

## **Guidelines Recommended by the U.S. Fish and Wildlife Service (USFWS) for Communications Tower Siting, Construction, Operation, and Decommissioning (2000)**

1. Collocation of the communications equipment on an existing communication tower or other structure (e.g., billboard, water tower, or building mount) is strongly recommended. Depending on tower load factors, from 6 to 10 providers may collocate on an existing tower.
2. If collocation is not feasible and a new tower or towers are to be constructed, it is strongly recommended that the new towers should not be more than 199 feet above ground level (AGL) and that construction techniques should not require guy wires (e.g., instead, use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration (FAA) regulations permit.
3. If constructing multiple towers, the cumulative impacts of all the towers to migratory birds and threatened and endangered species, as well as the impacts of each individual tower, should be considered.
4. If at all possible, new towers should be sited within existing “antenna farms” (clusters of towers). Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state or federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. Towers should not be sited in areas with a high incidence of fog, mist, and low ceilings.
5. If taller (>199 feet AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white or red strobe lights (preferable), or red flashing incandescent lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. The use of solid (non-flashing) or pulsating (beacon) warning lights at night should be avoided. Current research indicates that solid or pulsating red lights attract night-migrating birds at a much higher rate than white strobe lights.

Recent research indicates that use of only white strobe, red strobe, or red flashing lights provide significant reductions in bird fatalities on towers less than 482 feet (147 meters) AGL (Gehring 2009).

6. Tower designs using guy wires for support, which are proposed to be located in known raptor or waterbird concentration areas, daily movement routes, major diurnal migratory bird movement routes or stopover sites, should have daytime visual markers on the wires to prevent collisions by these diurnally moving species. (For guidance on markers, see Avian Power Line Interaction Committee (APLIC). 1994. *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994*. Edison Electric Institute, Washington, D.C., 78 pp, and APLIC. 2006. *Suggested Practices for Avian Protection on Power Lines*. Edison Electric Institute, APLIC, and the California Energy Commission, Washington, D.C. and Sacramento, CA, 140 pp. Also at [www.aplic.org](http://www.aplic.org), [www.eei.org](http://www.eei.org), or [www.energy.ca.gov](http://www.energy.ca.gov) or by calling 1-800/334-5453).
7. Towers and appendant facilities should be sited, designed and constructed so as to avoid or minimize habitat loss within and adjacent to the tower “footprint”. However, a larger tower footprint is preferable to the use of guy wires in construction. Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above ground obstacles to birds in flight.
8. If significant numbers of breeding, feeding, or roosting birds are known to habitually use the proposed tower construction area, relocation to an alternate site is recommended. If this is not an option, seasonal restrictions on construction is advised in order to avoid disturbance during periods of high bird activity.
9. In order to reduce the number of towers needed in the future; new towers should be structurally and

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electrically designed to accommodate the proposed antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure). This does not apply if this would require that the design include additional lights or guy wires to an otherwise unlighted and/or unguyed tower.

10. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.

11. The USFWS or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, place above ground net catchments below the towers, radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary. This will allow for assessment and verification of bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.

12. Towers no longer in use or determined to be obsolete should be removed within 12 months of cessation of use.

13. In order to obtain information on the usefulness of these guidelines in preventing bird strikes, please advise USFWS and TPWD personnel of the final location and specifications of the proposed tower, and which of the measures recommended were implemented. If any of the recommended measures can not be implemented, please explain why they were not feasible. This will assist USFWS in identifying any recurring problems with the implementation of the guidelines, which may necessitate modifications.

### Sources:

Gehring, J., P. Kerlinger, and A.M. Manville. 2009. Communication Towers, Lights, and Birds: Successful Methods of Reducing the Frequency of Avian Collisions. *Ecological Applications*. 19 (2) pp.505-514. Ecological Society of America.\*\*

USFWS. 2000. Service Guidance on the Siting, Construction, Operation, and Decommissioning of Communication Towers. September 14. available on-line at <http://www.fws.gov/migratory/birds/CurrentBirdIssues/Hazards/towers/comtow.html>.

### Note:

The USFWS 2000 guidelines are adopted by TPWD with minor language modifications and research updates noted in the text.