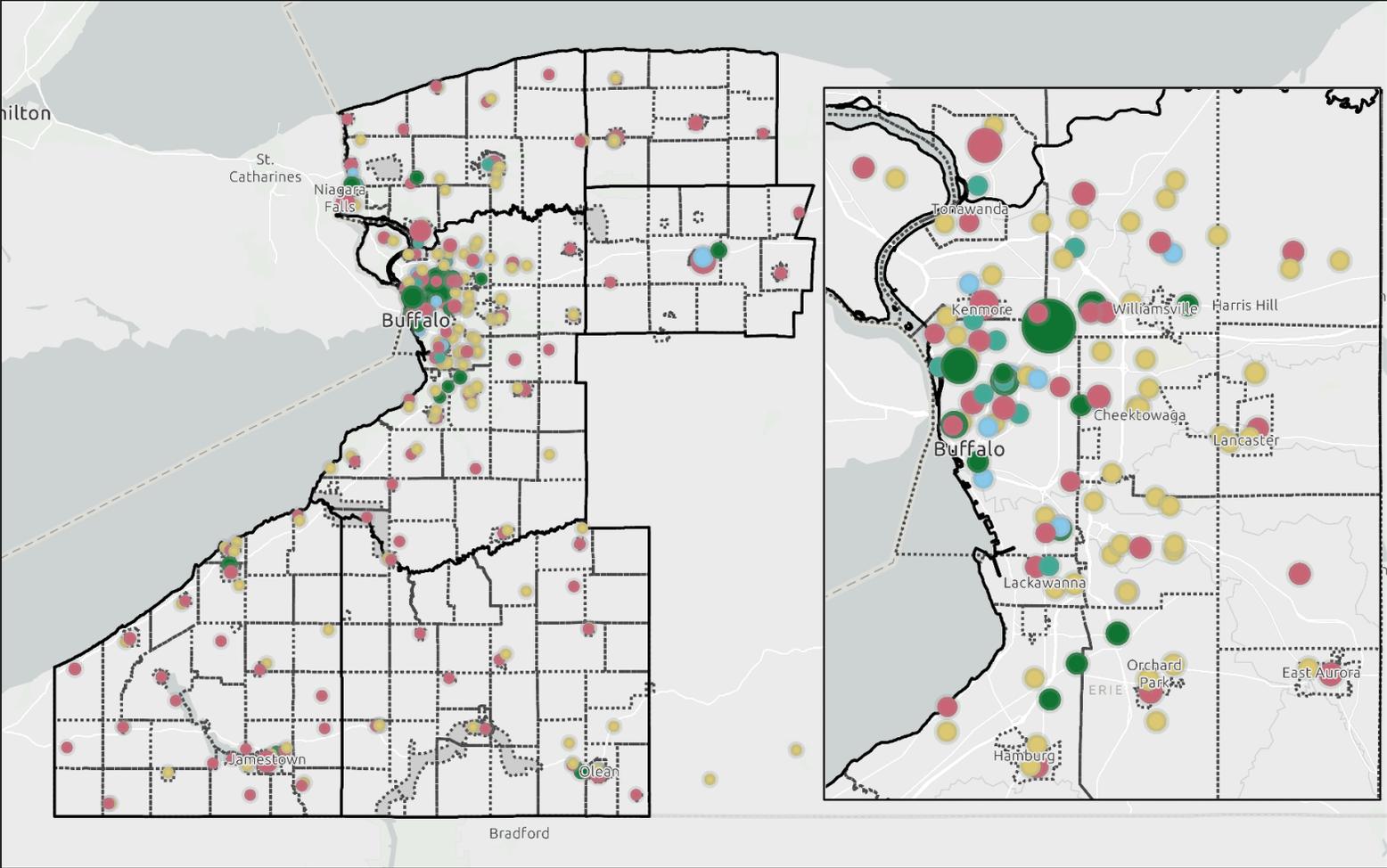
Conclusion

As stated earlier, despite the fact that there is a publicly accessible library in nearly every community of the Western New York region, many communities are not benefitting fully from their libraries. Libraries are struggling to maintain adequate levels of services, and are severely constrained in making any new advances in services, largely due to chronic shortages in staffing and funding. Substantial investments at the local and state levels of government could change this scenario, and provide the resources necessary for libraries to provide more consistent, inclusive, and equitable services to promote healthier, more economically robust communities across the Western New York region.

¹⁰ Libraries may provide multiple types of digital skills training.

Appendix A: Map of Full-Time Professional Library Staff in WNY

2023 WNYLRC Asset Inventory Results: Library Type and Size of Full-Time Professional Staff



Library Type

- K12
- Public
- Academic
- Cultural
- Hospital

Size of Full-Time Professional Staff

- ≤1
- 7.33333
- 13.6667
- ≥20

Legend:

- Counties
- Cities & Towns
- Villages
- Indian Territories

Scale: 1:1,486,610

0 5 10 20 mi

0 15 30 60 km

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, USFWS

Appendix B: Library Staffing Statistics

County	Average Library Staff Size per Role, by County			
	Full-Time		Part-Time	
	Professional	Para-Professional	Professional	Para-Professional
Allegany (n=2-3)	1.00	1.33	1.67	0.67
Cattaraugus (n=26-27)	1.04	0.59	0.48	1.65
Chautauqua (n=41)	1.15	0.49	0.78	1.38
Erie (n=116)	1.85	0.68	1.14	1.02
Genesee (n=5)	4.00	1.40	3.80	2.80
Niagara (n=26)	1.58	0.46	1.62	0.50
Orleans (n=7-8)	2.00	0.38	0.43	1.00
Multiple Counties (n=8-9)	1.56	1.69	0.44	0.50
Region Total (n=233-234)	1.63	0.66	1.07	1.11

Analysis excludes libraries that did not report staffing information (n=3-4), digital libraries (n=2), and libraries that did not report a county location (n=1). Potential outliers were not excluded due to small sample sizes in multiple subgroups (counties).

County	Median Library Staff Size per Role, by County			
	Full-Time		Part-Time	
	Professional	Para-Professional	Professional	Para-Professional
Allegany (n=2-3)	1	2	0	0
Cattaraugus (n=26-27)	1	0	0	0
Chautauqua (n=41)	1	0	0	1
Erie (n=116)	1	0	0	0
Genesee (n=5)	2	1	0	3
Niagara (n=26)	1	0	0	0
Orleans (n=7-8)	1	0	0	0
Multiple Cos. (n=8-9)	1	1.25	0	0
Region Total (n=233-234)	1	0	0	0

Analysis excludes libraries that did not report staffing information (n=3-4), digital libraries (n=2), and libraries that did not report a county location (n=1). Potential outliers were not excluded due to small sample sizes in multiple subgroups (counties). Grayed cells highlight medians equal to zero (indicating at least 50% of libraries in a county reported zero staff for a given role).

Library Type	Average Staff Size per Role, by Library Type			
	Full-Time		Part-Time	
	Professional	Para-Professional	Professional	Para-Professional
Academic (n=19)	6.30	2.24	4.37	0.55
Cultural (n=12)	0.67	0.00	0.33	0.42
Hospital (n=10)	0.60	0.00	0.80	0.00
K12 (n=107)	0.98	0.48	0.07	0.32
Public (n=85-86)	1.66	0.71	1.71	2.47
Region Total (n=233-234)	1.63	0.66	1.07	1.11

Analysis excludes libraries that did not report staffing information (n=3-4), digital libraries (n=2), and libraries that did not report a county location (n=1). Potential outliers were not excluded due to the small sample sizes of multiple subgroups (based on the number of libraries in a specific library type). Grayed cells highlight averages equal to zero.

Library Type	Median Library Staff Size per Library Type, by Role			
	Full-Time		Part-Time	
	Professional	Para-Professional	Professional	Para-Professional
Academic (n=19)	3	1.5	1	0
Cultural (n=12)	1	0	0	0
Hospital (n=10)	0.75	0	1	0
K12 (n=107)	1	0	0	0
Public (n=85-86)	1	0	1	2
Region Total (n=233-234)	1	0	0	0

Analysis excludes libraries that did not report staffing information (n=3-4), digital libraries (n=2), and libraries that did not report a county location (n=1). Potential outliers were not excluded due to small sample sizes in multiple subgroups (counties). Grayed cells highlight medians equal to zero (indicating at least 50% of libraries in a county reported zero staff for a given role).

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