Lawrence Public Library Technology Plan, 2021-2026

(Aaron Brumley, IT Coordinator, March 12, 2021)

The following outline captures our current and upcoming predictable changes and lifecycle replacements for technology equipment and software. This document does not reflect regular ongoing maintenance, recurring fees, or collection related technology expenses, but rather sets a schedule for predictable replacements and upcoming expenses. It should not be taken to be fully comprehensive and will adapt to changing needs and circumstances. Any dollar amounts are rough estimates only.

Computer replacement cohorts - Desktops and laptops for patrons and staff are on a replacement cycle of roughly five years. Where possible or necessary we may extend the lifespan of units to six years, but usually not longer. In the case of laptops, the lifespan may be shorter. Apart from the details outlined below regarding equipment replacement we will also seek to evaluate whether more staff can move to lower cost Chrome OS devices which may provide longer lifespans and simpler maintenance.

- 2021 - (Aligning with Public 4 & Staff 3 below) ~$16k (Approximately $7k spent in 2020)
    - 7 Windows Laptops for staff (Purchased late 2020, but entering service 2021)
    - 10 Monitors (Use to replace Asus 24 inch monitors in use on staff desks. Asus monitors will replace 10+ year old units on catalog stations.)
    - 2 Staff Macs, Studio / Public Tech + Marketing. (Mac Minis + Monitor)
    - 12 USB-C Desktop Docks (High reliability with good warranty. USB 4 / Thunderbolt 4 compatible, if available.)
- 2022 - Public 1 ~$28k
    - 12 Desktops in Children's Area (Originally purchased 2016.)
    - 4 Studio Macs (Originally purchased 2014. Upgraded 2019.)
    - 22 Desktops in MidCo Lab (Originally purchased 2017.)
- 2023 - Public 2 & Staff 1 ~$31k
    - 8 Desktops outside MidCo Lab (Originally purchased 2019.)
    - 18 Teen Zone Desktops (Originally purchased 2018.)
    - 25 Desktops primarily in Admin and Youth Services (Originally purchased 2018.)
- 2024 - Public 3 & Staff 2 ~$32k
    - 38 Staff desktops at Public Service Desks, in Accounts, Materials Handling, Info Services, Readers Services, Security, and Facilities. (Originally purchased 2019.)
    - 30 Monitors for public access computers on lower level. (Originally purchased 2014.)
- 2025 - Staff 3 ~$26k
    - 5 Windows Laptops (Originally purchased 2018. Upgraded 2020.)
    - 6 Windows Laptops (Originally purchased 2019.)
    - 7 Windows Laptops (Originally purchased in late 2020.)
    - 4 Chromebooks (Originally purchased in 2019. Support ends 2026.)
    - 30 Monitors for staff workstations. (Primarily replacing Lenovo Tiny-in-One monitors originally purchased in 2017.)
- 2026 - Public 4 ~$32k

    - 30 Public Chromebooks for Circulation (50 devices were originally purchased with CARE funds in late 2020. 9 units were still in use from an original purchase of 10 in 2017. Whether funding will be available to replace these devices is unknown. It seems reasonable to target replacement of some, but not all of these devices.)
    - 30 Hotspots (50 devices were originally purchased with CARE funds in late 2020. Again, funding is highly uncertain. This would be for device replacement only. Data plan funding would have to have been found and established in late 2021.)
    - 30 Monitors for Teen and Children's areas (Replacing monitors originally purchased in 2014 and 2017.)

Public Access Catalogs - Most of our catalogs are recycled from our supply of decommissioned public or staff computers. In addition to these we have a handful of endcap iPad catalogs.

- 2020
    - 10 Desktop computers (Currently recycled ThinkCentre M73 desktop units originally purchased in 2014. Upgraded with SSD in 2020. Plenty of spare units in storage. Performance suitable for catalog use.)
- 2021
    - 10 Monitors (Repurposed Tiny-in-One units originally purchased in 2017. A supply of identical backup monitors will be stored to replace these as they fail.)
- 2024
    - 3 Endcap iPad Catalogs (Originally purchased in 2018. Replace in 2024.)

Servers - Our servers are all virtualized on Microsoft's Hyper-V virtualization platform or in some cases hosted in the cloud. This has reduced our need for server equipment considerably.

- 2019
    - 2 x HP Gen10 Servers - Our primary Hyper-V hosts. (Originally purchased in 2019. Not due for replacement until 2027-2029.)
- 2021
    - UPS battery replacement. (Current batteries in use since 2016.)
- 2023
    - Evaluate UPS replacement. (Current unit in use since 2011. Underpowered. Provides significantly less than one hour backup power.)

Network - Since the highly successful transition to our Fortigate firewall as the backbone of our network in 2018 we have moved toward adopting more Fortinet products. Our transition to a fully Fortinet based network is now nearly complete.

- 2018
    - Fortigate 200E Firewall (Replace 2028.)
- 2020
    - 5 FortiSwitch 448D-POE switches (Replace 2030.)
    - 1 FortiSwitch 448D-FPOE switch (Replace 2030.)
    - 8 Outdoor FortiAP 224e APs (Replace 2030.)

- 2021
    - Indoor FortiAP FAP-U431F-A APs (Meraki units purchased in 2011 and 2017 to be replaced with Wi-Fi 6 compatible FortiAPs in 2021. Next replacement target 2031.)
- 2023
    - Consider purchase of additional switches. 3 x 48 port w/no PoE + 1 x 48 port w/full PoE (To be purchased 2023. Replace 2033.)

Connectivity - We have experienced excellent performance and support through our participation in the Kansas Research and Education Network and are proud to be a community anchor institution helping to support the work of the consortium. Our membership helps ensure independent alternatives to private telecoms remain available for eligible institutions throughout the state of Kansas.

- KanREN consortium membership is projected to continue for the foreseeable future.
- Our symmetric Gigabit connection through KanREN has served us extremely well and should be sufficient to meet our needs through 2025.
- Reevaluate whether additional bandwidth is needed as we approach 2025.
- Midco is now providing a cable modem based 500Mb down / 25Mb up connection for use by patrons on our outdoor Wi-Fi network. Midco was selected as a partner for this part of our network as it was funded by a Kansas Department of Commerce Broadband Partnership Adoption Grant. Outdoor connections like this are ineligible for Erate funding. (This connection is serving well for now. Monitoring of performance needed to evaluate whether upstream capacity is sufficient when under heavier use.)
- Reevaluate Midco connection annually to verify Erate ineligibility and to consider switching to Midco fiber for outdoor connection.
- Off-site access
    - Hy-Vee provides access to a public portion of their network to support our use of the Bibliotheca book lockers in their store.
    - We maintain 4 T-Mobile hotspot devices for staff use. These provide internet connectivity for outreach programs, bookvan service, and other incidental off-site programming needs.
    - VPN access for work from home staff. In 2020 we began offering VPN access through our Fortigate Firewall for staff working from home. This tool will continue to support staff for the lifespan of this device (through 2028).

Library specific technology, systems, and software - We strive to remain up to date with all our library specific systems.

- 2021
    - Automated Materials Handling
        - New Windows 10 computer. (Purchased late 2020. Installed early 2021.)
        - Continue sorter maintenance for the foreseeable future.
    - Staff RFID pads. Extend support through Bibliotheca or consider alternatives.

    - Begin exploring alternatives to current self-checks. Set a timeline for when replacement might be an appropriate alternative to continued maintenance. (Bibliotheca units in use since 2014. Replaced with new hardware in 2019.)
    - Explore alternatives to Bibliotheca book lockers. These have required very high investment of daily staff work and regular support from IT.
    - Evaluate replacements for Envisionware products PC Reservation (Public computer session management), LPT:One (public print management), and CloudPrint (remote public printing). CloudNine is Envisionware's replacement for PC Reservation. We will begin evaluating it and other alternatives this summer. Chrome OS compatibility for public computer session management is a prerequisite for any new product.
    - Unicode support for Symphony to allow foreign language character support.
- 2022 and beyond
    - Reevaluate Symphony ILS contract.

Sound+Vision Studio - The AV studio created when our building was remodeled in 2014 has been regularly updated with new equipment and changes to the space. It remains a premiere feature of our library and point of pride. We will continue to invest in maintaining and expanding the success of the studio.

- 2021
    - Major renovation to allow concurrent use of both audio tracking room and video production room. Also, to add space for better staff support. (Currently underway and expected to be completed in early 2021.)
    - Replace aging camera equipment with two 4k capable cameras, mounting hardware, and additional lighting.
    - Additional equipment intended to support two person podcast recording in an easy to start fashion.
- 2022 and beyond
    - Continued maintenance and regular replacement of existing software licenses and equipment.

Other technology, systems, and software - Various software licenses and other products are not captured in other sections of this document.

- 2021
    - 65" Digital Display - Portrait Orientation Banner Kiosk (Original purchase late 2020. Installed 2021.)
    - 1x 55" Digital Display - Portrait Orientation Kiosks for Children's Area (Requested but not yet ordered.)
    - 50 Public Use Licenses for Office Standard 2021. (To be acquired as "donations" for a moderate fee through TechSoup.)
    - 70 Staff Use Licenses for Office Standard 2021. (Evaluate Microsoft 365 alternative.)
    - 10 Staff Use Licenses for Office Professional Plus 2021. (Evaluate Microsoft 365 alternative.)

    - Paid institutional subscription for Google Workspace. (We have operated on a free version of Google's platform since at least 2010. We can expect to incur significant expense with our move to a paid subscription. Major benefits will include cloud storage sufficient to allow us to end most local file server storage as well as the ability to change our primary email domain from lawrence.lib.ks.us to lplks.org.)
    - Retrofit one or more of our large meeting rooms to serve as a ready to use video conferencing space with suitable camera, microphone and always available computer equipment. Compatibility with popular platforms including Zoom, WebEx, Google Meet, and Microsoft Teams will be required. Vendors will be sought to provide quotes.
    - Security system improvements
        - Replace aging network video recorder (NVR) with a system compatible with a broader range of cameras and supportable by library staff or a new vendor.
        - Add 6-12 cameras in Sound+Vision, outdoor areas, and poorly covered interior spaces.
    - Reevaluate Teen Zone gaming and AV needs.
- 2022
    - [*Depending on outcome of reevaluation TZ Gaming Reevaluation*] - 3x 48" Teen Zone TVs. Replace with 55" high brightness TV's. (Originally purchased 2014.)
    - [*Depending on outcome of reevaluation TZ Gaming Reevaluation*] - 2 Microsoft Xbox Series X game systems for Teen Zone. (To replace aging Xbox One.)
    - [*Depending on outcome of reevaluation TZ Gaming Reevaluation*] - 2 Sony Playstation 5 game systems for Teen Zone. (To replace aging PS4.)
    - [*Depending on outcome of reevaluation TZ Gaming Reevaluation*] - 2 Nintendo Switch game systems (To replace aging Nintendo systems.)
    - Replace auditorium projector with 4k capable projector and superior screen. Seek a vendor to complete work.
- 2023
    - Consider hosted VOIP and other phone system options to replace aging Mitel MiVoice 250 on premise PBX system.
- 2024
    - 3x 42" Digital Displays. (Originally purchased 2014.)
    - 5x 42" Study Room TVs. (Originally purchased 2014.)
    - Auditorium Projector. (Originally purchased 2014.)