

Free and Equitable Access for Mountain Brook Citizens and Children

The need for schools to have wireless access in designated areas throughout the community was important to support anytime, everywhere access. Our students spend a great deal of time at the athletic fields waiting for practice or for siblings to complete practice and events as well as in the villages shopping, eating, etc. Many of our textbooks and learning objects are online, and much of the communication with students and parents has gone completely digital. City Wide Wi-Fi ensures that both students and parents get important communications and that students have access during [e-Days](#). Since most of our homes have high speed Wi-Fi, all schools are wireless, and we have a strong partnership with the public library, the City Wide Wi-Fi project was the next logical step in ensuring that our students have equitable access regardless of time and location. The next priority is to make sure that all students have sufficient devices. We are not there yet, but are getting close with a 1:1 ratio for students in grades 10-12, a 1:2 ratio for students in grades 7-9, and a 1:3 ratio for students in K-6. At this time, only students in grades 10-12 take the devices home.

Mountain Brook Schools and the City of Mountain Brook discussed the idea of Wi-Fi in public parks, school yards, and the villages for several years before it became a reality. Early on, a committee was formed to research other cities providing Wi-Fi but found the price of the solutions prohibitive. As the cost of wireless access decreased, more Wi-Fi options surface, the need for city wide wireless became the norm. In 2014, the IT Department for Mountain Brook City was approached about the idea of installing Wi-Fi at all community athletic fields and in the villages. The City of Mountain Brook supports six schools and four commercial areas called villages.

The criteria for a solution was as follows:

- Cost
- Easy deployment
- Cloud managed
- Scalable
- Configurable Splash/Landing page
- Suitable for outdoor Environments
- Reporting Capabilities

To provide Wi-Fi access two items were required: an internet service provider and access points. For the access points the City IT Department, under the leadership of Steve O'Dell and technical expertise of Gilbert Aban, researched Cisco, Meraki, Ubiquiti AP Outdoor, and Open-Mesh. Based on the requirements above, they chose Open-Mesh. For the ISP, they selected Charter internet because of excellent price and fast speeds.

For a proof of concept, the team did the first installation in Overton park at Overton Road. Overton Park is also located beside Mountain Brook Fire Station 2. This proximity provided a location to house the firewall and Charter Internet router.

Depending on the size of the area, multiple gateways and multiple repeaters may be required. Since Overton park is a small park, only one gateway and one repeater was needed to provide good coverage. The Gateway and repeater are strategically located and spaced to provide good signal coverage throughout the park.

Configuring the open mesh access point is very easy. The Cloudtrax website (<https://ct4.cloudtrax.com/login>) allows network managers to configure and manage gateways and repeaters. This website also allows the managers to add a splash page and to add a logo. Please see Cloudtrax installation video tutorial for a more detailed explanation.

<https://www.youtube.com/watch?v=qF7DKnY6fm4>

Mountain Brook City uses a SonicWALL firewall to provide basic protection and content internet filtering.

When possible the City uses extra fiber pairs from the schools.

Cost Breakdown for One (1) Site

Location	Mode/Location	Electrician	Open-Mesh Access Point and Parts	Charter Internet (monthly)	Firewall	Content Filter (after 1st year)
Overton Park	Gateway at Station 2	\$300	\$98	\$65	\$417	\$125
	Repeater at Pole near Restroom	\$300	\$98			

The cost of equipment are low and if the access point fails it can be easily replace and configured. The prices above are Per Site.

Locations Covered:

1. Athletic Fields at Crestline Elementary School
2. Crestline Village
3. Brookwood Forest Elementary Fields
4. Overton Park
5. Cherokee Bend Elementary Fields
6. Mountain Brook Elementary Fields
7. Mountain Brook Village
8. Mountain Brook High School Fields
9. English Village
10. Rathmell Park

Common Terms:

Gateway: an access point that is directly connected to the internet

Repeater: used to repeat the signal and extend the Wi-Fi coverage to another area