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At the same time, though, a handful of communities have applied lessons learned from the first round of failed projects and are developing Wi-Fi networks that are more realistic in their ambitions and business models.

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"This was about a business model that simply didn't work," said Rolla Huff, chief executive of EarthLink Inc., after the Internet-service provider announced in May that it would stop serving the Wi-Fi network it built in Philadelphia, a project that inspired communities across the country to initiate similar efforts. "It was a great idea," said Mr. Huff. "It wasn't a great business."

By ANDREW LAVALLEE

EarthLink put itself in a financial hole from the start by setting up the network at its own expense, and then the service didn't attract enough users to offset that investment and the costs of operating the network. In the meantime, other cities followed Philadelphia's example, getting Internet-service providers to cover most or all of the cost of setting up Wi-Fi networks.

"That's where all of these cities got into trouble," says wireless consultant Craig Settles, based in Oakland, Calif. "They were trying to get the same thing for free, when it's just not financially viable."

The cost of setting up a network isn't the only problem that has plagued municipal Wi-Fi systems. Finding ways to overcome geographical and architectural barriers to signals has proved daunting in many cases. And local politics has been more of an obstacle than some providers anticipated. Negotiations between cities and providers have often bogged down in disagreements over the pricing of Wi-Fi service and where it is made available. Companies sometimes want to focus coverage on a city's business district, figuring that's where they can make the most money, but some community advocates have pushed for broader coverage and at least some free access, especially in low-income and public areas. Providers have had difficulty attracting enough advertising to support free service.

So what's different now? For starters, some cities are lowering their expectations, proposing smaller networks that can be expanded later, and they don't expect to get them free. These cities have taken a number of different approaches to the issues of coverage and pricing. For example, some have acted as anchor "tenants" -- or clients -- for the network, ensuring a stream of revenues to the provider from the start, while others have at least been more flexible about how providers can price their service. Still others have focused Wi-Fi on governmental use, treating it as a utility for police, fire and other public needs.

Here's a look at what four cities are doing, including second tries in Philadelphia and San Francisco.

Minneapolis

Municipal Wi-Fi experts often point to Minneapolis as a success story, and its anchor tenancy as an example of how other cities should financially support local wireless initiatives.

The city agreed to pay $1.3 million a year for 10 years for its employees to use a network built by USI Wireless, a unit of Minnetonka, Minn.-based US Internet Corp., for official business. Residents, meanwhile, can select from a handful of packages from USI that start at $19.95 a month, and about 10,000 currently subscribe, says Lynn Willenbring, Minneapolis's chief information officer.

About 85% to 90% of Minneapolis now has coverage, and it's aiming for 95% this fall, with no plans to provide coverage on the city's many lakes because that would require transmission poles to be placed in the water.

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It hasn't been all smooth sailing, though. The city had to redirect the antennas on transmission radios hung during the winter when leaves returned to the trees around them in the spring, distorting the wireless signals. The city also is planning to spend $1 million to replace poles in some areas that aren't strong enough to support signal transmitters.

Oklahoma City

While Oklahoma City's municipal Wi-Fi network isn't yet available to residents, the city is using it to synchronize traffic lights, monitor weather conditions and provide wireless Internet access to police and firefighters. The network, which uses equipment from Sunnyvale, Calif.-based Tropos Networks Inc., has been in development for several years and was unveiled in June.

The city paid about $5 million to set up the network, and the annual maintenance cost is about $200,000. But the network is paying off in unexpected ways. "We have been surprised at how much more it is actually doing" than the city expected, says Mark Meier, Oklahoma City's information technology director. For instance, the city has placed sensors on traffic lights to measure air temperature, humidity, wind and barometric pressure, and uses the Wi-Fi network to transmit the data to city officials. They can then use the data to help predict things like the likely path of a tornado, which roads are likely to freeze or in which direction a fire might spread.

Oklahoma City is targeting a 5% savings in travel time through the city because of the improved synchronization of traffic lights, which Mr. Meier expects to reduce consumer fuel costs and emissions. And an informal study among police officers revealed that Wi-Fi access allows them to spend about an hour a day more in the field, since they don't have to return to a police station to work on computers.

San Francisco

Meraki Inc., a start-up based in San Francisco, began offering free Wi-Fi access in the city earlier this year, after a previous effort by EarthLink and Google Inc. failed because of financing and political problems.

Unlike EarthLink and Google, Meraki doesn't aim to have an official relationship with the city. It has placed a limited number of transmitters around the city, free of charge, and relies on residential volunteers to put devices called repeaters on their rooftops that help spread the wireless signal. By not having