

Communication Towers: For the Birds?

(The opinions of the authors may not necessarily reflect those of the MMA)

(from *Maine Townsman*, August/September 2001)

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Few inventions today have been so readily absorbed into our daily lives as the cellular phone. Cell phones provide convenience, safety and make our communications easier albeit more hectic. It's no surprise that cell phone use is growing rapidly throughout the United States and Maine is no exception. Consequently, the communication towers required to transmit the various signals endemic to our modern lifestyle (including radio, television, microwave, cellular) - are sprouting across our landscape like mushrooms after a spring rain - increasing at a rate of an estimated 6 to 8 percent annually according to the Federal Communication Commission (FCC). According to United States Department of Interior, Fish and Wildlife Service (USFWS), 800-1000 new towers are erected each month throughout the United States.

While no one, at least not in this writing, is promoting the idea of reducing or eliminating the services made available by communication towers, this article's intention is to raise an issue that is usually left unstated even in the most articulate of discussions on tower siting. That is - beyond the various issues surrounding the siting of towers, not the least of which is the issue of aesthetics - there also exist valid wildlife concerns associated with communication towers. As stated by the United States Department of Interior, Fish and Wildlife Service, in a September 14, 2000 memo to its regional directors,

The construction of new towers creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. Communications towers are estimated to kill 4-5 million birds per year, which violates the spirit and the intent of the Migratory Bird Treaty Act and the Code of Federal Regulations at Part 50 designed to implement the MBTA. Some of the species affected are also protected under the Endangered Species Act and Bald and Golden Eagle Act.

The phenomenon of "phototactic mortality," known as "bird strike" is a complex event that may significantly impact local bird populations. During certain weather conditions when a low cloud ceiling or foggy conditions exist, light from the tower refracts off water molecules in the air creating a large illuminated "halo" around the tower. This illuminated area or halo attracts passing birds like a beacon. Once encompassed by the light, they are reluctant to leave and may become disoriented. Like moths around a light bulb, birds continue to circle the tower, staying within the illuminated area. Eventually, they may collide with the structure or the guy wires that support it. It is not completely understood why birds experience this visual confusion but it is an established biological fact that it does occur. Incidentally, this "bird strike" event should not be confused with blind collisions that occur from time to time when birds fly into windows.

Some examples of this phenomenon are quite sobering. Researchers at a communication tower near Tallahassee, Florida recorded bird mortality from 1955-1980. During this

period, 42,386 birds representing 190 species were collected from under the tower. At a similar tower in Eau Claire, Wisconsin 121,560 dead birds, representing 123 different species, were recorded from 1957-1994. That is an average of nine dead birds per day over a 37-year period. On January 22, 1998, in southwestern Kansas, tower personnel reported 5,000 - 10,000 Lapland Longspurs killed during the night by collision with the tower.

Putting these statistics in perspective, communication towers do not kill as many birds as weather. For that matter, housecats probably kill more birds annually than communication towers. However, with thousands of new towers being erected each year throughout the country, bird mortality associated with communication towers can only increase.

Tower Numbers on the Rise. The Cellular Telecommunications & Internet Association (CTIA) an international organization that represents all elements of wireless communication (cellular, personal communication services enhanced specialized mobile radio, and mobile satellite services) reports that nationally, since December 1999, cell sites were up 27.7 percent. The CTIA statistics show that in 2000 there were a total of 104,288 sites (including collocations on structures) up from 81,698 in 1999. According to the FCC's current count, there are a total of 5,882 FCC licensees in Maine that include towers that do not require registration (those under 200 feet) in addition to other kinds of antenna structures and co-locations. There are currently 356 FCC "registered" communication towers (towers over 200 feet) in Maine.

If those statistics alone are not sufficiently impressive, Peter O. Hart Research Associates, Inc., a Washington D.C. based research firm, reported that "people are not only more likely to have wireless phones than they are other technologically advanced products, but those who do not now have a wireless phone are more likely to say they will buy this product sooner than any of the other products tested" (Attitudes Toward Wireless Telephones, March 1996). The survey's conclusion regarding the forecast for the wireless industry - "the potential for this industry to move from being a niche market to a mass market is just around the corner." Given the past few years' rise of towers, it seems that Hart Research Associates could not have been more accurate.

Cell towers are here to stay or at least until the technology behind alternatives provide the industry with feasible options to towers. As a result, municipalities are still confronting the issue of locating communication towers within their communities. Town ordinances, even if existent, may have limited or inadequate provisions to deal with this development. The competition between tower construction firms is fierce and a gold rush mentality prevails as companies race to get speculation towers in position in order to gain market share. For the time being, or until the time that technological advances provide options, municipalities must contend, hopefully proactively, with the issues of tower siting.

Bird Friendly Options. So what are the options? Erecting communication towers that reduce the potential for bird strike is the key. Because unlit towers eliminate this bird strike problem, the best solution is to build towers that do not require illumination.

Towers less than 200 feet do not require lighting by the Federal Aviation Administration (FAA). If a tower must be illuminated for aviation safety, a strobe light is better than a pulsating beacon. If the tower built is over 200 feet several other options exist including building towers without guy wires. By eliminating guy wires the opportunity for collision is significantly reduced. Another structural issue to consider is that towers resembling flagpoles are preferable to lattice type structures. And finally, collocating on existing structures e.g., church steeples is sometimes possible and if so, a good option. These are some basic modifications that can be achieved without substantial cost to the tower developer. Municipalities might also wish to explore other tower options such as towers that "resemble" trees and are otherwise camouflaged. Refer to the USIFW guidelines at the end of this article for more information.

The Federal Communications Commission. The Federal Communications Commission (FCC) rules implementing the National Environmental Protections Act (NEPA) (47 C.F.R. § 1.1307(a)) require the review of proposed new tower construction for environmental consequences. Two FCC bureaus oversee the regulation of communications towers. The Mass Media Bureau oversees towers associated with TV and Radio, and the Wireless Communications Bureau oversees Cell Phone and PCS towers. If a company's proposed tower falls within one of the eight categories found in the federal regulations of 1.1307, section 1.1308(a) requires the company to consider the potential environmental effects from its construction of antenna facilities or structures, and to disclose those effects in an environmental assessment (EA) which is filed with the appropriate FCC Bureau for review.

As an aside, 1.1307(c) of the FCC rules provide that any "interested person" alleging that there will be a "significant environmental effect" to a particular action, which is "otherwise categorically excluded" from regulations requiring an EA, can submit to the appropriate FCC bureau a "written petition setting forth in detail the reasons justifying or circumstances necessitating environmental consideration in the decision-making process." The FCC bureau must then evaluate the environmental concerns that have been raised by the petition. If it is determined that there will be a significant environmental impact, the FCC bureau will require the applicant to prepare an EA.

According to the regulations, FCC actions with respect to the following types of facilities may significantly affect the environment and thus require the preparation of EAs by the applicant and may require further FCC environmental processing:

- (1) Facilities that are to be located in an officially designated wilderness area.
- (2) Facilities that are to be located in an officially designated wildlife preserve.
- (3) Facilities that: (i) may affect listed threatened or endangered species or designated critical habitats; or (ii) are likely to jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats, as determined by the Secretary of the Interior pursuant to the Endangered Species Act of 1973.
- (4) Facilities that may affect districts, sites, buildings, structures or objects, significant in American history, architecture, archeology, engineering or culture, that are listed, or are

eligible for listing, in the National Register of Historic Places.

[No (5) was provided.]

(6) Facilities to be located in a floodplain.

(7) Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

According to experts, the first three of the eight categories of section 1.1307 are actions which may have significant affects on bird life, but only the third one is potentially applicable for the mass mortality of birds at communications towers. This category in effect states that if the proposed facility (tower or towers) affects listed threatened or endangered species or designated critical habitat; or is likely to jeopardize the continued existence of any proposed endangered or threatened species or likely to result in the destruction or adverse modification of proposed critical habitats, as determined by the Secretary of the Interior pursuant to the Endangered Species Act of 1973, then an EA must be conducted.

A 1994 FCC decision, *In the Matter of County of Leelanau, Michigan v. Applications for Licenses in the Private Land Mobile Operational Fixed Microwave Radio Services (FCC 94-282)* supports the importance of monitoring bird strike issues and backs the validity of lighting alternatives and tower markings as methods to reduce tower strike. In the Leelanau case, the Commission decided to uphold the tower application at issue but only if certain conditions were met. The petitioners (Michigan Audubon Society, National Audubon Society, and the National Parks and Conservation Association, known collectively as the CET) argued, amongst other things, that the tower at issue would be located in a migratory bird corridor and thus would result in the "taking" of migratory birds in violation of the migratory Bird Treaty Act, 16 U.S.C. Section 703. Another issue argued was that the tower would "adversely affect the aesthetic nature of the nearby national park system, Sleeping Bear Dunes National Lakeshore (National Lakeshore)" and that the Bureau [the FCC] failed to consider alternative sites and failed to issue a Finding of No Significant Impact, in violation of the requirements of the National Environment Policy Act (NEPA) and the Commission's rules.

The FCC noted in its decision that prior to issuing the licenses, the FCC reviewed the licensee's (a county government) environmental assessment with supplements, and also reviewed the "opinions of expert agencies" regarding the "impact of the tower on threatened, endangered species and migratory birds, as well as the nearby National Lakeshore." The FCC found that the action did not have a significant environmental impact, and thereby corrected the technical defect pointed out by petitioners. In assessing the aesthetic concerns, the FCC stated that it "accords considerable weight to local planning decisions that have addressed such matters, and other expert agencies...." Furthermore, because the petitioners did not support or document their claim that the tower would adversely affect the National Lakeshore, and did not provide evidence to refute a finding of no impact, the FCC accorded "due deference to the National Park Service's findings that the tower would not have a significant, adverse impact on the National Lakeshore. The FCC further found that there was "no record evidence to support

[petitioners] speculative assertions that the erection" of tower w[ould] have a "detrimental effect on, or preclude, any future wildlife or wilderness designations."

Ironically, the issue more closely scrutinized in this case became whether the tower would significantly affect the migratory bird population. The complainants contended that the tower would result in an annual estimated loss of 2,500 migratory birds based on a 1979 study and that such loss constituted a taking under the Migratory Bird Treaty Act (MBTA), 16 U.S.C. Section 703. The respondent (a county government) pointed out that the study used was one conducted on much larger towers and thus had no direct bearing on the impact of proposed tower. Moreover, the FCC determined that it was "not clear whether the MBTA, which is primarily a "hunting" statute that prohibits the "pursuing, hunting, taking, capturing and killing" of migratory birds, would even apply to a federally authorized tower structure." However, the FCC opined that "consistent with [their] overall obligations to consider the impact of [their] authorized facilities on the environment, they would address and determine whether the proposed tower posed a significant, adverse impact on the migratory bird population."

It is interesting to note that the tower at issue involved the updating of a public safety communications system. Despite the tower's prospective purpose, a legitimate safety project, the outcome was only a partial victory for the county seeking to erect the tower. Various public safety groups, such as the county's sheriff department, the county office of emergency management, the volunteer fire department, the emergency medical services, the fire rescue and the fire department, all submitted comments supporting the need for an updated public safety communications system. Despite the FCC's ruling that the tower at issue would not result in a significant loss of migratory birds, it imposed conditions on the county's authorization.

The FCC remarked:

Based on all of the submissions furnished by both Leelanau County and CET [petitioners], it appears that any appreciable danger to the migratory bird population by the proposed Jurica tower would be during periods of low visibility, when the birds become disoriented. We will thus condition Leelanau County's authorization on its marking the tower and guyed lines with appropriate balls and/or streamers, which, as we have found in the past, increases the structure's visibility and thus ameliorates the impact of a tower on the migratory bird population. Moreover, recent studies have indicated that bird casualties would be dramatically reduced by the utilization of red beacon flashing lighting on towers. Apparently, the alternating periods of light and darkness enable the birds to adjust, become aware of their surroundings, and avoid tower structures. Accordingly, we will further condition Leelanau County's authorization on the installation of such lighting features. Finally, we will condition Leelanau County's authorization on a comprehensive monitoring requirement that will require the County to continually monitor and report to the Bureau any and all migratory bird casualties, in addition to the existing conditions regarding threatened and endangered species. We believe that the conditions thus imposed will address CET's concerns, and more importantly, will significantly ameliorate any impact of the proposed Jurica tower on the

migratory bird population.

Thus, although the application was granted, the FCC ordered the licensee to monitor the site on a regular basis to evaluate the impact of the tower structure and supporting guy wires on the migratory bird population. The licensee was also required to record any losses or other casualties of migratory birds on an annual basis. In addition, strobe red beacon lightning and the installation of other appropriate markings such as balls and/or streamers, at the tower for the protection of the migratory bird population was required.

Message From The White House. On January 10, 2001 former President Clinton signed Executive Order 13186 concerning the "Responsibilities of Federal Agencies To Protect Migratory Birds" (in furtherance of the Migratory Bird Treaty Act (16 U.S.C. 703-711), the Bald and Golden Eagle Protection Acts (16 U.S.C. 668-668d), the Fish and Wildlife Coordination Act (16 U.S.C. 661-666c), the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347), in addition to other pertinent statutes)." Although this Order applies solely to federal agencies, its message is wide reaching. The Federal government hopes that the Order will "spawn new partnerships" in order to promote "collective efforts" and comprehensive strategy in order to conserve valuable bird resources. The Executive Order's policy section provides in part,

Migratory birds are of great ecological and economic value to this country and to other countries. They contribute to biological diversity and bring tremendous enjoyment to millions of Americans who study, watch, feed, or hunt these birds throughout the United States and other countries. The United States has recognized the critical importance of this shared resource by ratifying international, bilateral conventions for the conservation of migratory birds. Such conventions include the Convention for the Protection of Migratory Birds with Great Britain on behalf of Canada 1916, the Convention for the Protection of Migratory Birds and Game Mammals-Mexico 1936, the Convention for the Protection of Birds and Their Environment-Japan 1972, and the Convention for the Conservation of Migratory Birds and Their Environment-Union of Soviet Socialist Republics 1978.

The Order requires that each Federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations are directed to develop and implement, within 2 years, a Memorandum of Understanding (MOU) with the Fish and Wildlife Service (Service) that promote the conservation of migratory bird populations.

A Few Last Thoughts. Municipalities should work with local counsel to develop wireless telecommunication ordinances that address wildlife concerns. If a proposed tower project falls into one or more of the section 1.1307 categories (see above), municipalities should analyze the issue to see if a tower company should have produced an environmental assessment. If an EA was produced, the municipality should review it. At a very minimum, municipalities should require that copies of all relevant FCC documents be provided to the municipality as part of any tower siting application. FCC license holders

are required to complete a review under NEPA (and also under the National Historic Preservation Act (NHPA)) and as a result should have these documents readily available.

Maine is blessed with exceptional bird resources, in large part because of our location within the eastern flyway, an important bird migration corridor. If we promote these simple modifications when considering the siting of a communication tower, we can reduce this needless loss of avian wildlife, while providing these essential services. There are no quick fixes here - proactively planning for tower siting through the adoption of appropriate provisions in comprehensive plans and ordinances along with the adherence to the Federal Telecommunications Act of 1996 (TCA) requirements are key to effective local control of towers.

For more information on communication towers, refer to the Legal Services Information Packet on "Telecommunications Facilities." Also see "Local Regulation of Tower Siting" (from *Maine Townsman*, July 2000) by William Plouffe, Esq., for guidance on what municipalities must do to avoid violating specific protections in the Federal Telecommunications Act of 1996 when reviewing tower siting applications. In his article Plouffe contends that the more recent trend in case law reveals that courts seem to be more favorable to municipalities^{3/4}even after enactment of the TCA^{3/4}allowing municipalities to control the location of towers and generally require them to meet the same standards as other types of development which is what Congress intended. Plouffe explains that this maybe the result of a heightened level of sophistication on the part of municipalities in abiding by the TCA's requirements.

If you would like more information on these or other wildlife concerns, contact your local Maine state IFW regional biologist. Biologists can provide technical assistance to municipalities regarding this and other wildlife concerns. See Appendix A included at the end of this article for a copy of the September 14, 2000 USIFW memo which provides "Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers" along with Appendix B, a sample "tower site evaluation form" also from USIFW.

Inland Fisheries & Wildlife Regional Offices:

1. Gray 657-2345
2. Sidney 547-5300
3. Greenville 695-756
4. Ashland 435-3231
5. Machias 255-4715
6. Strong 778-3324
7. Enfield 732-4132

Internet Web Sites of Interest:

1. Federal Communications Commission Wireless Telecommunications Bureau, Wireless Facilities Siting Issues: <http://www.fcc.gov/wtb/siting/> (highly recommended site)

2. Federal Communications Commission Wireless Telecommunications Bureau, Compliance With Commission's Rules Implementing The National Environmental Policy Act of 1969: <http://www.fcc.gov/wtb/siting/npaguid.html>
3. For more information on how the FCC can be of assistance to local governments in this area, contact Steve Markendorff, Chief of the Broadband Branch, Commercial Wireless Division, Wireless Telecommunications Bureau, at (202) 418-0620, or fax (202) 418-1412, or email: smarkend@fcc.gov
4. Division of Migratory Bird Management (USFWS): <http://migratorybirds.fws.gov/>
5. American Bird Conservancy: <http://www.abcbirds.org/policy/towerkill.htm>
6. "Communication Towers: A Deadly Hazard To Birds Report Documents A Report Compiled By American Bird Conservancy June, 2000 Killing Of 230 Bird Species": <http://www.abcbirds.org/policy/towerkillweb.PDF>
7. Cell phone Tree Towers: <http://envirocell.bizland.com/>

Appendix A

United States Department of Interior
Fish and Wildlife Service
Washington, DC 20240

September 14, 2000

To: Regional Directors

From: Director /s/ Jamie Rappaport Clark

Subject: Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers

Construction of communications towers (including radio, television, cellular, and microwave) in the United States has been growing at an exponential rate, increasing at an estimated 6 percent to 8 percent annually. According to the Federal Communication Commission's 2000 Antenna Structure Registry, the number of lighted towers greater than 199 feet above ground level (AGL) currently number over 45,000 and the total number of towers over 74,000. Non-compliance with the registry program is estimated at 24 percent to 38 percent, bringing the total to 92,000 to 102,000. By 2003, all television stations must be digital, adding potentially 1,000 new towers exceeding 1,000 feet AGL.

The construction of new towers creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. Communications towers are estimated to kill 4-5 million birds per year, which violates the spirit and the intent of the Migratory Bird Treaty Act and the Code of Federal Regulations at Part 50 designed to implement the MBTA. Some of the species affected are also protected under the Endangered Species Act and Bald and Golden Eagle Act.

Service personnel may become involved in the review of proposed tower sitings and/or in the evaluation of tower impacts on migratory birds through National Environmental

Policy Act review; specifically, Sections 1501.6, opportunity to be a cooperating agency, and 1503.4, duty to comment on federally-licensed activities for agencies with jurisdiction by law, in this case the MBTA, or because of special expertise. Also, the National Wildlife Refuge System Improvement Act requires that any activity on Refuge lands be determined as compatible with the Refuge system mission and the Refuge purpose(s). In addition, the Service is required by the ESA to assist other Federal agencies in ensuring that any action they authorize, implement, or fund will not jeopardize the continued existence of any Federally endangered or threatened species.

A Communication Tower Working Group composed of government agencies, industry, academic researchers and NGO's has been formed to develop and implement a research protocol to determine the best ways to construct and operate towers to prevent bird strikes. Until the research study is completed, or until research efforts uncover significant new mitigation measures, all Service personnel involved in the review of proposed tower sitings and/or the evaluation of the impacts of towers on migratory birds should use the attached interim guidelines when making recommendations to all companies, license applicants, or licensees proposing new tower sitings. These guidelines were developed by Service personnel from research conducted in several eastern, midwestern, and southern states, and have been refined through Regional review. They are based on the best information available at this time, and are the most prudent and effective measures for avoiding bird strikes at towers. We believe that they will provide significant protection for migratory birds pending completion of the Working Group's recommendations. As new information becomes available, the guidelines will be updated accordingly.

Implementation of these guidelines by the communications industry is voluntary, and our recommendations must be balanced with Federal Aviation Administration requirements and local community concerns where necessary. Field offices have discretion in the use of these guidelines on a case by case basis, and may also have additional recommendations to add which are specific to their geographic area.

Also attached is a Tower Site Evaluation Form which may prove useful in evaluating proposed towers and in streamlining the evaluation process. Copies may be provided to consultants or tower companies who regularly submit requests for consultation, as well as to those who submit individual requests that do not contain sufficient information to allow adequate evaluation. This form is for discretionary use, and may be modified as necessary.

The Migratory Bird Treaty Act (16 U.S.C. 703-712) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the Act has no provision for allowing unauthorized take, it must be recognized that some birds may be killed at structures such as communications towers even if all reasonable measures to avoid it are implemented. The Service's Division of Law Enforcement carries out its mission to protect migratory birds not only through investigations and enforcement, but also through fostering relationships with individuals and industries that proactively seek to eliminate their impacts on migratory birds. While it is not possible

under the Act to absolve individuals or companies from liability if they follow these recommended guidelines, the Division of Law Enforcement and Department of Justice have used enforcement and prosecutorial discretion in the past regarding individuals or companies who have made good faith efforts to avoid the take of migratory birds.

Please ensure that all field personnel involved in review of FCC licensed communications tower proposals receive copies of this memorandum. Questions regarding this issue should be directed to Dr. Benjamin Tuggle, Chief, Division of Habitat Conservation, at (703)358-2161, or Jon Andrew, Chief, Division of Migratory Bird Management, at (703)358-1714. These guidelines will be incorporated in a Director's Order and placed in the Fish and Wildlife Service Manual at a future date.

Service Interim Guidelines For Recommendations On Communications Tower Siting, Construction, Operation, and Decommissioning

1. Any company/applicant/licensee proposing to construct a new communications tower should be strongly encouraged to collocate the communications equipment on an existing communication tower or other structure (e.g., billboard, water tower, or building mount). 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, communications service providers should be strongly encouraged to construct towers no more than 199 feet above ground level (AGL), using construction techniques which do not require guy wires (e.g., use a lattice structure, monopole, etc.). Such towers should be unlighted if Federal Aviation Administration regulations permit.
3. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers to migratory birds and threatened and endangered species as well as the impacts of each individual tower.
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 (preferable) or red strobe 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 red or pulsating red warning lights at night should be avoided. Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.

6. Tower designs using guy wires for support which are proposed to be located in known raptor or waterbird concentration areas or daily movement routes, or in 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 Avian Power Line Interaction Committee (APLIC). 1996. Suggested Practices for Raptor Protection on Power Lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C., 128 pp. Copies can be obtained via the Internet at <http://www.eei.org/resources/pubcat/enviro/>, 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 should be recommended. If this is not an option, seasonal restrictions on construction may be advisable in order to avoid disturbance during periods of high bird activity.

9. In order to reduce the number of towers needed in the future, providers should be encouraged to design new towers structurally and electrically to accommodate the applicant/licensee's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), unless this design would require the addition of 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. If a tower is constructed or proposed for construction, Service personnel or researchers from the Communication Tower Working Group should be allowed access to the site to evaluate bird use, conduct dead-bird searches, to place net catchments below the towers but above the ground, and to place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify 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.

In order to obtain information on the extent to which these guidelines are being implemented, and to identify any recurring problems with their implementation which

may necessitate modifications, letters provided in response to requests for evaluation of proposed towers should contain the following request:

"In order to obtain information on the usefulness of these guidelines in preventing bird strikes, and to identify any recurring problems with their implementation which may necessitate modifications, please advise us of the final location and specifications of the proposed tower, and which of the measures recommended for the protection of migratory birds were implemented. If any of the recommended measures can not be implemented, please explain why they were not feasible."

Appendix B

TOWER SITE EVALUATION FORM (USFWS Sample)

1. Location (provide maps if possible):

State: County: Latitude/Longitude/GPS Grid:

City and Highway Direction (2 miles W on Hwy 20, etc.)

2. Elevation above mean sea level:

3. Will the equipment be co-located on an existing FCC licensed tower or other existing structure (building, billboard, etc.)? Yes No. If yes, type of structure: If not, no further information is required.

4. If no to item 3., provide proposed specifications for new tower:

Height: Construction type (lattice, monopole, etc.):

Guy-wired? Yes No. Number of bands: Total Number of Wires: Lighting
(Security & Aviation):

If tower will be lighted or guy-wired, complete items 5-19. If not, complete only items 19 and 20.

5. Area of tower footprint in acres or square feet:

6. Length and width of access road in feet:

7. General description of terrain - mountainous, rolling hills, flat to undulating, etc.
Photographs of the site and surrounding area:

8. Meteorological conditions (incidence of fog, low ceilings, etc.):

9. Soil type(s):

10. Habitat types and land use on and adjacent to the site, by acreage and percentage of total:

11. Dominant vegetative species in each habitat type:

12. Average diameter breast height of dominant tree species in forested areas:

13. Will construction at this site cause fragmentation of a larger block habitat into two or more smaller blocks? Yes No. If yes, describe

14. Is evidence of bird roosts or rookeries present? Yes No. If yes, describe:

15. Distance to nearest wetland area (forested swamp, marsh, riparian, marine, etc.), and coastline if applicable:

16. Distance to nearest telecommunications tower:

17. Potential for co-location of antennas on existing towers or other structures:

18. Have measures been incorporated for minimizing impacts to migratory birds? Yes No. If yes, describe:

19. Has an evaluation been made to determine if the proposed facility may affect listed or proposed endangered or threatened species or their habitats as required by FCC regulation at 47 DFR 1.137(a)(3)? Yes No. If yes, present findings:

20. Additional information required: