



Memorandum

TO: NEIGHBORHOOD SERVICES
AND EDUCATION COMMITTEE

FROM: Jill Bourne

SUBJECT: UPDATE ON DIGITAL LITERACY
INITIATIVES

DATE: August 29, 2019

Approved

Date

9-5-2019

COUNCIL DISTRICT: Citywide

RECOMMENDATION

Accept the update on Digital Literacy Initiatives being implemented in the San José Public Library and Parks, Recreation & Neighborhood Services departments, including the Coding5K Challenge, the Wonder Workshop pilot program, device lending pilot programs, and public computer and Wi-Fi data usage.

OUTCOME

The Neighborhood Services and Education Committee will be informed about progress to date on the following specific programs that support digital literacy outcomes for City residents:

- The Coding5K Challenge, which seeks to enroll 5,000 students annually in quality coding and robotics programs by 2020;
- The Wonder Workshops pilot which seeks to bring high quality robotics and coding experiences to students through both libraries and community centers;
- Device lending pilots currently underway at the San José Public Library and Parks, Recreation and Neighborhood Services to increase access to quality devices for all members of the San José community; and,
- Public computing, Wi-Fi, technology upgrades to increase access.

BACKGROUND

The Education & Digital Literacy Strategy approved by City Council in May 2018 provides a framework for organizing and enhancing City efforts to impact educational outcomes for youth in three developmental categories: Early Education (*Entering School Ready to Learn*); Learning by Grade Level Proficiency (*Expanding Education Beyond the School Day*); and Pathways to Post-Academic Success (*Graduating Ready for College and Career*). An overlay priority that is

intrinsic to each developmental stage is the need to acquire age-appropriate digital literacy knowledge and skills.

In support of the City's Education & Digital Literacy Strategy (as well as the City's Digital Inclusion goals), the San José Public Library (SJPL) and Parks, Recreation & Neighborhood Services (PRNS) have increased their involvement in providing quality digital literacy programming to San José residents. This ensures that members of our community have the tools, knowledge, and access they need to be successful in our increasingly digital world through affordable means and city-wide adopted programs and initiatives.

ANALYSIS

The San Jose Public Library and PRNS are employing an iterative approach that utilizes small scale pilots and gradual expansion to ensure that programs are fully meeting the needs of our community, and that City staff can develop and deliver quality programming at scale. This update focuses on four areas of implementation: the Coding5K Challenge, the Wonder Workshop pilot, device lending pilots at SJPL and PRNS, and data regarding public computer and Wi-Fi usage.

Coding5K Challenge

Reflecting the City's commitment to increasing the availability of quality STEM and computer science programming to Silicon Valley students, the Coding5K Challenge was launched by SJPL in February 2018 in partnership with the Mayor's Office and the Silicon Valley Leadership Group. This program is designed to increase access to coding-focused programs and deepen the quality of the programming by utilizing both assessment tools and expert volunteers. The goal of Coding5K is to increase our capacity to serve 5,000 unduplicated students annually by the year 2020. Thus far, courses in Python, Java, C++, and Scratch have been implemented, including classes utilizing both robotics and coding.

Fiscal Year 2018/2019

In addition to exceeding the goal of reaching 5,000 students annually ahead of the 2020 target, the following achievements were made:

- 503 coding and robotics programs held at all 25 SJPL branch locations and Maker[Space]Ship, serving 6,161 students citywide;
- Seven full-day, week long summer camps providing coding experiences, STEM activities and healthy meals to 190 campers;
- 219 Moreland School District students participated in Coding5K activities through their afterschool program;
- Three girls only full-day, week long summer camps to help combat the lack of women represented in computer science and STEM careers, serving 75 students;

- 1,464 volunteer hours in service of Coding5K, including leading and supporting programs and developing new lesson plans and curricula; and,
- 70% of students surveyed said they are excited to learn more about computer science, robotics, and coding.

In Summer 2018, SJPL implemented its first series of full-day coding camps at five SJPL locations through a generous sponsorship from Alaska Airlines. The camps were conducted Monday to Friday from 8:00 a.m.-3:00p.m., and students ages 9-11 received instruction from certified K-12 teachers on coding, art, cultural competency, literacy, and physical activity. In Summer 2019, the camps expanded to seven SJPL locations. The SJPL camps again were led by certificated K-12 teachers and included both a rigorous coding curricula and STEM challenge activities, culminating in a student showcase where campers were able to demonstrate their projects to family, friends, and community members.

In FY18-19, SJPL partnered with the Moreland School District to provide Coding5K training to Moreland School District volunteers. The volunteers were trained to teach Coding5K curriculum to K-8 students through the district-run afterschool program at all eight schools in Moreland School District. SJPL provided support in choosing curriculum, as well as training to District employees and volunteers. Through this partnership, an additional 291 students participated in Coding5K. SJPL is currently working with Moreland School District to continue this partnership in the next academic year.

Fiscal Year 2018/2019

San José Public Library's expansion plans for Coding5K include:

- Hosting multi-week coding and robotic courses led by expert volunteers at all 25 SJPL locations;
- Expanding the menu of available curricula and workshops to include a wider range of coding languages and targeted age demographics, especially middle and high school students;
- Creating a Coding5K toolkit to assist other cities or library systems hoping to replicate Coding5K at their own communities;
- Installing 3D printers at all SJPL branch locations, enabling students and members of the public access to this highly in-demand maker technology;
- Expanding SJPL's partnership with the Moreland School District, and exploring similar partnerships with additional school districts; and,
- Expanding Coding5K to PRNS locations, beginning with the Wonder Workshop pilot program.

Wonder Workshop Robotics Pilot

With the generous support of District 5 Council Office, SJPL and PRNS will expand access to robotics programs to students through a Wonder Workshop Robotics pilot program, a series of

age-appropriate and standards-aligned programs which will provide for a hands-on play and creative problem-solving coding experience. The pilot program will be hosted in District 5 at three SJPL locations (Alum Rock, Hillview, and the new Mt. Pleasant Neighborhood Library) and at three proposed PRNS locations (Mayfair Community Center, ACE Empower and ACE Esperanza).

Curricula

Wonder Workshop offers a K-5 Learn to Code and a grade 6-8 Applied Robotics curricula which covers coding/robotics fundamentals before moving on to more advanced coding and robotic skills. The comprehensive curricula help students practice computational thinking with Dash, Dot, and Cue robots. Wonder Workshop's database of lesson plans and turnkey activities can be implemented and integrated into all programs.

Pilot Program

The Wonder Workshops pilot will be integrated into existing Coding5K structure being implemented at SJPL which includes working with both branch staff and expert volunteers to recruit students from the community to participate, lead the programs, and collect the necessary data such as surveys and quality assessments.

The three SJPL locations will offer programming for pre-readers, school-age students and middle grade students on a rotating basis, with an emphasis on working with local schools to recruit student participation. SJPL plans to begin implementation of the program in Fall 2019.

Both SJPL and PRNS will participate in a 12-hour online training course via Wonder Workshops to learn more about the curricula, technology use and troubleshooting, and evaluations. A "train the trainer" model will be created for City staff and volunteers. SJPL staff will also provide additional training on existing Coding5K procedures and data collection criteria to identified PRNS staff, to ensure consistency across all City-run Coding5K offerings.

Parks, Recreation and Neighborhood Services, with the support of SJPL, is proposing to pilot the Wonder Workshops at the Mayfair Community Center and two After School Education & Safety locations, ACE Empower and ACE Esperanza. The AT&T Tech for Good partnership with the Youth Connections Foundation will fund the necessary digital devices for implementation. Parks, Recreation and Neighborhood Services continues to assess staffing and volunteer constraints in order to effectively launch the Wonder Workshops. The proposed locations will offer programming for K-8 students on a rotating basis beginning in late Fall 2019.

Device Lending Pilot Programs

City staff has consistently looked at Digital Literacy through the lens of the three (3) As: Access, Affordability, and Adoption. By working to increase the three As, all San José residents and learners will have the opportunity and knowledge required to utilize existing and emerging technologies to their fullest potential. This report will focus primarily on increasing Access, through the SJPL and PRNS programs and pilots, among community members, as research shows that this is key to the creation of a digitally literate populace.

Device Lending and Deployment

In September 2018, the City Manager's Smart City team tasked PRNS with delivering the AT&T Tech for Good Pilot, one of the three equity projects of the Smart City Roadmap. A key community benefit to the AT&T 5G contract is the deployment of at least 100 digital devices in neighborhoods where young people and older adults experience digital inequities. A consultant hired by the Youth Connections Foundation is finalizing focus groups and dialogue sessions with young people, older adults, community stakeholders, and staff to identify digital equipment and technology needs, experiences, and vision. These data gathering sessions will inform the development of a digital inclusion plan on the appropriate digital devices/equipment purchases, location for technology literacy programming, and staff training. By end of 2019, Youth Connections Foundation will purchase all digital devices and PRNS will launch digital programming for Winter 2019/Spring 2020.

The San José Public Library has a longtime commitment to ensuring access to free technology and increasing community adoption through instruction and coaching. There are more than 200 laptops in use by the public at library locations around the City; 72 are available for checkout and use in Educational Park (30), Hillview (30), and Mt. Pleasant (12) branches. 20 laptops are onboard the Maker[Space]Ship and are used for mobile STEM programs and 20 others for programs supported by SJPL's central Education & Programming Services Unit. Additionally, there are 20 Chromebooks available for checkout on-premises at Educational Park and 48 tablets (Android and iPad) available at Library branches for staff to demonstrate eResources and other applications to patrons. As part of Coding5K, 100 laptops and 60 iPads have been deployed in kits to the Library branches.

A new partnership with Apple has added an additional 90 iPads, along with six iMacs to be used for program management, as part of the Coding5K expansion. These devices will be used to host programming at three library locations at Teen HQ (Tech Challenge for teens), Edenvale Branch (Coding Club for middle and high scholars) and Seven Trees Branch Library (Coding workshop for families with school age children).

Public Computing, Wi-Fi, and Technology Upgrades to Increase Access

The San José Public Library network is the largest provider of free-public computer and technology access in San José and Santa Clara County, and one of the largest in Northern

California. Ensuring equitable access to technology resources, including hardware, industry standard software, and peripherals, is one of SJPL's most essential roles.

Public Computing

During Fiscal Year 2018/2019, 973,350 patron sessions utilized 1,182 public desktop computers at all Library locations. Table 1 shows public use of Library computers which is measured by the number of computer sessions logged.

Table 1

LOCATION	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
ALMADEN	1,628	2,200	1,946	1,865	1,630	1,346	1,562	1,659	1,768	1,615	1,605	1,626	20,450
ALUM ROCK	3,046	3,245	2,644	2,995	2,496	2,354	3,137	2,765	3,209	2,951	3,228	3,388	35,458
ALVISO	1,373	1,356	1,163	1,409	1,204	887	1,186	984	1,054	1,055	1,048	1,077	13,796
BASCOM	2,333	2,686	2,108	2,320	2,073	1,902	2,206	2,048	2,113	2,112	2,001	2,294	26,198
BERRYESSA	3,369	4,032	4,158	4,286	3,618	3,551	3,708	3,367	3,864	3,232	3,432	3,410	44,027
BIBLIOTECA	2,796	3,277	2,984	3,344	2,437	2,511	3,339	3,344	3,441	3,200	3,034	3,656	37,363
CALABAZA S	1,588	2,249	1,994	1,972	1,642	1,589	1,815	1,516	1,756	1,637	1,575	1,327	20,660
CAMBRAN	3,143	2,762	2,307	2,519	2,179	1,906	2,352	2,342	2,502	2,359	2,366	2,224	28,981
EAST BRANCH	2,685	2,399	2,050	2,111	1,645	1,507	1,879	1,861	2,010	1,814	1,649	2,288	23,598
EDENVALE	4,769	4,329	3,475	3,675	2,943	2,726	3,235	3,154	3,516	3,060	3,112	3,653	41,647
EDUCATIONAL PARK	2,756	3,105	2,727	2,761	2,330	2,099	2,418	2,271	2,634	2,550	2,395	2,366	30,412
EVERGREEN	3,863	4,181	3,575	3,665	2,905	2,586	3,160	2,983	3,135	3,290	3,406	3,369	40,118
HILLVIEW	5,121	4,434	3,275	3,224	3,109	2,893	3,623	3,486	3,612	3,991	3,694	4,567	45,029
JOYCE ELLINGTON	4,099	3,974	3,590	3,793	2,945	2,992	3,189	2,896	2,889	3,206	3,052	3,352	39,977
KING LIBRARY	17,015	18,802	17,675	19,183	15,222	14,395	15,927	18,374	19,857	18,136	17,706	15,974	208,266
KING CHILDRENS	453	353	364	375	333	278	290	339	371	289	262	295	4,002
KING TEEN HQ	641	546	468	593	682	685	482	506	483	533	432	644	6,895
MOUNT PLEASANT										53	77	54	184
PEARL AVENUE	2,341	2,607	2,105	2,478	2,007	1,868	2,172	2,225	2,242	2,221	2,319	2,391	28,978
ROSEGARDEN	3,397	4,141	3,350	3,420	3,056	2,791	3,200	2,880	2,892	2,778	2,933	2,463	37,301
SANTA TERESA	3,065	3,590	3,092	3,259	2,559	2,290	3,058	2,878	3,181	2,917	2,877	2,922	35,685
SEVENTEES	3,274	3,180	2,606	2,900	2,370	1,972	2,717	2,409	2,513	2,452	2,476	2,256	31,128
TULLY	5,028	4,890	4,096	4,024	3,481	3,295	3,733	3,654	4,077	3,876	4,234	4,755	49,143
VILLAGE SQUARE	2,097	2,200	2,189	2,482	1,835	1,795	2,009	2,027	2,102	2,001	2,080	1,915	24,732
VINELAND	2,764	2,753	2,555	2,980	2,621	2,380	2,803	2,553	3,088	2,702	2,922	2,424	32,645
WEST VALLEY	4,149	4,251	3,743	4,526	3,740	3,250	3,951	3,642	3,910	3,810	3,376	3,033	45,381
WILLOW GLEN	2,222	2,185	1,864	2,046	1,830	1,655	1,872	1,861	2,050	1,931	2,015	1,789	23,320
TOTAL	89,015	93,727	82,103	88,205	72,592	67,503	79,023	78,024	84,265	79,771	79,206	79,512	973,350

Wi-Fi Usage

In Fiscal Year 2018/2019, 431,391 wireless sessions were logged at 23 SJPL locations. (The Mt. Pleasant Neighborhood Library Wi-Fi is provided by Robert Sanders Elementary School and King Library Wi-Fi is provided by San José State University). Public usage of Wi-Fi at SJPL branches is shown in Table 2.

Table 2

LOCATION	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Almaden	2,048	2,472	2,153	2,265	2,082	2,154	1,962	1,471	2,294	2,127	2,207	2,301	25,731
Alum Rock	1,466	1,790	1,759	1,909	1,612	1,600	1,514	1,293	1,798	1,647	1,769	1,597	19,871
Alviso	271	324	317	298	247	252	240	176	303	241	225	262	3,160
Bascom	1,258	1,357	1,270	1,447	1,296	1,312	1,134	945	1,506	1,344	1,450	1,349	15,560
Berryessa	2,069	2,373	2,268	2,335	2,153	2,273	2,112	1,564	2,464	2,182	2,282	2,334	26,575
Biblioteca	719	748	682	785	756	746	654	581	867	899	851	878	9,343
Calabazas	2,217	2,424	2,194	2,284	2,082	2,286	2,282	1,517	2,427	2,271	2,191	2,521	26,714
Cambrian	1,702	1,807	1,651	1,803	1,769	1,551	1,567	1,216	1,798	1,735	1,799	1,829	20,263
East Carnegie	543	567	575	611	579	536	580	459	702	631	566	582	6,967
Edenale	1,403	1,461	1,526	1,629	1,482	1,385	1,302	1,018	1,665	1,533	1,645	1,621	17,843
Educational Park	1,563	2,141	2,163	2,074	2,006	1,926	1,942	1,457	2,135	2,025	2,090	1,699	23,284
Evergreen	2,099	2,131	2,152	2,120	1,973	2,020	1,909	1,387	2,216	2,231	2,108	2,099	24,368
Hillview	1,136	1,267	1,162	1,216	1,113	999	1,118	845	1,304	1,169	1,090	1,138	13,459
Joyce Ellington	783	770	677	749	681	615	775	496	689	716	699	731	8,346
Pearl	1,061	1,108	1,136	1,166	1,461	1,593	942	1,179	1,196	1,086	1,126	1,434	14,721
Rose Garden	1,063	1,517	1,445	1,576	1,449	1,447	1,249	977	1,461	1,498	1,585	1,388	16,723
Santa Teresa	1,798	2,024	1,983	2,123	1,903	1,872	1,682	1,329	2,120	1,953	2,021	2,056	23,152
Seven Trees	1,400	1,627	1,520	1,704	1,396	1,337	1,424	1,083	1,708	1,655	1,648	1,560	18,136
Tully	1,928	2,044	1,890	1,955	1,736	1,673	1,829	1,289	1,977	2,077	2,007	2,188	22,906
Village Square	3,015	3,612	3,716	3,752	3,464	3,605	3,199	2,270	3,532	3,324	3,571	3,166	40,227
Vineand	1,558	1,972	1,893	1,924	1,953	1,762	1,770	1,320	2,069	1,844	1,966	1,761	21,878
West Valley	1,601	1,889	1,846	1,865	1,794	1,691	1,661	1,243	1,961	1,999	1,863	1,977	21,803
Willow Glen	1,009	1,174	1,042	1,064	1,120	966	860	762	1,175	1,081	1,063	1,067	12,486
Monthly Total	33,730	38,599	37,040	38,674	36,109	35,601	33,707	25,877	39,387	37,268	37,842	37,557	431,391

Library public desktop computer usage averages nearly 1,000,000 sessions per year. The demand in the past four years has been steady. Wi-Fi usage has increased by around five percent each year for the last four years. Taken together, there has been a steady increase every year for the past four years in public reliance upon the Library for access to technology and the internet.

Server and Infrastructure Management

The Library completed the renegotiation of its Microsoft Licensing contract. By utilizing educational pricing for the Windows Operating System and Microsoft Office products, SJPL realized a savings of over \$100,000 compared to standard price plans. The Library has upgraded its backup system and is deploying a centralized asset management tool that plugs into the existing monitoring and alert systems. The centralized asset management tool will allow the Library to maintain a real-time database of all technology assets, including servers, computers, printers, monitors, mobile devices, etc. Devices can be linked to primary support personnel, vendor support contracts, renewal dates, and contact information. The Library can now log all purchases and sort by type, grant fund, project, or any other fields needed for the purchase. Additionally, the Library will share exports of this database with the City's Information Technology Department to satisfy City requirements for asset management.

SJPL has upgraded its Integrated Library System, called "Sierra," and has begun installation and configuration of a test environment for the system. On July 25, 2019 SJPL began offering a

service which automatically renews eligible checked out books, DVDs, and CDs, up to three times, on all SJPL accounts.

To further enhance the online experience and connect with our patrons, in September 2019, SJPL will be launching BiblioCommons, a platform which will improve the online searching experience and seamlessly integrate the library catalog and event calendar with a new website.

Community Center and Parks Connectivity

After adoption of the Education & Digital Literacy Strategy by City Council and the involvement of PRNS in the Smart City Roadmap Tech for Good project, staff completed an inventory of high speed infrastructure needs across different community centers. For PRNS to be fully operational for digital programming, network access and wireless connectivity must be completed in key community centers. The 11 major community centers operated by PRNS have fiber-optic networks except the Berryessa Community Center. Several partner-operated 'reuse' centers did not have fiber-optic connections and challenges with access to cost effective installation methods. Table 3 shows a timetable of the network upgrades PRNS is managing with AT&T.

Table 3

Community Centers	Upgrades	Timeline
Alma	Installation of fiber-optic network	Complete by November 2019
Alum Rock	Installation of fiber-optic network	Complete by November 2019
Berryessa	Network bridge construction	Starts August 2019
Capitol Park	Installation of fiber-optic network	Complete by December 2019
Fair Swim Center	Installation of fiber-optic network	Complete by November 2019
Gardner	Installation of fiber-optic network	Starts August 2019
McKinley	Installation of fiber-optic network	Complete by November 2019
Shirakawa	Public Wi-Fi goes live	September 2019
Welch Park	Installation of fiber-optic network	Completed in August 2019

Upon the completion of this first phase of infrastructure support to obtain network access, phase two will include wireless connectivity and public Wi-Fi. PRNS will continue to work with Information Technology Department and Public Works to prioritize community center infrastructure upgrades.

Digital Literacy Quality Standards and Digital Inclusion

In accordance with the City of San José's commitment to quality educational programming for its residents, SJPL is chairing the Digital Literacy Quality Standards Ad Hoc Committee of educational and community based organizations to create a set of appropriate quality standards to be used in all City-sponsored digital literacy programming. This committee includes

representatives from organizations such as PRNS, Silicon Valley Education Foundation, the Franklin-McKinley Children's Initiative, California Strategies, Somos Mayfair, The Tech Exchange, Stanford's Digital Civil Society Lab, and two members of the Library and Early Education Commission. The members have been charged with researching best practices, providing subject matter expertise and community specific knowledge, and ultimately creating a set of quality standards to ensure program efficacy for all digital literacy programs in San José.

The California Emerging Technology Fund will also be a key partner in this work as the City has chosen them to manage the recently established Digital Inclusion Fund. This Fund seeks to diminish the digital divide in San José through grant funds, and will utilize the Digital Literacy Quality Standards in their work after they have been created and adopted. These standards will include recommendations regarding data collection methods and the analyses of this data will be used to determine program quality and efficacy. The California Emerging Technology Fund, with its long history of work in this focus area, will provide a depth of expertise to this committee.

The Digital Literacy Quality Standards Ad Hoc Committee convened for the first time on August 14th, 2019; the Committee will meet monthly through December 2019, seeking to have a set of standards prepared to bring to NSE for review in Spring 2020.

EVALUATION AND FOLLOW-UP

As the lead for the Education and Digital Literacy Strategy, the Library will work with PRNS to track the progress, implementation, and expansion of the Coding5K Challenge, Wonder Workshops, device lending and digital access and will report back to the Library and Early Education Commission and the Neighborhood Services & Education Committee on a regular basis.

PUBLIC OUTREACH

This memorandum will be posted on the City's Neighborhood Service & Education Committee agenda website for the September 12, 2019 meeting.

COORDINATION

This report has been coordinated with the Parks Recreation & Neighborhood Services Department.

Neighborhood Services and Education Committee
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CEQA

Not a Project: PP17-008 - General Procedure & Policy Making resulting in no changes to the physical environment.

/s/
JILL BOURNE
Director, Library Department

For questions, please contact Vidya Kilambi, Division Manager (Library) at (408) 808-2151 or Andrea Flores Shelton, Division Manager (PRNS) at (408) 535-3571.