



Memorandum

TO: SMART CITIES AND SERVICE
IMPROVEMENTS COMMITTEE

FROM: Dolan Beckel
Khaled Tawfik

**SUBJECT: 5G AND SMALL CELL
STATUS REPORT**

DATE: April 22, 2022

Approved

Date April 23, 2022

RECOMMENDATION

Accept staff's report on 5G and Small Cell network construction in San José, including the status of public-private partnerships, telecommunications infrastructure deployments, goals, permit streamlining, challenges, and next steps.

OUTCOME

The Committee will be aware of and provide feedback on staff work to accelerate the deployment of telecommunications infrastructure and 5G in San José.

BACKGROUND

The City's 5G broadband journey began after identifying in 2016 that San José lagged peer cities in creating an enabling environment for all residents to benefit from the opportunities of the modern digital economy. Data showed at least 95,000 San José residents lacked internet access at home. Still more residents were under-connected and struggled to access or afford high-speed internet access, on a suitable device, and with the digital literacy skills sufficient to support education, personal and household needs, career resources, healthcare, or other digital services that improve quality of life.

On November 13, 2017, the City Council approved the City's Digital Inclusion and Broadband Strategy, which established an intentional focus on digital inclusion and equity supported by a sustainable funding stream and with a path to close the digital divide—the gap between those who have ready access to high speed internet with a computing device, and those who lack that access. In 2018, the City secured the largest small cell deployment in the nation and became the first city in the nation to pledge to close the digital divide with small cell lease revenue when the City Council approved:

1. Public-private partnership agreements with AT&T¹, Verizon², and Mobilitie³ (on behalf of Sprint) for small cell deployments on City-owned streetlights; and
2. Direction for the City Manager to allocate small cell usage fee revenue to create a Digital Inclusion Fund (DIF) in the General Fund to support efforts to close the digital divide in San José. The DIF focuses on supporting low-income youth and other vulnerable populations, such as the elderly and persons with disabilities.

There are various technologies and methods that can create a wireless network that incorporates fifth generation (5G) wireless capability. On January 29, 2019, the City Council approved negotiating a public-private partnership with T-Mobile to accelerate permitting. On December 2, 2020, the City Manager's Office executed the public-private partnership agreement with T-Mobile to permit 200 macro site upgrades and 40 new macro sites, and further expedite city-wide broadband and 5G deployment. The T-Mobile agreement expires on June 1, 2022. Before expiration, staff expects to extend the expiration by six months – to December 1, 2022 – under the City Manager's authority, pursuant to the terms of the Agreement. Staff will seek City Council approval if further extension to the end date is necessary to complete the existing scope or additional scope.

The City's innovative small cell partnership agreements with AT&T, Verizon, and Mobilitie (on behalf of Sprint) intended to deploy over 4,000 small cells throughout San José. These partnerships and investments enabled the formation of the Small Cell Permitting Team in Public Works and a focus on identifying and implementing process improvements. Because of the speed, predictability, and scale of permitting, the team is often approached to share the City's journey in process improvement for having successfully set new standards of service in the industry.

The team developed a paperless, digital permitting process and dedicated online portal for permit reviews to accommodate the high volume of permit applications. Digitizing these processes prepared the team to seamlessly continue high production during the 2020 shift to remote work. The digital model created by the team also made it easier for other Development Services teams to shift to digital permit processing during the pandemic. The small cell team created a Geographic Information System (GIS) map to enable carriers to select available City-owned streetlights and track their small cell deployments.

Small cell permit requests peaked in April 2020, the first full month of the COVID-19 pandemic and shelter-in-place orders, and the Small Cell Permitting Team issued 153 small cell permits. This was a significant milestone and success. For comparison, prior to the small cell partnership agreements, in Fiscal Year (FY) 2017-2018 5 small cell permits were issued. However, after the peak in April 2020 new permit requests began to decline as shown in Table 1.

¹ May 1, 2018, City Council Meeting, [Agreement with AT&T for Permitting Small Cells](#) Memo.

² June 26, 2018, City Council Meeting, [Agreement with Verizon for Permitting Small Cells](#) Memo.

³ June 26, 2018, City Council Meeting, [Agreement with Mobilitie for Permitting Small Cells](#) Memo.

Table 1: Small Cell Permits Issued by Fiscal Year (FY)

2017-2018	2018-2019	2019-2020	2020-2021	2021-2022 (through March 2022)	Total
5	371	1,266	205	81	1,928

In October 2020, new small cell permit requests started to decline. At that time, approximately 1,800 permits had been issued and the mobile telecommunications carriers (“carriers”) began seeking fewer new permits to focus on constructing the sites that had already been permitted. As of March 2022, 1,928 small cell permits have been issued. In 2018, both the City and the carriers expected a higher volume of permit requests and for the small cell deployment to reach or exceed 4,000 permits by FY 2021-2022. These projections were prior to the pandemic and the Federal Communications Commission (FCC) auction of private licenses for newly available frequencies in the 5G “mid-band” spectrum called C-Band⁴ which is deployed on macro cell towers instead of streetlight mounted small cells.

As of January 2022, the carriers expect to seek a combined 3,100 small cell permits, 900 less than the over 4,000 projected in 2018. The change is due to the recent shifts in 5G technology and investments in the FCC C-Band auction. In turn, small cell usage fee revenues have been declining each year since 2020. The current 10-year revenue projection (2019-2029) for small cell revenue is approximately \$15.5 million, which is a 30% reduction from the 2019 projection of \$22 million. This impacts the DIF, which is the funding source for City broadband operations staff and digital inclusion grants to close the digital divide.

Applying lessons from small cell deployments, the T-Mobile macro site partnership and investments enabled creation of a macro site permitting team and focus on process improvements. The interdisciplinary team spans the Planning, Building, and Code Enforcement, Fire, and Public Works departments, as well as the Office of Economic Development and Cultural Affairs. The team created a detailed checklist describing the components necessary to produce a complete macro site submittal. This contributed to a significant reduction in the City’s overall review time – dropping from an average of nineteen days to six days. The team meets with T-Mobile on a weekly basis to discuss the priority of reviews submitted for the week and the anticipated volumes for the following week. This enables effective time management, folding the workload into processing operations, and setting aside time for future reviews. As a result, the macro site team has permitted 148 macro sites with an average City review time of approximately six days.

⁴ Forbes. C-Band Auction Points to Dramatic Shift in 5G. <https://www.forbes.com/sites/bobodonnell/2021/01/27/c-band-auction-points-to-dramatic-shift-in-5g/?sh=2bd7a929a36c>

ANALYSIS

The communications technology marketplace continues to demand more connected devices, higher data volumes, and increased speed to meet resident, business, and visitor expectations in San José. The private sector is meeting these demands by investing in mobile network infrastructure through various technologies. The carriers are continuing at a slower pace to invest in new small cell wireless technologies, which are attached to City-owned streetlight poles. At the same time, carriers are quickening the pace of investment in upgrades to macro cells, which are installed on public and private properties, and attached to slimline poles and buildings.

In 2018, the City's broadband strategy placed highest priority on small cells due to the immediate market demand at the time. However, the longer-term broadband strategy is holistic and technology agnostic. To expand network coverage and capacity over a wider geographic area, carriers must upgrade and expand macro cell sites, usually mounted on building rooftops or on slimline poles near major thoroughfares. All mobile networks will use a combination of macro sites and small cells to provide better coverage, increased speed, and higher capacity to serve more customers even before 5G technology is fully implemented.

Revenue from small cell site usage fees has not met projections set in 2019⁵. Overall, the revenue that supports the City's broadband operations and efforts to streamline permitting is declining. In April 2022, the City started the process of conducting a major assessment of the DIF, which funds the City's broadband operations staff and the City's grant program. The assessment will include updating the Digital Inclusion and Broadband Strategy and the City's approach to all broadband permitting types. Streamlining macro site permitting and leases is as important to accelerated broadband deployment and increased digital equity as small cell permitting. It is also important to simplify back-up power and generator permitting for macro sites to encourage and expedite carrier investments in resiliency improvements to the wireless networks serving San Jose. The journey in process improvement will continue and will require creative solutions for any remaining hurdles.

The program assessment will include a performance review of the DIF program to determine the desire and ability to continue, given current capacity and available funding sources. The Information Technology Department, the Library Department, and the City's digital inclusion grant implementation partner, California Emerging Technology Fund, will coordinate in the program assessment. The analysis and direction set will include identifying ways to fill gaps in the DIF revenue and attract new public-private partnerships with the City.

CONCLUSION

The City's innovative small cell partnership agreements with AT&T, Verizon, and Mobilitie (on behalf of Sprint) have been highly successful as measured by the increase in permits issued and

⁵ February 12, 2019, City Council Meeting, [Digital Inclusion Fund](#) memo.

reduction in time to review permit requests. Investments in permit process improvements and dedicated permitting staff enabled significantly accelerated small cell permitting. However, small cell permit requests have been declining since 2020. Carriers have shifted focus to constructing already permitted small cell sites and investing in macro site upgrades and new sites that utilize C-Band spectrum for 5G that were made available by the FCC after the creation of the City's Digital Inclusion and Broadband Strategy.

These shifts result in lower than projected revenue into the DIF and impact the funding for City broadband operations staff and digital inclusion grants to close the digital divide. To recalibrate the City's approach, staff is conducting a major program assessment to update the Digital Inclusion and Broadband Strategy, as well as a review of the digital inclusion grant program's performance. The program assessment will explore and identify ways to fill the gap in the DIF revenue and attract new public-private partnerships with the City.

The T-Mobile agreement expires on June 1, 2022. Before expiration, staff expects to extend the expiration through December 1, 2022, under the City Manager's authority, pursuant to the terms of the Agreement. Staff will seek City Council approval if further extension is necessary to complete the existing scope or additional scope.

EVALUATION AND FOLLOW-UP

Staff will present an update to the City Council on the status of the major program assessment and update to the Digital Inclusion and Broadband Strategy by February 2023. The final results and recommendations will be presented to City Council no later than June 2023.

CLIMATE SMART SAN JOSE

The recommendation in this memo aligns with one or more Climate Smart San José energy, water, or mobility goals.

PUBLIC OUTREACH

This memorandum will be posted on the City's website for the May 5, 2022, Smart Cities and Service Improvements Committee meeting.

COORDINATION

This memorandum has been coordinated with the City Manager's Budget Office, Office of Civic Innovation, Public Works, and Planning, Building, and Code Enforcement departments, and the City Attorney's Office.

FISCAL/POLICY ALIGNMENT

This recommendation specifically supports the City Council's approvals of the City's Broadband and Digital Inclusion Strategy in November 2017 and creation of the Digital Inclusion Fund in May 2018. Further, it aligns with the Digital Equity initiative of City Roadmap's COVID-19 Pandemic: Community + Economic Recovery enterprise priority.

COMMISSION RECOMMENDATION/INPUT

No commission recommendation or input is associated with this action.

COST SUMMARY/IMPLICATIONS

Acceptance of the status report has no cost implications. The City's 2022-2023 Proposed Operating Budget includes a conservative estimate of the revenue and expenditures for DIF to primarily support the City's broadband operations staff, administration of the grants program by CETF, and Round 3 of the DIF grants. Note that all core functions of the Office of Civic Innovation, including three positions supporting the Office's programs, will be transferred to the Information Technology Department as part of the 2022-2023 Proposed Operating Budget.

Any budget actions related to the program evaluation, as well as recognizing and appropriating revenue from 5G small cell site usage fees, will continue to be monitored and considered in the development of the budget.

CEQA

Not a Project, File No. PP17-009, Staff Reports, Assessments, Annual Reports, and Informational Memos that involve no approvals of any City action.

/s/
DOLAN BECKEL
Director
Office of Civic Innovation

/s/
KHALED TAWFIK
Chief Information Officer
Information Technology Department

For questions, please contact Abigail Shull, Broadband Manager, at Abigail.Shull@sanjoseca.gov or (408) 535-8187.