

FY22 IMLS National Leadership Grants For Libraries
The New York Public Library, Astor, Lenox and Tilden Foundations
LG-251286-OLS

The New York Public Library (“NYPL” or “the Library”) respectfully requests \$500,000 in IMLS funding for a two-year implementation grant, to be matched with \$502,305 in cost-share, as seed support for the development of a Virtual Reading Room (“VRR”)—a controlled online research environment which will provide library patrons with mediated, secure remote access to otherwise restricted material collections. The VRR will advance the progress of knowledge by filling a critical gap in access to research collections not well-suited for open access models. As the need for equitable remote accessibility intensifies due to the continued COVID-19 pandemic and other factors worldwide, the proposed VRR will serve as a viable model for responsible mediated access to library collections on a broad scale, as well as an adaptable technological and policy model for peer research institutions.

Project Justification

NYPL’s vast and unparalleled audio and moving image (AMI) collections cover all formats and myriad topics from early recordings of Spanish operas to commercially released films. They are sought out by patrons worldwide to advance their research, study culture, and seek greater understanding of their world. Although most of these collections are available to view on-site at the Library, NYPL is not able to enable broader viewing of these collections online because they remain, for the most part, protected by copyright and are the types of items the law excludes from the delivery of digital copies by libraries and archives. While well-accepted interpretations of fair use and the library copyright exceptions allow NYPL to make copies of portions of print materials for patrons through the Library’s *Scan & Deliver* service, furnishing patrons with digital copies of audio and moving image items would likely lead to copyright challenges. For patrons seeking access to restricted collections like these, their only current option is to travel to an NYPL location and view them in-person.

The preservation and digitization of NYPL’s AMI collections has been an ongoing priority for the Library, particularly for items at risk of either deteriorating or becoming otherwise unplayable because of technological obsolescence. Since 2016, NYPL has received significant funding from The Andrew W. Mellon Foundation, Carnegie Corporation, the Jerome Robbins Foundation, and the Doris Duke Charitable Foundation (among others) for this preservation and digitization work, as well as capital funding from the City of New York to increase storage capacity. A significant portion of the most urgent preservation/digitization has been addressed, and the Library is now focused on making these items as broadly accessible as possible.

The need for expanded remote access to library collections has been significantly heightened by the COVID-19 pandemic, as libraries and other cultural heritage institutions have been forced to shutter their onsite operations, severely impacting in-person patron access. For the previous two years, these collections have been effectively shut to nearly all researchers. Although the return to on-site service models has somewhat mitigated these issues, a growing number of cultural heritage institutions are exploring sustainable means of providing secure remote access to their digital collections, with increased consideration for materials that may only be physically viewable on-location. This restricted access will continue to impact researchers across the country, even as the pandemic subsides.

Even before the COVID-19 pandemic, libraries, archives and other cultural heritage organizations identified the need for virtual reading rooms to serve their patrons. In February of

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2020, Stanford University Libraries held a two-and-a-half day forum on archival discovery and delivery. This forum, *Lighting the Way: A National Forum on Archival Discovery and Delivery*, was supported by IMLS (grant LG-35-19-0012-19) and was attended by 71 participants drawn from multiple disciplines and job functions in the archives, library, and technology sectors. The forum participants identified VRRs as a compelling opportunity to pursue given the significant national interest.¹

To continue momentum towards the development of VRRs, Stanford's *Lighting the Way* project hosted a series of working meetings where participants were organized around specific areas of interest to investigate a topic related to future-oriented opportunities to improve archival discovery and delivery. A group of nine participants discussed the opportunities and challenges presented by VRRs over a series of mediated and unmediated meetings over the course of two months. The participants then published a paper with recommendations to holistically develop and sustain VRRs.² The *Lighting the Way Forum* and this paper have provided the foundation for NYPL to pursue the development of a VRR and, importantly, share what NYPL learns and develops with others interested in meeting the needs of their patrons.

The Virtual Reading Room is an innovative resource that can help to address the complicated issue of providing remote access to restricted collections. Through the use of the exceptions and limitations to the exclusive rights of rightsholders in copyright law, VRRs provide access to restricted collections without permitting further redistribution or copying of those items by patrons by creating a secure viewing environment in which a patron may watch or listen to a piece of media without receiving or easily being able to make a copy of that item for later use.

Though there is significant potential for VRRs to effectively fill this gap in access, VRRs that have been developed to date have been highly customized and siloed systems informed by ad-hoc, hyper-local requirements, and there has not been a list of requirements or considerations to help inform the development or sustainability of VRRs in the professional literature. It is imperative, then, that the cultural heritage profession continues to seek thoughtful, sustainable solutions towards holistic development and practice of VRRs that account for people, policies, technologies, and workflows that cut across traditional department lines and areas of responsibility. For a profession grappling with precarious funding and labor, along with the evolution of user behavior and expectations, the availability of VRR technology, as well as well-defined legal justifications for broader VRR implementation and use, can provide a tremendous benefit to the cultural heritage field.

¹ Mark A. Matienzo, Dinah Handel, Josh Schneider, and Camille Villa. (2020). "Lighting the Way: A Preliminary Report on the National Forum on Archival Discovery and Delivery." Stanford University Libraries. November 2020. <https://purl.stanford.edu/rt078dm2196>

² Elvia Arroyo-Ramírez, Annalise Berdini, Shelly Black, Greg Cram, Kathryn Gronsbell, Nick Krabbenhoft, Kate Lynch, Genevieve Preston, and Heather Smedberg, "Speeding Towards Remote Access: Developing Shared Recommendations for Virtual Reading Rooms." *The Lighting the Way Handbook: Case Studies, Guidelines, and Emergent Futures for Archival Discovery and Delivery*, edited by Mark A. Matienzo and Dinah Handel, 141-167. (Stanford: Stanford University Libraries, October 2021), <https://doi.org/10.25740/gg453cv6438>.

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Through the proposed project, NYPL seeks to develop and implement key components of VRR technology and legal policy that will both support the creation of a VRR at the Library, and be widely shared with the broader library and overarching cultural heritage communities. Findings and products stemming from these efforts will serve as valuable guiding resources for institutions exploring VRRs as a service model, and will help to facilitate more widespread adoption of VRRs as a sustainable solution to mediated remote access. The target group for this project are the libraries and other cultural heritage institutions struggling with providing remote access to restricted collections lawfully.

Most, if not all, cultural heritage organizations with audio and moving image collections will have collections that are encumbered by copyright or other issues. This project will provide those cultural heritage organizations both a white paper discussing the legal issues presented by enabling remote access to collections and software that can be reused or repurposed to support VRR programs. Ultimately, the beneficiaries of this project will be all patrons who are unable to view materials in person or who would benefit from remote access to materials, including remote researchers. Having remote access to the VRR will aid the work of researchers who are unable to travel, those who need to access multiple collections held across the country and have limited time to access each collection, and filmmakers and other creators who need to understand what is on a recording before they begin the clearance process to obtain rights for use in their projects.

This project will address Goal 3 of the National Leadership Grants for Libraries Program to improve the ability of libraries and archives to provide broad access to and use of information and collections with emphasis on collaboration to avoid duplication and maximize reach. The project will also fulfill Objective 3.1 to address digital inclusion, Objective 3.2 to support innovative approaches to digital collection management, and Objective 3.3 to support the design and development of online library and archives services that meet user expectations for operating in an online environment. Overall, this project will address the IMLS agency-level goal of advancing collections stewardship and access. Development and implementation of the VRR will allow NYPL to significantly expand access to its substantial digital collections, particularly those that are currently only available to view on-site at the Library, to patrons on a national scale. Furthermore, the necessary legal framework and technical elements developed by NYPL for a fully functional VRR will serve as a valuable guide for institutions seeking to implement similar VRR models, thereby advancing access throughout the broader library community.

Project Work Plan

Project activities will be conducted through concurrent workflows to 1) define the legal policies and framework supporting the VRR and 2) design and implement a key VRR technical component: the user authorization layer.

Workflow 1: Legal Framework

The legal rationale for providing remote access to rights-restricted collections is complex. It relies on a number of exceptions and limitations under copyright law. NYPL will write and publish a white paper to define the legal policies and framework that support VRRs. To accomplish this goal, NYPL will:

- Conduct legal research to identify precedents relevant to VRRs;
- Draft a discussion paper setting forth the legal policies and framework for VRRs;

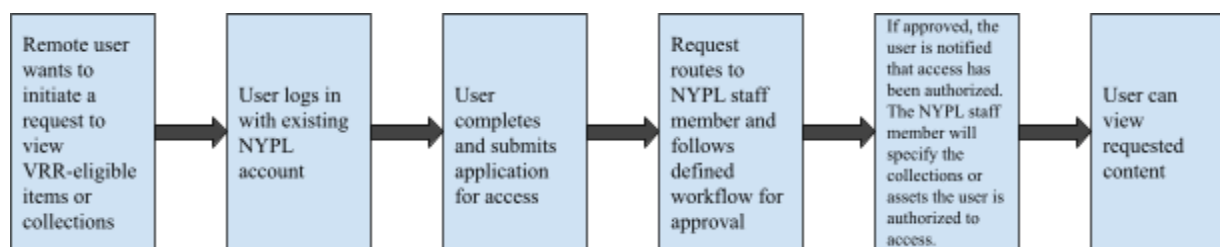
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- Host a virtual conversation on the discussion paper with selected members of the University Information Policy Officers organization³;
- Write and publish a white paper setting forth the legal policies, framework and recommended policy options for VRRs; and
- Promote distribution of the white paper online, in conference presentations, and through email discussion groups.

Workflow 2: Authorization Layer

Technical project activities during the grant period will focus on the development, testing, and refinement of the authorization layer of the VRR architecture; initial stages of authorization development will include determining authorization scope parameters and user profiles. Given that this is the initial phase of a multi-pronged effort to develop a VRR, NYPL intends to create a minimum viable product for this first authorization layer phase. This includes initiation and handling of the request by a patron to view the item, the staff workflow to approve the patron, and the authentication within the viewer. In the proposed authorization workflow (see Figure 1 below), users will submit a request to access the material in a web application, NYPL will ask a series of questions, request verification information and documentation if appropriate, and will review the request by either following an automated workflow or through a consultation with Library staff. Upon approval, the users will be authorized to view the requested material and granted online access. Built into this initial phase will be an opportunity to learn and further refine the offering as the VRR matures over time.

Figure 1. Process map of authorization procedure



Project staff will conduct the following activities to develop a viable authorization layer:

- Augment NYPL’s Digital Collections user interface in order to funnel patrons interested in VRR-eligible items into a workflow that will allow Library staff to determine the patron’s eligibility to view the collection.
- Create an authorization workflow that includes a mechanism for self-identification from the patron about their purpose and need to view the item, as well as a mechanism to ensure the request is funneled to the correct NYPL staff member.
- Create the authorization that integrates with an existing patron management system to allow staff with granting authority the ability to do the following:
 - Grant authority for a fixed amount of time;

³ <https://universityinformationpolicyofficers.wordpress.com/>

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- Remove authorization from the requesting patron at any time;
- Extend the authorization timeline by the same fixed amount of time;
- Provision roles which can be granted to users; and
- Pass the role once the patron logs into an access environment such as <https://digitalcollections.nypl.org> (NYPL's living database of digitized materials, henceforth *Digital Collections*).
- Design and implement a staff-facing authorization approval management system that is linked to NYPL's collection rights profile system. *Digital Collections*, or another environment, will authenticate with patron management and retrieve and validate user roles. These roles will define the data or group of data, and therefore collections, that the user is authorized to access. The environment in question will query/make an Application Programming Interface (API) call to a Metadata Management System (MMS) to retrieve data based on the role.
- Build the mechanism to provide authorization information to the access layer to allow playback. Ultimately, the MMS will need a layer which allows it to confirm the role has access to requested data/collections.
- Build MMS API endpoints to provide *Digital Collections* and/or other environments a list of collections based on the role(s).
- Implement an authentication layer that allows patrons to use existing credentials—such as those associated with Patron API and Security Assertion Markup Language (SAML), onto the Library's web-based access point for VRR-eligible collections. In this initial VRR project phase, NYPL will build within already available access environments, such as *Digital Collections*. The Library anticipates that augmentation of an existing environment or creation of a unique access environment may be necessary. Any creation of a new access environment exists outside of the remit of the proposed project.
- Implement instrumentation to understand usage of the VRR authentication and to assess metrics of success, including assessing the need for more robust access timeframes or levels of authorization.
- Ensure that all patron- or staff-facing portions meet Web Content Accessibility Guidelines (WCAG 2.1) accessibility standards.

The Principal Investigator for this project will be Greg Cram, NYPL's Associate General Counsel and Director of Information Policy, who will oversee legal policy development. Project engineering activities will be overseen by NYPL's Senior Director of Digital Technology and Senior Director of Digital Product, and will be developed with NYPL's in-house digital asset management (DAM) product and engineering team including a Project Manager, Product Manager, User Experience Designer, Quality Assurance Engineer, and Program Manager. This work will be done in collaboration with existing Product Managers from the Library's Information Technology (IT) team. These team members are technology professionals who are responsible for developing and supporting all of NYPL's digital asset management engineering products. Throughout this project, they will be responsible for the day-to-day oversight of technical development and meeting project deadlines.

NYPL will hire two part-time contract positions, a Senior Developer and a Senior Systems Engineer, for a period of 18 months each, to help conduct this work. The Senior Developer will

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work with the DAM team and be responsible for the engineering and coding work of the authorization systems; the IT Senior Systems Engineer will be responsible for architecting and implementing the underlying infrastructure that hosts the application in a secure manner. Both positions will have experience in authorization development and provide vital expertise for building the VRR authorization technology. This work is complicated and touches many digital products and systems across the Library, and additional capacity is needed in order to build on the existing system. This grant will allow NYPL to leverage our existing expertise and provide new resources to create the authorization that integrates with an existing patron management system and other systems like *Digital Collections* within an 18-month period, which would not be possible with existing resources. The project will also draw on the existing capacity of NYPL's digital asset management team, including roles across the Library's Digital and Information Technology departments and units of the Research Libraries.

Regular check-ins will be conducted with the development team, and key performance indicators will be set and monitored throughout the project. The Library uses an Agile Methodology (a strategy in which the project is broken up into several phases, and involves constant collaboration and continuous improvement at every stage) for project management and executes in two-week sprints (time-boxed period to complete a set amount of work). Progress will be tracked using agile rituals in daily stand ups, sprint planning and reviews/retrospectives, and at specific milestones. Projects risks, constraints, and any issues that may arise are raised for team review for expedient resolution.

NYPL is building on the foundation created by the IMLS-funded *Lighting the Way* project that led to a paper where the perspectives and contributions of libraries were documented. These perspectives and contributions have been regularly validated in subsequent presentations delivered by the Principal Investigator for this project and other authors of the *Lighting the Way* VRR paper. Attendees of presentations on VRR have expressed enthusiasm for the development of VRRs, and have provided valuable feedback to help scope the options for particular policy choices that need to be made for the successful implementation of a VRR.

The Library will continue to incorporate stakeholder feedback to inform project design and activities. NYPL will engage the authors of the *Lighting the Way* VRR paper to solicit feedback as the Library builds the authorization layer and writes the legal framework white paper. The Library will also pursue opportunities to discuss this project with information policy experts at peer institutions, including members of the University Information Policy Officers group, and by hosting a public program focused on rights, access, and VRR technologies.

At the project's conclusion, NYPL will produce a white paper detailing the finalized VRR legal policy, which will be made freely accessible on the Library's website and shared with any library or other institution interested in VRR development. This paper will serve as a valuable informational resource for VRR legal policy and framework that can be easily adapted by other institutions seeking to develop and implement their own VRR. NYPL is exploring various methods of dissemination for project deliverables related to authorization layer development. These methods may include making source code available via Github, providing staff availability

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for consultation with external library systems, and other means to facilitate broader distribution and replicability of technical products by other institutions interested in VRRs.

To promote the utilization of these deliverables, the Library will employ a number of tactics. First, the Principal Investigator will deliver presentations about this project at a variety of conferences. The Library will target conferences such as the Digital Library Federation Forum, the Coalition for Networked Information, Legal Issues in Museum Administration, Society of American Archivists, the annual meeting of the University Information Policy Officers group, the Association of Moving Image Archivists, and Code4Lib. Second, the Library will develop a program or set of public programs focused on rights, access, and technology, featuring the Principal Investigator, key project staff, and outside experts. The programs will be hosted onsite and online, and be advertised via Library social media and email. Third, the Library will promote this project through the use of social media and blog posts, documenting progress along the way. Finally, the Library will announce the release of the project deliverables by posting on email lists relevant to this project.

Budget Summary

NYPL requests \$500,000 in IMLS funding over two years to support contract costs for the Senior Developer (\$248,750) and IT Senior Systems Engineer (\$248,750), and indirect costs (\$2,500) at a de minimis rate of 10 percent and exclusive of subcontract costs in excess of \$25,000. Cost share will be met with personnel effort from the Library's Digital Asset Management and IT teams, fringe benefits, and travel expenses related to the dissemination of project results.

Project Results

NYPL will develop both the authorization technology, and legal framework required of a fully realized VRR capable of providing secure, mediated digital access for library patrons. This proposed project will bring NYPL one step closer towards implementing an operational VRR, a multi-phase goal that will extend beyond the project grant period. By developing a VRR, NYPL will greatly expand digital access to its extensive collections, particularly those currently only viewable on-site because of copyright or other restrictions. Overall, the number of collections that would become digitally accessible through the VRR will increase by hundreds of thousands, making these materials within the reach of millions of patrons nationwide.

Moreover, by advancing the legal and technical underpinnings of the VRR, NYPL hopes to facilitate broader development and implementation of VRRs at libraries and other institutions across the country. For many cultural heritage institutions, one obstacle to implementing VRRs is developing a legal framework to support the project. There are many policy choices to be made in the implementation of VRRs, so the legal white paper will be designed to help VRR adopters narrow those choices to both strengthen their legal positions and make choices that are appropriate for each institution. The white paper will be designed to give VRR adopters a head start and roadmap to approach the complex legal issues presented by VRRs.

Ultimately, this project will have national impact. While overall adoption of the VRR technology will depend on institution-specific platforms and infrastructure, the components developed by

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NYPL will serve as a meaningful technical roadmap. NYPL is committed to promoting this project and garnering support for VRRs. By presenting at conferences, sharing drafts of the legal framework white paper, and hosting conversations with other institutions about VRRs, NYPL will make this project and its results highly visible. By encouraging the replicability of VRRs through both a technical roadmap and a legal framework, NYPL's goal is to make it easier for patrons to lawfully access what they need. That way, more researchers can access more collections from a variety of institutions so that they can create new information, new aesthetics, new insights, and understandings to advance the progress of knowledge.

The development of the authorization layer, as well as the legal policy to support VRR viability, are foundational steps in NYPL's overall multi-phased approach to building a fully functioning VRR. The Library's senior leadership team and fundraising staff are committed to identifying potential funding opportunities that will support the scaling and advancement of this project beyond the IMLS-grant funded grant period. The next area of focus for the VRR will be on the technology to securely stream restricted collection items to remote patrons. This focus area will be heavily informed by the practices of commercial audio and video production. There are a number of "off-the-shelf" components for NYPL to choose from because the problem of securely delivering content to end users is not unique to NYPL.

Beyond the grant period, NYPL will continue to seek collaborations with others interested in developing VRR programs. NYPL committed staff to discussing the concept of VRRs at the *Lighting the Way Forum* and advancing those initial conversations to develop the *Lighting the Way* paper. As that paper identifies, collaboration is essential to the development and adoption of VRRs nationwide, and NYPL will explore additional ways to collaborate with other institutions interested in advancing the goals of VRRs.

Grant Year 1 Activities (August 2022 - July 2023)

		Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
Authorization Layer Workflow	Hire and onboard engineering consultants												
	Product discovery, requirements gathering, engineering approach decided												
	User Experience creates interface Designs												
	Outline staff authorization workflow												
	Begin authorization engineering work												
Legal Framework Workflow	Conduct legal research and identify precedents												
	Draft discussion paper of legal framework												

Grant Year 2 Activities (August 2023 - July 2024)

		Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
Authorization Layer Workflow	Engineering Authentication System Continued												
	Quality Assurance (QA) of system												
	Integration of Authorization system into larger VRR ecosystem												
	QA of entire ecosystem												
Legal Framework Workflow	Solicit feedback on legal framework white paper from University Information Policy Officer group and other experts												
	Promote project and legal framework white paper once completed												
	Publish legal framework white paper												

Digital Products Plan

Type: NYPL will create software that will enable staff to authorize patrons to access digital collections remotely that were otherwise restricted to viewing on-site at The New York Public Library. The authorization system will be linked, via API, to NYPL's current metadata and rights management system so that staff can authorize patrons to *only* those collections that are cleared for remote access. The patron will submit a request for viewing the materials via either email or through a form on nypl.org. Once the form is submitted, and staff have conducted an assessment of the individual and their need, they will proceed through a process in which they authorize that specific patron to view the specifically requested collections for a period of six months at a time through this new software system. The authorization process will involve NYPL staff logging into the authorization management system via SSO using its current Active Directory implementation; this will allow for user management of staff permissions to the authorization system via the Library's current login mechanisms. After logging into the system, staff will then input the relevant PII of the person who will be granted access to the system, including the name and email address they will use to access the collection. Staff will then give remote access to that patron by associating specific collection's alphanumeric IDs that exist in NYPL's metadata and rights management system. The access rights for each of these collections will be checked via the same API to ensure the rights for remote viewing are cleared. Authorization time will be fixed to 6 months, and the system will capture the start and end dates per patron; however, staff will have the ability to extend access by six months at a time. Initiation dates and extension dates will be captured within the system. Once the patron is authorized, they will be sent an email inviting them to log into the VRR system. That login system will communicate with this authorization system to ensure proper access is given. The VRR access and authentication system exists outside the scope of this grant.

The following programming languages will be used: Ruby, (potentially Python), SQL, Javascript, and API integration. NYPL will employ the following QA technologies: (R-spec, browserstack) and accessibility tools (WAVE). The infrastructure will be hosted in the cloud on AWS and will leverage native AWS resources (EC2, S3, RDS, etc.) through advanced automated deployments (CloudFormation). The infrastructure will be secured through the use of CrowdStrike, an Endpoint Detection and Response software, and a Web Application Firewall. The final legal framework white paper will be an electronic document in PDF format, and will employ headings features to make it screen readable and easily navigable for readers with print disabilities.

Availability: The development of secure authorization software and architecture is an essential initial step in the creation of a viable Virtual Reading Room. However, these necessary authorization and authentication systems are, by their nature, required to be closed systems to maintain the security of all Personally Identifiable Information (PII) and login data. The security of this patron data is of the utmost priority for NYPL, and the inherent safeguards required to maintain this security within the authorization system greatly limit NYPL's ability to develop and distribute open-source or shared code repositories related specifically to authorization. Despite these limitations, NYPL intends to make freely available, to the fullest extent possible, the benefits, learnings, and shareable code repositories for the Virtual Reading Room project as a whole. To ensure that the authorization aspect of the overall VRR product can benefit other

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institutions nationwide embarking on similar work, NYPL intends to freely share all relevant architecture documents, roadmaps, learnings, and other documentation to help the other institutions implement their own authorization systems, which they can integrate with their patron management system. In addition, the Library intends to share any templates and relevant code snippets (in alignment with its cybersecurity policies) with the larger community of cultural institutions. At the project's conclusion, NYPL will produce a white paper detailing the finalized VRR legal policy, which will be made freely accessible on the Library's website and shared with any library or other institution interested in VRR development. This paper will serve as a valuable informational resource for VRR legal policy and framework that can be easily adapted by other institutions seeking to develop and implement their own VRR.

NYPL will employ a number of tactics to promote the utilization of this project's deliverables. The Principal Investigator, Greg Cram, will deliver presentations about this project at a number of conferences, such as the Digital Library Federation Forum, the Coalition for Networked Information, Legal Issues in Museum Administration, Society of American Archivists, the annual meeting of the University Information Policy Officers group, the Association of Moving Image Archivists, and Code4Lib. NYPL will also develop a program or set of public programs focused on rights, access, and technology, featuring the Principal Investigator, key project staff, and outside experts. The program or programs will be hosted on-site at the Library (as health safety restrictions related to COVID-19 allow) and online, and be advertised via NYPL's social media and email accounts. Additionally, the Library will promote this project through the use of social media and blog posts, documenting the project's progress. Finally, the Library will announce the release of the project deliverables by posting on relevant email lists.

Access: As previously described, authorization and authentication systems are inherently required to be closed systems to ensure that all PII and login data is secure, thus limiting NYPL's ability to develop open-source or shared repositories for this authorization work. Given these limitations, NYPL will ensure that the work done related to the authorization aspect of the overall VRR product can benefit other institutions nationwide embarking on VRR work. This will be done by freely sharing all relevant architecture documents, roadmaps, learnings and other documentation related to the authorization work conducted through this project. These shared findings will be instrumental in helping other institutions to implement their own authorization systems and integrate them with their patron management system. Likewise, NYPL intends to share any templates and relevant code snippets, as allowed by NYPL's cybersecurity policies, with the library community at-large. For the legal framework white paper, the Library will release the paper under a [Creative Commons Attribution 4.0 International](#) (CC BY 4.0) license. By releasing the paper under a permissive license, the Library is permitting broad distribution and reuse of the final product. The only limitation imposed by the CC BY 4.0 license is the requirement that when it is shared and reused, attribution will be made to the Library.

Sustainability: The Library will maintain the authorization application (and its integration with the larger VRR project) internally, with NYPL's in-house engineering team. As per internal protocols, technology and security will be on a scheduled evaluation of no more than three years to ensure that all necessary updates and upgrades to programming languages, servers, and other security protocols will occur. This project will be continually maintained by in-house software engineering staff.

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Organizational Profile

The New York Public Library (“NYPL” or “the Library”), one of the nation’s largest public library systems, was founded in 1895 with the consolidation of the private libraries of John Jacob Astor and James Lenox with the Samuel Jones Tilden Trust. The mission of the Library is to inspire lifelong learning, advance knowledge, and strengthen its communities. NYPL comprises 92 locations, including three scholarly research centers: the Stephen A. Schwarzman Building, the Schomburg Center for Research in Black Culture, and The New York Public Library for the Performing Arts. In a typical year, NYPL receives more than 16 million patron visits on-site throughout its locations; in the last fiscal year, during the COVID-19 pandemic, the Library received over 11.1 million in-person patron visits, and its digital resources were accessed more than 27 million times remotely. With a physical presence in every neighborhood in the Bronx, Manhattan, and Staten Island and a service area of 3.52 million people, the Library is a vital anchor institution in some of the most underserved communities in New York and in the nation. Its service area, home to over one million immigrants, is culturally and racially diverse: 36 percent of residents are Hispanic; 35 percent Caucasian; 19 percent African American; 8 percent Asian; and 2 percent other. After closing all NYPL locations to the public in March 2020 due to the COVID-19 pandemic, the Library began gradually restoring key in-person services as it was safe to do so.

NYPL serves as one of the world’s great resources for the advancement of knowledge and study of the humanities. Collections are at the core of the Library’s service mission; with 46 million research items, NYPL is the fourth largest Library in the United States according to the American Library Association and an essential destination for humanities scholars and other researchers. The Library’s *Digital Collections* platform (digitalcollections.nypl.org) is the principal means of sharing NYPL’s digitized collections and has been a central resource for researchers since it launched in 2005. The platform offers universal access to many items in the Library’s unique holdings, including selections from numerous archives, manuscripts, and artwork, and others. In the Fiscal Year 2020, Digital Collections received 77 million page views and 2.8 million database item requests from major vendors, up 35 percent from the previous year, and an additional 76 million page views in Fiscal Year 2021. Since the launch of *Digital Collections*, NYPL has focused on rapidly growing the collections available online, and now offers more than 900,000 items through the digital portal.

NYPL’s digitization work has expanded greatly over the past few years, and the Library is embracing further digital transformation, pivoting to a digital-first approach to fundamental parts of collections access. NYPL’s long-term goal is that all patrons—including researchers working throughout the country—will have access to all materials, without needing to visit the Library’s physical locations. In September 2019, NYPL launched a new Digital Research Division, a unit focused on addressing the complex, interdisciplinary issues surrounding digitization. The new entity, which serves all of the Library’s research divisions, brings together three existing teams: Copyright & Information Policy, Digital Collections Services, and Digital Preservation. NYPL’s closures during the COVID-19 pandemic, and the speed at which Library staff were able to pivot towards remote services and programming, demonstrated the impact of the Library’s previous investments in digital infrastructure and the importance of further investment in this area of service.