Enhancing Public WiFi Accessibility and Quality

Direction

○ Strengthening city competitiveness and achieving a leading position as a global smart city by expanding infrastructure that delivers tangible benefits to citizens.

○ Bridging the digital divide among those without access to information to achieve "digital inclusion."

□ Seoul's WiFi Policy

○ Expansion of Free WiFi in Seoul (2011-2022)

- Seoul initiated the Public WiFi Installation Project in 2011, with a primary focus on providing citizens with free internet access, recognizing the growing importance of utilizing digital data. With the rapid advancement of smartphone technology, the goal was to enable citizens to use data without the burden of costs. The large-scale WiFi expansion project commenced as an initiative alongside the announcement of the Smart Seoul Network (S-Net) Construction Plan in January 2020. By the end of 2020, 1,840 WiFi access points had been installed in pilot project areas (Seongdong-gu, Dobong-gu, Eunpyeong-gu, Gangseo-gu, and Guro-gu). Afterwards, the expansion of 4,530 units was completed by April 2022 through the Ministry of Science and Technology's Digital New Deal project..
- Throughout its implementation, Seoul's WiFi project garnered positive external feedback. Notably, it ranked first among Seoul's outstanding policies according to foreign nationals in 2019 and secured the second and fourth places among the top 10 news items chosen by Seoul citizens in 2019 and 2020, respectively. Encouraged by this favorable reception and continuous demand from citizens, the public WiFi project continues to progress actively. Specifically, the city is dedicated to upgrading WiFi quality by adopting and replacing equipment with the latest WiFi 6 standard.

□ Seoul's WiFi Establishment Strategy

○ Expanding Free WiFi Service Areas (2022-2026)

- Seoul has been expanding an additional 4,000 devices of WiFi in areas with high pedestrian traffic, both outdoors and within facilities frequented by digitally underserved individuals. Major outdoor installation sites include Seoul's landmark areas such as Hangang Park, university districts, Hongdae Street, and Itaewon. Indoor

coverage targets welfare facilities used by digitally underserved groups such as the elderly, women, and youth.

- With the recent shift in data consumption from text and images to video, there has been a sustained rise in data usage. To meet this demand, Seoul is introducing the latest WiFi standard, WiFi 6, which offers four times faster transmission speeds (perceived speed of approximately 400Mbps) than the previous WiFi versions (WiFi 4/5, perceived speed of about 100Mbps).

○ **Upgrading WiFi Equipment to Support High-Speed Transmission (2022-2026)**

- Seoul initiated the free WiFi project in 2011 and has consistently replaced aging equipment installed in the early stages (2011-2016) to improve the quality of public WiFi. From 2023 to 2026, approximately 1,000 outdated WiFi (WiFi 4/5) access points are being replaced with the latest WiFi 6 equipment each year. This replacement is carried out in collaboration with the Seoul Public WiFi Operation Center to ensure uninterrupted high-quality service and to monitor any potential disruptions.

WiFi 6 Improvements

○ Even in congested environments, it offers speeds 4x faster (4.8Gbps) than 4G LTE (1.2 Gbps) and Giga WiFi (1.3 Gbps)

○ Introducing a variety of techniques and technologies to enhance throughput and speed and prevent hacking and eavesdropping while reducing radio interference in crowded urban and outdoor environments with increased transmission capacity and efficiency

OFDMA Multi-user simultaneous access, improved data transfer rate	**Eight MU-MIMO** 2x device access capacity	**2.4GHz simultaneous use** Higher obstacle penetration	**BSS Coloring** Maximizing performance in overlapped channels and populated environments
256→1024 QAM Transmission efficiency up by 25%	Target Wake Time increases battery life by 3-10 times	**Simultaneous Authentication of Equals (SAE)** solves crack hacking problems	**WPA3 support** Prevents eavesdropping and trespassing