

# REQUEST FOR BOARD ACTION

## HENDERSON COUNTY TECHNICAL REVIEW COMMITTEE

**MEETING DATE:** November 7, 2023

**SUBJECT:** LDC Text Amendment – TX-2023-05, Communication Facilities Category One (1) or Two (2)

**PRESENTER:** Autumn Radcliff, Planning Director  
Matt Champion, Zoning Administrator

**ATTACHMENTS:** 1. Draft Amendment  
2. Fall Zone Letter Example

### SUMMARY OF REQUEST:

Planning staff received an application for a text amendment (#TX-2023-05) to add language that would allow engineers to submit specific letters detailing fall zones and therefore reducing the separation and easement acquisition requirements. The Land Development Code (LDC) permits Communication Facilities Category One (1) and Category Two (2) by right in all zoning districts.

The Planning Board will review and make a recommendation on the application at its meeting on November 16, 2023.

### BOARD ACTION:

The Technical Review Committee is requested to review on the proposed amendment before forwarding to the Board of Commissioners. The Board of Commissioners must hold a public hearing prior to adopting any amendments to the Land Development Code.

**Suggested Motion:** I move that the Technical Review Committee find no issues with the proposed text amendment (TX-2023-05) and request that it be forward to the Board of Commissioners per the recommendation of the Planning Board.

## LDC Text Amendment (TX-2023-05)

Recommended changes are highlighted.

### Communication Facilities Category One (1) or Two (2)

#### Summary:

Staff received an application for a text amendment request (#TX-2023-05) to add language that would allow engineers to submit specific letters detailing fall zones and therefore reducing the separation and easement acquisition requirements. The Land Development Code (LDC) permits Communication Facilities Category One (1) and Category Two (2) by right in all zoning districts.

#### Definition:

**Fall Zone** – The area in which a wireless support structure may be expected to fall in the event of a structural failure, as measured by engineering standards.

#### **§42-266. Category One (1) or Two (2) Communication Facility Permits (C. Application) (2. Application) (f. Easement Acquisition Documents)**

- f. Easement Acquisition Documents. Statements of intent, submitted by the *applicant*, from adjacent property *owners* (where any portion of said property is within a distance of the tower height from the tower base) to grant an *easement* to the *applicant*. **Or the applicant can submit a fall zone letter, sealed by an engineer, identifying the towers specific fall radius.**

#### **SR 9.3. Communication Facilities (3. Communication Facility Specific Standards) (b. Category Two (2) (5. Separation from Existing Occupied Buildings)**

5. Separation from Existing Occupied Buildings. *Communication towers* must be constructed a minimum distance equivalent to 110 percent of the height of the proposed *communication tower* from existing occupied *structures*. *Communication towers* unable to conform to *occupied building* separation requirements may submit affidavits of understanding from the *owners* of property and/or *structures* within the 110 percent height radius in place of conforming to the separation standards. Affidavits of understanding shall state that the property *owners* do not object to the construction of the *communication tower* as proposed in the application, and agree to hold the County harmless from any and all liability for the location and construction of the *communication tower* as proposed in the application. Such affidavits should also site the specific plan or drawing reviewed by the property *owner*. **Or the applicant can submit a fall zone letter, sealed by an engineer, identifying the towers specific fall radius.**

September 25, 2023

Mr. Steve Hatmaker  
US Cellular Corp

RE: Proposed 190' Sabre Self-Supporting Tower for Ballenger, NC

Dear Mr. Hatmaker,

Upon receipt of order, we propose to design a tower for the above referenced project for a Basic Wind Speed of 107 mph and 30 mph + 1.5" radial ice, Risk Category II, Exposure Category C, and Topographic Category 1 in accordance with the Telecommunications Industry Association Standard ANSI/TIA-222-H, "Structural Standard for Antenna Supporting Structures, Antennas and Small Wind Turbine Supporting Structures" to support (4) wireless carriers.

When designed according to this standard, the wind pressures and steel strength capacities include several safety factors. Therefore, it is highly unlikely that the tower will fail structurally in a wind event where the design wind speed is exceeded within the range of the built-in safety factors.

Should the wind speed increase beyond the capacity of the built-in safety factors, to the point of failure of one or more structural elements, the most likely location of the failure would be within one or more of the tower members in the upper portion. This would result in a buckling failure mode, where the loaded member would bend beyond its elastic limit (beyond the point where the member would return to its original shape upon removal of the wind load).

Therefore, it is likely that the overall effect of such an extreme wind event would be localized buckling of a tower section. Assuming that the wind pressure profile is similar to that used to design the tower, the tower is most likely to buckle at the location of the highest combined stress ratio in the upper portion of the tower. This would result in the portion of the tower above the failure location "folding over" onto the portion of the tower below the failure location.

*Please note that this letter only applies to the above referenced tower designed and manufactured by Sabre Industries.* In the unlikely event of total separation, this would result in a fall radius within 100' at ground level.

Sincerely,

Robert E. Beacom, P.E., S.E.  
Engineering Manager

