CELLULAR GUIDE

Campus Facilities ("CF") provides services to improve the physical environment in support of the University of Missouri's institutional mission and vision. CF oversees the design and construction of new structures, renovation and repair projects and infrastructure development. Therefore, CF is responsible for coordinating the design, construction, safety, and on-going maintenance of new and existing cellular tower/antenna installations. These guidelines provide the minimum requirements for the installation, operation, and maintenance of cellular systems installed on the University's campus. The University reserves the right to update these Guidelines from time to time by posting a revised version on the website located at https://www.umsystem.edu/ums/fa/treasurer/real-estate. The University may impose additional requirements and/or adjust response times with respect to any project, all in its sole discretion.

I. New Cellular Tower Installation and Site Requirements:

a. Any request for a new cellular tower installation is to be submitted to UM System – Department of Real Estate at umrealestate@umsystem.edu or by mail at 118 University Hall, Attn: Real Estate, Columbia, Missouri 65211. Upon confirmation from the Cellular Representative that the contract terms and conditions are acceptable, the Department of Real Estate will route the request to CF. ***The anticipated project review period is 180 calendar days.***

b. CF will contact the Cellular Representative within 10 business days to acknowledge CF's receipt of the request and to gather any additional information.

c. CF will be assigned a project number for tracking purposes. All correspondence including email and construction documentation shall include the project number.

d. Once the project has been established, CF Coordinator will arrange a meeting with the Cellular Representative to review possible project sites.

e. Cellular Representative will be directed to the Document Center at Campus Facilities for related drawings and prints. Drawings and prints will be provided in electronic format and the Cellular Representative will be responsible for all printing.

f. After potential sites have been reviewed, the Cellular Representative will make a formal request for a specific site location and issue payment for any associated fees as outlined in Section V. The request must be accompanied with photo simulations to clearly illustrate how the project will appear when constructed, a narrative of the project scope, identifying power and data requirements.

g. CF will coordinate with Energy Management and IT on the availability and cost of services.

h. CF will present the proposal to the appropriate University stakeholders and Neighbors, Architectural Review Committee, and the Capital Review Committee, for comments. CF will coordinate technical reviews of proposed construction documents. Based on the comments the

proposal may be approved, rejected, or additional information/revisions may be requested.

i. If plans are approved, the Cellular Representative will provide a sealed set of construction drawings.

j. Cellular Representative (or its contractor) will coordinate on-site access with CF.

II. Cellular Tower Design and Construction Requirements:

a. Tower design shall comply with the latest revision of the Electronics Industry Association Structural Standards for Steel Antenna Tower and Antenna Supporting Structures -EIA/TIA-222.

b. The tower plans shall detail, at a minimum, the following data for the site specified in the structural analysis.

1. Basic wind speed - 3 second gust, 50 year return period without ice.
2. Basic wind speed - 50 year period with ice.
3. Design ice thickness – 50 year return period.
4. Exposure category – B.
5. Structural classification – I, II, or III.
6. Topography category – 1, 2, 3, 4, or 5.
7. Earthquake spectral response acceleration at short periods.
8. Foundation reactions for the loading combination considered.
9. Soil design parameters - geotechnical report is required for Class I, II, and III structures.

c. Plans shall include all structural calculations.

d. Plans must clearly call out the erectors responsibilities.

e. Drawings must show the details and markings required to allow for the proper installation of the structure including:

1. Member sizes
2. Member yield strengths
3. Grade of structural bolts.
4. Foundation reactions – based upon factored loads
5. Loading parameters including:
    a. Antennas: height quantity, model number, and size of lines.
    b. Mounts: height, quantity, model; number and size of lines
    c. Or, the total effective projected area representative of all the antennas and mounts at each elevation.

f. All construction activities must be coordinated and monitored by CF. CF will oversee the use of a cranes, road closures, contractor laydown requirements, etc. Typically, a notice period of 4 weeks will be needed prior to the commencement of any construction activity. Construction schedule

must allow for adequate advanced notice to inform University building occupants of events (e.g. planned utility outages, road closings, maintenance and construction) that may affect them.

g. Design and construction will be subject to permitting, inspection(s) and any associated fees.

III. Cellular Tower Safety and Maintenance Requirements:

a. If required by CF, the Cellular Representative shall have an exposure and compliance survey of the RF-EME fields emitted from the antennas. Survey shall be derived from the guidelines and requirements published in the FCC Office of Engineering & Technology (OET) Bulletin 65 - "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields". Written report shall be provided with the survey results, safety concerns, and recommendations.

b. All building mounted and ground mounted cellular towers shall be designed and installed to restrict access to be the minimum safe distance as identified in the exposure and compliance survey.

c. Assessments shall utilize predictive modeling software approved by the FCC.

d. Caution and warning signs shall be provided and posted at roof access points for buildings with cell towers, caution sign shall indicate minimum safe distance. Signage shall indicate the name of the cellular carrier and phone number in the event the antenna needs to be turned off for University maintenance near the equipment.

e. All maintenance and repair activities shall be coordinated through CF.

f. Maintenance and condition assessments shall be performed by the Cellular Representative every 3 years for guyed masts and every 5 years for self-supporting structures by a qualified tower inspector who is regularly involved in the maintenance, inspection and/or erection of towers. At a minimum, this inspection shall be conducted in accordance with the tower inspection check list provided in the Electronics Industries Association (EIA) Standard 222, “Structural Standards for Steel *Antenna* Towers and *Antenna* Support Structures.” A copy of such inspection records shall be made available to CF upon request.

g. Condition assessment shall also be performed by the Cellular Representative by a qualified tower inspector within 30 days after severe wind and/or ice storms or other extreme conditions. A detailed report shall be provided, complete with pictures and recommended action to be done in order of priority, and include the TIA/EIA 222F suggested inspection checklist.

h. All existing structures which for a contract renewal is requested shall be analyzed in accordance with the latest revision of the Electronics Industry Association Structural Standards for Steel Antenna Tower and Antenna Supporting Structures - EIA/TIA-222, regardless of the standard used

for the design of the original structure. Cellular Representative shall certify that the Cellular Representative's existing installation meets or exceeds the latest revision of EIA/TIA-222. If the installation does not comply with then modifications must be made to bring the installation in compliance with the latest revision of EIA/TIA-222.

IV. Cellular Tower Improvement/Modification Requests

a. Any request to improve/modify an existing cellular tower is to be submitted to UM System – Department of Real Estate at umrealestate@umsystem.edu or by mail at 118 University Hall, Attn: Real Estate, Columbia, Missouri 65211. ***The anticipated project review period is 90 days.***

b. CF will contact the Cellular Representative within 10 business days to acknowledge CF's receipt of the request and to gather any additional information.

c. CF will be assigned a project number for tracking purposes. All correspondence including email and construction documentation shall include the project number.

d. Cellular Representative shall issue CF and permitting fee payments as outlined in Section V. Payments must be received before review process will begin.

e. CF will present the proposal to the appropriate University stakeholders and Neighbors, Architectural Review Committee, and the Capital Review Committee, for comments. CF will coordinate technical reviews of proposed construction documents. Based on the comments the proposal may be approved, rejected, or additional information may be requested.

f. If approved, the Cellular Representative will provide a sealed set of construction drawings.

g. Cellular Representative (or its contractor) will coordinate on-site access with CF.

V. Planning, Design, and Construction Fees

Campus Facilities is funded through charging fees for services delivered and cellular tower installations/modifications are subject to the following fee structure. Fees are subject to change without notice.

SERVICE	FEE
Coordination of new site selection	$25,000
Modifications and upgrades to existing site	$5,000
Coordination for maintenance and repair	$3,000
Permitting Fee(s)	Determined based on scope of project