



Municipal Technical Advisory Service
INSTITUTE *for* PUBLIC SERVICE

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Laws of Economics Affecting Tower Placement

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We hope this information will be useful to you; reference to it will assist you with many of the questions that will arise in your tenure with municipal government. However, the *Tennessee Code Annotated* and other relevant laws or regulations should always be consulted before any action is taken based upon the contents of this document.

Please feel free to contact us if you have questions or comments regarding this information or any other MTAS website material.

Sincerely,

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Laws of Economics Affecting Tower Placement

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Tower construction may be divided into two general types:

- Guyed towers: Towers that depend on the attachment of guy wires to hold them in place and to protect against the forces of wind and ice.
- Self-supporting towers: Towers that are rigidly constructed and, once attached to a base anchored in the ground, need no additional support to withstand the forces of nature.

Guyed towers tend to use a latticework construction. Self-supporting towers can use latticework construction, but the more modern approach is the monopole — a tapered, rigidly built spike or pipe placed perpendicular to the ground.

Inch for inch, self-supporting tower structures generally are more expensive to construct than guyed towers.

Despite their relative lower cost of construction, guyed antennas may ultimately be more expensive for the telecommunications provider due to the amount of real estate needed for this type of construction. For example, a 200-foot tower, 80 percent of which is to be guyed, will require nearly two full acres of real estate to achieve the necessary rigidity. ^[1] In a community having high real estate values, installing a guyed tower may not be a viable option.

As a city plans for the placement of telecommunications towers, it must understand these economic realities.

[1] Roger L. Freeman, *Telecommunication Transmission Handbook*, Second edition. John Wiley & Sons, New York, 1981, page 242.

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