Apartment Wi-Fi

Cost Model

Methodology

This cost model is based on over 50 real-world competitive bids for Apartment Wi-Fi installations collected by the national nonprofit EducationSuperHighway between 2021 and 2024. The bids were gathered from projects in Oakland, California; Boston, Massachusetts; and Dallas, Texas. All designs feature Ethernet-powered Wi-Fi networks.

Capital Expenditures

Installing Wi-Fi in an apartment building requires capital expenditures (CapEx) in wiring, network equipment, and installation labor.

1. Wiring and Networking Equipment Costs

- Wiring: The internal wiring for an apartment Wi-Fi installation consists of physical Ethernet cables, patch panels, and conduits running from centralized networking equipment to wireless access points throughout the building. In larger properties, it may also include fiber cabling linking multiple telecom rooms together.

- Networking Equipment: The physical electronic equipment that powers the network. It comprises Routers and Switches in centralized server rooms and the wireless access points (WAPs) that provide wireless internet access to the building's residents.

Wiring and network equipment have relatively similar pricing across the country. **Typical wiring and equipment costs are between $300 and $500 per unit.**

2. Installation Labor Costs

Installation Labor comprises two main components: the installation of the physical equipment and the logical configuration of the networking equipment.

- Physical Labor: Tasks such as physically drilling holes and installing conduits, leveraging existing pathways, or utilizing a panduit/raceway to route Ethernet cables from a central network room to wireless access points around the property. It also includes physically installing networking equipment, terminating cables, and testing cables.

- Configuration: The process of setting up routers, switches, and wireless access points to work together to provide a solid and secure Wi-Fi network. This includes assigning network settings, ensuring devices communicate properly, and setting up security features like passwords and encryption.

Labor rates vary nationwide, which can impact the installation pricing. The data analyzed for this report was collected from relatively high labor rate areas in Oakland, California, and Boston, Massachusetts. **Typical labor rates in these areas resulted in costs between $500 and $700 per unit**.

Summary of Capital Expenditures

Cost	Cost Per Unit	Cost For 100 Unit Property
Wiring and Networking Equipment	$300-$500	$30,000-$50,000
Installation and Configuration Labor	$500-$700	$50,000-$70,000
Total	**$700-$1200**	**$70,000-$120,000**

Operational Expenditures

The operational expenditures are composed mainly of the monthly recurring cost for internet connectivity (typically a dedicated fiber connection) from an internet service provider, ongoing network support and maintenance, and resident technical support. **The average operating cost for an apartment Wi-Fi installation is between $10 and $25 per household per month.**

1. Internet Service Provider (ISP) Fiber Dedicated Internet Access Circuit Fee

- Internet Access Costs: The primary component of the monthly cost is the fee paid to Internet Service Providers (ISPs) for dedicated fiber internet access to power the building's Wi-Fi network. Depending on the region and the fiber circuit bandwidth, ISPs charge different rates. Typically, the customer pays capital expenditures for installing new fiber to a location in the form of increased operational expenditures over the first contract term.

Assuming 100 Mbps service for all units, **agreements with ISPs for an appropriately sized dedicated fiber circuit cost between $5 and $15 per household per month.**

2. Network Support and Maintenance

- Network Support: To ensure a properly functioning network, a Managed Service Provider monitors the network remotely to ensure all equipment functions as expected. When an issue is discovered, the provider proactively resolves it, ensuring they meet their service level agreements and resulting in an excellent user experience for residents.

- Ongoing Maintenance: In addition to support, regular network maintenance, such as installing security and firmware updates, is necessary to keep the service running smoothly for residents.

Depending on the network's complexity, **maintenance contracts with service providers or in-house IT support cost $3 and $5 per household per month.**

3. Resident Technical Support

- Technical Support: Providing 24/7 technical support for residents, either through the ISP, an independent managed service provider, or internal IT staff, ensures that any resident connectivity issues are promptly resolved. This support can range from basic troubleshooting, like connecting devices, to identifying more complex network issues that will be escalated to engineers.

The network support and maintenance package can generally be upgraded by **adding $2- $5 per household per month**.

Summary of Monthly Operational Expenditures

Cost	Dollars Per Unit Per Month
Dedicated Internet Access	$5-$15
Network Support and Maintenance	$3-$5
Resident Technical Support	$2-$5
Total	**$10-$25**

Typical Apartment Wi-Fi Design

Rather than each household buying its own internet connection, the owner procures a single internet connection for a property-wide Wi-Fi network, and all residents can connect. This option will provide the building with better connectivity at a lower cost than traditional commercial Internet Service Provider options.