




PHEASANT RUN CELL SITE

Verizon Site Name: Smith & Main, St.
Charles, IL

By Dolan Realty Advisors, LLC

**Why is this site
important to St.
Charles' Cellular
Network?**

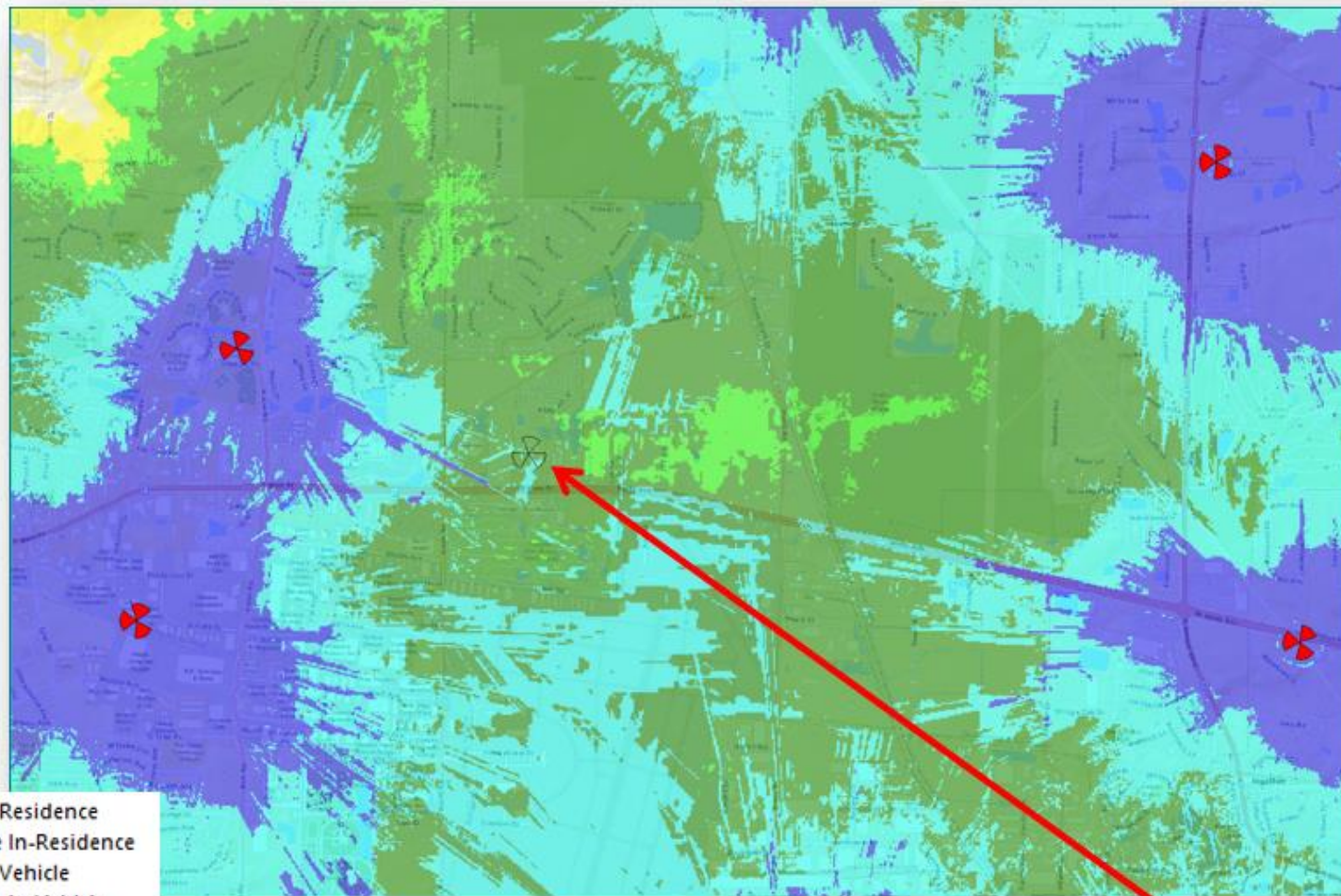
The image features a solid blue background. On the right side, there are several white, parallel diagonal lines that create a sense of motion or a modern design element. The text is centered and rendered in a bold, white, sans-serif font.

Smith and Main

Pre & Post Simulations



Without Proposed Smith and Main Site

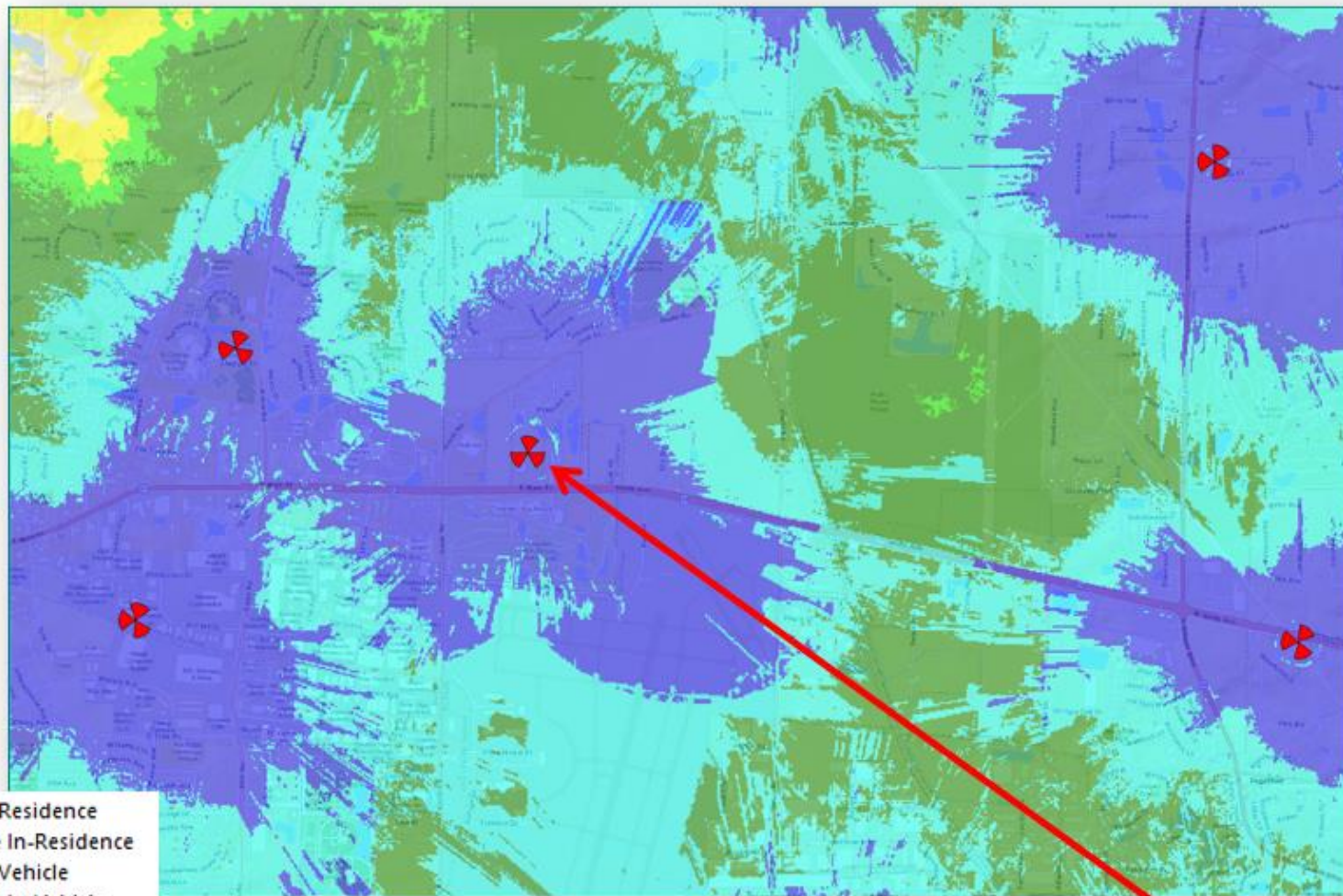


- Reliable In-Residence
- Un-Reliable In-Residence
- Reliable In-Vehicle
- Un-Reliable In-Vehicle
- Reliable On-Street



Proposed new site location

With Proposed Smith and Main Site



- Reliable In-Residence
- Un-Reliable In-Residence
- Reliable In-Vehicle
- Un-Reliable In-Vehicle
- Reliable On-Street



Proposed new site location

Summary

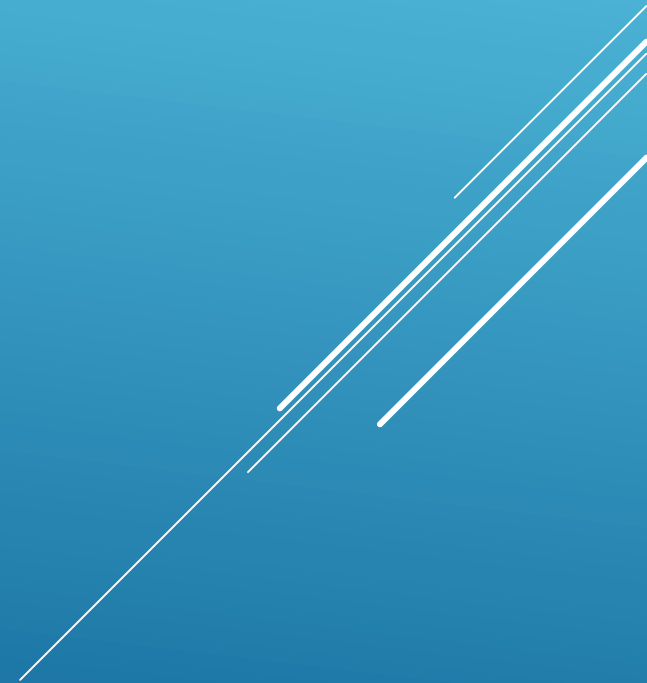
- The proposed site will help fill in a much needed coverage gap
- The site will also improve reliable coverage on street level along North Ave and inside the surrounding Residential and Commercial businesses
- In addition this site will offload capacity to the heavily traffic congested neighboring towers

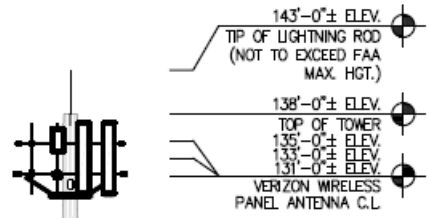
The primary objective of this site is to provide:

1. Fill in Coverage gap along North Ave and provide reliable coverage inside Residential/Commercial Areas
2. Network Capacity offload to the neighboring sectors serving St. Charles
3. Reliable coverage for E-911 calls
4. Improve 4G/5G data speeds in the local area



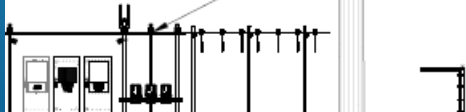
Site Plan





138' MONOPOLE TOWER ON
CONCRETE FOUNDATION
(DESIGN BY OTHERS)

LESSEE EQUIPMENT PAD AND
OUTDOOR EQUIPMENT



FAA Approval

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ** (CORRECTION)**

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Monopole Full Relo Smith & Main
Location:	St. Charles, IL
Latitude:	41-55-24.41N NAD 83
Longitude:	88-15-24.84W
Heights:	769 feet site elevation (SE) 139 feet above ground level (AGL) 908 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

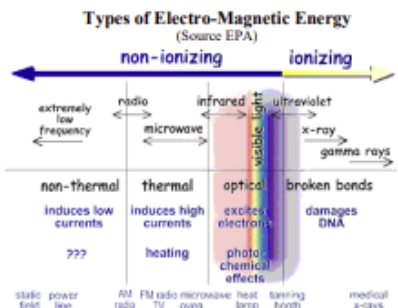
- At least 10 days prior to start of construction (7460-2, Part 1)
 Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

Radio Frequency Safety



What is RF Energy? Radio Frequency (RF) energy is a type of electromagnetic (EM) energy, which is energy that travels, or radiates, through space. Light is EM energy. The sun radiates RF energy as well as light. Just as we have harnessed light to see at night, we have harnessed RF energy in radios to communicate over great and small distances. The first radios appeared in the late 1800s. In the 20th century, the usage of both artificial light and radio communications boomed such that today stores are open 24 hours a day and mobile phones let us communicate anywhere in the world.



RF is non-ionizing: its energy is too weak to remove or add charged particles to an atom. Ionization changes an atom's structure, turning it into an ion. When ionizing radiation, such as X-Rays and Gamma Rays, affects molecules, such as DNA, it can cause permanent defects; hence damage is cumulative. Non-ionizing radiation such as light, infra-red, microwave and RF cannot change the makeup of an atom. Such non-ionizing radiation does induce currents and cause cellular heating, but these effects are not cumulative. Once non-ionizing radiation is removed, its effects cease. However, excessive heating can have serious health effects, which is why RF safety is important.

How much is too much? Based on years of scientific research, the Federal Communications Commission (FCC) has adopted limits for human exposure. It has set a *Maximum Permissible Exposure for the General Population* -- people who have no control of their exposure -- and a separate maximum for *Occupational* -- workers who understand the risks and can take appropriate actions when working in environments with elevated RF energy. While there are large safety margins, exceeding these limits can cause serious health problems such as burns, dizziness, heat stroke and even death. In the US the FCC regulates human exposure to RF energy.

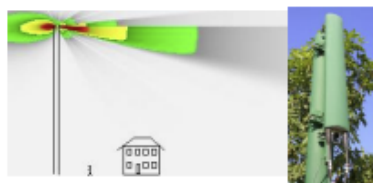
What is Maximum Permissible Exposure?

- 100% of *Occupational Limit* is the Human Exposure Limit which has a 10 times safety factor
- The *General Population Limit* is an additional 5 times lower for a total of a 50 fold safety factor.
- 5% of the *General Population limit* = 1% of the *Occupational Limit* = 1/1,000th of the level known to cause potentially harmful effects.

Comparing Power There is a wide range of powers used based on the radio service. Broadcasters use very high power and portable devices use very little. Wireless base stations and phones limit their power to eliminate interference and prolong battery life. They will typically use ¼ or less their maximum power. For most RF exposure analysis maximum power is assumed.

Source	Power (Watts)
TV Broadcast	1,000,000
Radio Broadcast	50,000
Wireless Base Station	4,000
WiFi	1/10
Mobile Phone	1/2

Wireless Base Stations Typical antennas at wireless base stations focus the RF energy so that it is pointing away from the site to give maximum coverage. Relatively little energy is exposed to areas below the antenna. Areas below rooftop mounted antennas have reduced exposure in the building because roofing absorbs and reflects RF energy.



Andrew 932DG65VTE

What will the exposure be? Every situation is different but areas around wireless base stations that the public can access, such as the bottom of a tower or inside a building with antennas, are typically much less than 5% of the General Population limit. Our measurements under and in the neighborhood of mobile phone installations are generally less than 0.1% of the limit, similar to measurements a few feet from a WiFi access point.

Do you still have questions / concerns? Please contact Site Safe.

Matthew J. Butcher

Matthew J Butcher, PE
VP Engineering & Development

RF Safety and Regulatory History

- Increasing concern since the 1950's when high powered radar systems were introduced which led to health issues.
- ANSI initiated the Radiation Hazards Standards project in 1960 with Dept of Navy and IEEE.
- The National Environmental Policy Act (NEPA) of 1969 required the FCC to evaluate the effects of RF with respect to the quality of the human environment.
- ANSI published standards for RF Safety in 1982.
- The FCC first adapted rules on RF Safety in 1985.
- After more research the IEEE published a standard C95.1 in 1992 that was also adopted by ANSI.
- The Federal Telecommunications Act of 1996, Section 704 prohibits local zoning authorities from denying permits on the basis of radio frequency emissions concerns as long as the emissions comply with current FCC regulations.
- In 1997 the FCC enacted the current rules that are followed for RF Health and Safety. The IEEE standard was the basis but input from over 150 parties was used to create these regulations.
- FCC Exposure Limits are similar to ICNIRP limits which are promoted by the WHO for use worldwide.
- In 2009 the ICNIRP found "no evidence of any adverse effects below the basic restrictions" and made no change to exposure limits.
- In 2012 both United Kingdom and Norwegian public health agencies released reports which found current protective exposure levels appropriate after an exhaustive review of the scientific literature.
- In 2013 the FCC initiated an inquiry on the need for reassessment of RF exposure limits with a Notice of Inquiry (ET Docket No. 13-84).
- Research continues on this topic and various concerns have been raised over the years but by far the majority of public health and scientific committees worldwide have not found a rationale to change the current RF exposure limits.
- While many on-line resources compile lists of information that link RF energy to health problems, independent analysis that looks at the breadth of research and publications generally find concern below current limits unconvincing.

Reference:

- Site Safe, Inc. <http://www.sitesafe.com>
- FCC Radio Frequency Safety <http://www.fcc.gov/encyclopedia/radio-frequency-safety>
- National Council on Radiation Protection and Measurements (NCRP) <http://www.ncrponline.org/>
- International Committee on Electromagnetic Safety, (IEEE / ICES) <http://www.ices-emfsafety.org/>
- American National Standards Institute (ANSI) <http://www.ansi.org>
- Environmental Protection Agency (EPA) <http://www.epa.gov/radtown/wireless-tech.html>
- National Institutes of Health (NIH) <http://www.niehs.nih.gov/health/topics/agents/cmfi/>
- Occupational Safety and Health Agency (OSHA) <http://www.osha.gov/SLTC/radiofrequencyradiation/>
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) <http://www.icnirp.org/>
- World Health Organization (WHO) <http://www.who.int/peh-emf/en/> and <http://www.who.int/features/qa/30/en/>
- National Cancer Institute <http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>
- American Cancer Society (ACS) http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED
- European Commission Scientific Committee on Emerging and Newly Identified Health Risks http://ec.europa.eu/health/scientific_committees/opinions_layman/en/electromagnetic-fields/index.htm
- Fairfax County, Virginia Public School Survey <http://www.fcps.edu/fts/safety-security/RFEESurvey/>
- UK Health Protection Agency Advisory Group on Non-ionising Radiation http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368
- Norwegian Institute of Public Health <http://www.fhi.no/dokumenter/545eca7147.pdf>
- Independent Health Policy Expert / Pediatrician <http://theincidentaleconomist.com/wordpress/healthcare-triage-your-cell-phone-wont-give-you-cancer/>

Health and safety background.

Health and safety organizations worldwide have studied potential health effects of RF emissions for decades, and studies continue.

The Federal Communications Commission (FCC) guidelines for operating wireless networks are based on the recommendations of federal health and safety agencies including:

- The Environmental Protection Agency (EPA)
- The Food and Drug Administration (FDA)
- The National Institute for Occupational Safety and Health (NIOSH)
- The Occupational Safety and Health Administration (OSHA)
- The Institute of Electrical and Electronics Engineers (IEEE)
- The National Council on Radiation Protection and Measurements (NCRP)

Wireless technology, equipment and network operations are highly regulated.

Photo-simulation



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Why are we expanding the wireless network?

More people than ever before rely on wireless connections to manage their lives and businesses.

Verizon is expanding its wireless network to meet the growing demands of today and tomorrow.

But it takes time.

40_{GB}
of data per month

By the end of 2022, the average monthly usage per smartphone is expected to surpass 15GB, and then grow to 40GB by the end of 2027.¹

69%
are now wireless

68.7% of adults and 79.1% of children lived in wireless-only households.²

76%
of travelers

76% of travelers say a mobile phone is the most important trip accessory.³

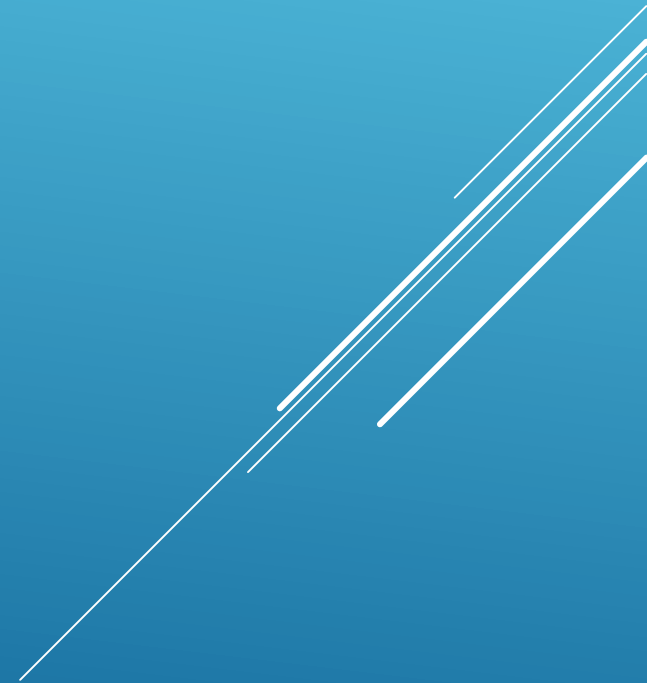
Staying ahead of demand.

A wireless network is like a highway system...

More wireless traffic needs more wireless facilities just like more vehicle traffic needs more lanes.

- Many wireless users share each cell site and congestion may result when too many try to use it at the same time.
- Wireless coverage may already exist in an area, but with data usage growth increasing exponentially each year, more capacity is needed.
- To meet capacity demands, we need to add more wireless antennas closer to users and closer to other cell sites to provide the reliable service customers have come to expect from Verizon.

The monthly data traffic in North America is projected to amount to 19.53 exabytes (the equivalent of over four billion DVD's) by 2027. In 2021, the average data traffic amounted to almost 5 EB per month.*



Wireless connectivity is critical in schools and communities.

Wireless is a critical component in schools and for today's students.

20k

learning apps are available for iPads.

72%

of iTunes top selling educational apps are designed for preschool and elementary students.

600+

school districts replaced text books with tablets in classrooms.

77%

of parents think tablets are beneficial to kids.

74%

of school administrators feel digital content increases student engagement.

70%

of teens use cellphones to help with homework.

Property Values



Wireless facilities and property values.

Cell service in and around the home has emerged as a critical factor in home-buying decisions.

National studies demonstrate that most home buyers value good cell service over many other factors including the proximity of schools when purchasing a home.

90%

Of single family homebuyers consider an area of good cellular service somewhat important or very important when buying a home.¹

87%

Of prospective homebuyers identified faster mobile phone connections as somewhat or very important when looking at 5G and a potential home.¹

22%

On average, U.S. households now have a total of ²² connected devices.

Summary

- A monopole design was chosen as the best structure type for this environment.
 - The tower will be built to accommodate 4 carriers which will allow for future growth without having to build new towers.
 - Reliable wireless service is essential to local residents, business owners, public safety officials, and visitors to the City of St. Charles.
 - This proposal will allow Verizon and others to provide this critical service when needed.
 - This will improve service to the entire City of St. Charles.
- 