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SUMMARY

AT&T Mobility supports the Commission's efforts to maintain the critical balance between the public interests served by improving nationwide wireless networks and protecting the environment from potential adverse effects that may be associated with such improvements. In striking this balance, however, the Commission must remain cognizant of the fact that intrusive environmental regulations impose significant costs and administrative burdens on the infrastructure industry and government alike and would undercut key Commission priorities, such as expediting broadband deployment and facilities-based competition. Given the consequences of such regulation, AT&T Mobility submits that the Commission should adopt new environmental rules only where substantial scientific evidence demonstrates that communications towers are a significant cause of migratory bird mortality and, if so, additional regulation will provide a solution to the problem.

To date, however, there remains a lack of comprehensive, peer-reviewed scientific studies as to whether avian-tower collisions reduce the number of migratory birds or a particular species of bird. To the contrary, there is evidence to suggest that bird mortality at towers has been decreasing over the last two decades, despite the increased number of communications towers that have been constructed. In short, the evidence is insufficient to warrant the Commission imposing new and intrusive infrastructure regulation intended to protect migratory birds. The Commission, therefore, should resist the temptation to "get out in front of the science" and avoid adopting new regulations until there is an adequate scientific basis for understanding the effect, if any, communications towers may have on migratory birds.

To that end, the Commission should refrain from adopting its tentative conclusion favoring medium intensity white strobe lights for nighttime conspicuity over red obstruction lighting systems. The current record evidence does not support this preference and much of the record reveals that a preference for white strobe lights would have significant adverse consequences in terms of the economics of infrastructure deployment, public safety, and people living near telecommunications towers.

The Commission should also not restrict the use of guyed towers or require the use of guy wire marking systems. Restrictions on the use of guyed towers would impose enormous new costs on carriers and their subscribers and the available evidence is insufficient to support a conclusion that such restrictions would reduce migratory bird mortality to any significant degree.

Similarly, the Commission should not place restrictions on tower height or impose a blanket requirement that applicants file an environmental assessment for each tower that exceeds a specified threshold. Neither should licensees be required to file an environmental assessment for each tower located in certain areas such as in wetlands, along ridgelines, or in bird migration corridors. Again, these requirements would impose significant new costs and there is insufficient evidence to support a finding that such requirements will reduce migratory bird mortality.

In sum, the Commission does not have adequate data to demonstrate that (1) there is a migratory bird mortality problem, (2) the solutions proposed by the Commission would resolve any such problem, if it did exist, and (3) the scope of any such problem is of a magnitude sufficient to warrant the multiple adverse consequences that would flow from the proposed solutions. The Commission, therefore, should refrain from regulating given the state of the science.

increasing its coverage and bringing new services to market in response to public demand. In order to accomplish this massive undertaking, AT&T Mobility's plans must be forward looking and the timeline to roll-out improvements must be predictable. The challenge facing the Commission then is to create a regulatory environment that addresses legitimate environmental concerns while still fostering the expeditious roll-out of new telecommunications services and network improvements.

Recognizing that a correct balance must be achieved, AT&T Mobility has simultaneously opposed the concept of new regulations concerning migratory birds and supported *voluntary* efforts to reduce bird mortality at communications towers.² New intrusive environmental regulations would impose significant costs and administrative burdens on the infrastructure industry and government alike, and would undercut key Commission priorities, such as expediting broadband deployment and facilities-based competition. Given the consequences of such regulation, the Commission should adopt new environmental rules only where substantial, scientific evidence demonstrates that the additional regulation will provide a solution to the environmental concern being addressed, *i.e.*, migratory bird mortality.

As demonstrated below and in the joint comments of the Infrastructure Coalition,³ however, there remains a lack of scientific, peer-reviewed study as to whether avian-tower collisions

² See *Effects of Communications Towers on Migratory Birds*, Notice of Inquiry, WT Docket No. 03-187, Comments of Cingular Wireless LLC and SBC Communications Inc. (filed Nov. 12, 2003). In addition, AT&T Mobility supported the Industry Coalition's participation in recent discussions with various bird and wildlife groups and associations under the STATIC banner.

³ AT&T Mobility wishes to associate itself with the comments filed by the Infrastructure Coalition in response to the *Migratory Bird NPRM*. The Infrastructure Coalition consists of CTIA – The Wireless Association (“CTIA”), PCIA – The Wireless Infrastructure Association, the National Association of Broadcasters, The National Association of Tower Erectors, The Wireless Communications Association International, Inc., and The Association for Maximum Service Television, Inc. (“MSTV”). AT&T Mobility is a member of CTIA and supports and sponsors the comments of the Coalition.

significantly reduce the number of migratory birds or a particular species of bird.⁴ To the contrary, there is evidence to suggest that bird mortality at towers has been decreasing over the last two decades, despite the increased number of communications towers that have been constructed.⁵ Given the lack of substantial, peer-reviewed scientific evidence, Commission action at this time would violate the Administrative Procedure Act (“APA”), and fall well short of the high threshold for agency action based on science prescribed by the Data Quality Act (“DQA”) and the Peer Review Guidelines (“PRGs”) established by the Office of Management and Budget.⁶ Any such new regulations would also be unsupportable under the National Environmental Policy Act (“NEPA”), the Migratory Bird Treaty Act (“MBTA”), and the Endangered Species Act (“ESA”).⁷

⁴ The United States Fish and Wildlife Service (“FWS”) argues that the “peer-reviewed scientific literature documents many examples of substantial tower kills.” *Migratory Bird NPRM*, Comments of United States Fish and Wildlife Service at 5-10, Summary of Avian Mortality (filed Feb. 2, 2007). FWS overstates the relative strength of the peer-reviewed studies on this point. Members of the Infrastructure Coalition previously retained Woodlot Alternatives, Inc. (“Woodlot”) to conduct an exhaustive review and evaluation of the existing scientific literature regarding avian mortality at communications towers, which included the studies cited by FWS. Woodlot concluded: “Those scientific, peer-reviewed avian mortality studies that have been published to date largely focus on mortality numbers at individual towers and the species composition of those kills. No large-scale studies have been conducted on potential factors that may affect mortality at these sites.” *Migratory Bird NOI*, Joint Comments of CTIA and NAB at 3, Appendix A, “Woodlot Alternatives, Inc., An Assessment of Factors Associated with Avian Mortality at Communications Towers – A Review of Existing Scientific Literature and Incidental Observations” (filed Nov. 11, 2003) (“*Woodlot Report*”).

⁵ See *Migratory Bird NOI*, Avatar Environmental, LLC, “Notice of Inquiry Comment Review Avian/Communication Tower Collisions, Final, Prepared for Federal Communications Commission,” at 3.15 (filed December 10, 2004) (“*Avatar Report*”) (“over the last five decades of monitoring bird population, the number of bird mortalities at towers is reported to be decreasing while the number of towers is increasing. All long-term studies show a similar decline in total bird mortality . . .”). A recent article by Sidney A. Gauthreaux, Jr. and Carroll G Besler on the effects of lighting on migratory birds similarly acknowledges that “studies indicate a significant decline in the number of tower fatalities over the last 20 years.” See Gauthreaux Jr., Sidney A., Belser, Carroll G., “Effects of Artificial Night Lighting on Migratory Birds,” in *ECOLOGICAL CONSEQUENCES OF ARTIFICIAL NIGHT LIGHTING* at 77 (Rich, C. and Longcore, T. eds., 2006).

⁶ See generally *Migratory Bird NPRM*, Infrastructure Coalition Comments.

⁷ *Id.*

In short, the evidence is insufficient as a matter of fact and law to justify new infrastructure regulation intended to protect migratory birds. The Commission should also resist the temptation to “get out in front of the science” by promulgating such regulations. In analogous circumstances involving the environmental effects of radio frequency (“RF”) radiation, the Commission declined to modify its regulations where the scientific data available failed to justify a rule change.

[I]n view of the continuing questions and difficulties relating to evaluation of induced and contact currents, especially with regard to measurements, we are not adopting the exposure guidelines for induced and contact currents at this time. Until these questions are satisfactorily resolved, we see no practical way to require compliance with these limits.⁸

The Commission should maintain this responsible practice of modifying its environmental rules only where a careful and deliberate evaluation of the relevant science demonstrates that an environmental problem exists that additional regulatory measures can resolve. This is particularly true where, as in this case, proposed new rules would impose additional, significant administrative burdens on the communications industry that may ultimately hamper public access to important communications services. As discussed below, and in the comments of the Infrastructure Coalition, that situation simply does not exist today.

II. THE AVAILABLE EVIDENCE REMAINS INSUFFICIENT TO SUPPORT NEW RULES

Migratory birds lead a precarious existence; many millions of birds die each year as a result of their interaction with humans and their instrumentalities⁹ and communications towers are

⁸ *Guidelines for Evaluating the Environmental Effects of RF*, 11 FCC Rcd 15123, 15176 (1996).

⁹ See Manville, A.M. II, *The ABCs of Avoiding Bird Collisions at Communications Towers: The Next Steps*, Proceedings of the Avian Interactions Workshop, December 2, 1999, Charleston, SC, Electric Power Research Institute.

among the smallest of all the migratory bird mortality factors.¹⁰ The loss and degradation of stopover habitat is a much greater threat to all migratory birds¹¹ and some believe that domesticated cats may be the primary killer of migratory birds.¹² Given the number and complexities of the factors affecting migratory bird populations, developing an “[u]nderstanding [of] the scope of any problem involving communications towers and migratory birds is essential to devising meaningful solutions.”¹³ In particular, the Commission must carefully focus on whether there is “probative evidence of a sufficient environmental effect to warrant Commission action,”¹⁴ before adopting new, intrusive regulations to address such a problem. Such evidence, however, is only beginning to be developed and to date remains insufficient to substantiate either the scale of avian mortalities resulting from collisions with communications towers or the steps the Commission may reasonably take to address such the problem, if it in fact exists.¹⁵

¹⁰ The avian mortality attributable to communications towers is approximately 0.42 percent of all human-caused mortality. *Woodlot Report*, Appendix A, at 6 & Figure 1 (estimating avian mortality in the United States from a variety of human causes).

¹¹ Wild Birds Unlimited web site, <http://www.wbu.com/edu/migr.htm>.

¹² National Public Radio reports that “outdoor cats may kill hundreds of millions of wild birds each year” and that the American Bird Conservancy has launched a study to try and determine the number of birds and other small animals that are killed by domestic cats each year. *See* <http://www.npr.org/templates/story/story.php?storyId=6728958&sc=emaf&sc=emaf>.

¹³ *Migratory Bird NPRM*, 21 FCC Rcd at 13256, 13259-60.

¹⁴ *Id.*

¹⁵ Indeed, anecdotal evidence from recently-filed comments in this proceeding suggests that communications towers are not a significant cause of avian mortality. *See Migratory Bird NPRM*, Comments of Winstanley Broadcasting, Inc. at 1 (filed Jan. 8, 2007) (“Winstanley has owned and managed its tower structure for over 30 years. Not once during this time has Winstanley found a dead bird anywhere near the tower structure.”); *Migratory Bird NPRM*, Comments of Morris Broadcasting Company of New Jersey, Inc. at 2 (“In the fifteen (15) years that Morris Broadcasting has owned WIMG-AM not one dead bird has ever been found at the WIMG transmitting site.”); *Migratory Bird NPRM*, Consolidated Comments of Positive Alternative Radio, Inc., *et al.* at 5 (“The principals to each of the parties to this consolidated filing have more than eighty (80) combined years of broadcast ownership and management experience. In their experience, more birds are killed by high voltage power lines and power poles than by tower structures less than 500 feet tall.”); *Migratory Bird NPRM*, Comments of Eastern Shore Radio, Inc. at 2 (“At ESR’s location between the Chesapeake Bay and the Atlantic Ocean, we haven’t had any migra-

(footnote continued on next page)

In August 2003, the Commission initiated a *Notice of Inquiry* to gather information on the impact that communications towers may have on migratory birds, including information on: the current state of scientific information about the impact that communications towers may have on migratory bird populations; the need for and scope of additional study; and suggested methods to minimize impacts of communications towers on migratory birds.¹⁶ In response, and as noted above, members of the Infrastructure Coalition filed the *Woodlot Report*, which concluded:

Very few in depth studies on avian mortality at communications towers have been conducted. The majority of studies have examined only single towers and made no comparisons between different towers in different sites. These studies primarily focus on mortality trends and species composition at towers. No published research has systematically examined the host of specific factors that may contribute to mortality at tower sites. . . .

The most important conclusion reached after reviewing the current literature on avian mortality at communications towers is that there is a need for further research. The occurrence of some avian mortality at communications towers is well documented, but the extent of the effect of this mortality on migrating bird populations is unknown. While several well-conducted studies have been completed in this field, they primarily focus on individual towers and the trends and species composition involved with mortality at those towers. No published research has specifically examined the factors associated with communications towers that contribute to mortality.¹⁷

Although the FWS now appears to have changed its position,¹⁸ in 2003 it conceded the lack of scientific study regarding the causes of avian mortality at communications towers:

(footnote continued)

tory waterfowl deaths since at least 1983. In fact, in late winter there are often tens of thousands of Snow Geese using the field located adjacent to our tower. There have not been any fatalities in 23 years.”)

¹⁶ See *Effects of Communications Towers on Migratory Birds*, 18 FCC Rcd 16938 (2003) (“*Migratory Bird NOP*”).

¹⁷ *Woodlot Report* at ii-iii.

¹⁸ This statement appears to contradict FWS’s most recent assertion that the “peer-reviewed scientific literature documents many examples of substantial tower kills.” *Migratory Bird NPRM*, Comments of FWS at 5. The FWS is not citing to significant new, peer-reviewed studies. The FWS gives no rationale for explaining its new position regarding the available scientific literature.

However, until more definitive lighting determinations are reached based on credible, statistically-significant, peer-reviewed science, the Service will not modify its voluntary lighting guidance nor will we make recommendations to the FCC and the Federal Aviation Administration (FAA) to modify their standards until new discoveries are made.¹⁹

In addition to the *Migratory Bird NOI*, the Wireless Telecommunications Bureau announced a Memorandum of Understanding between the State of Michigan, and the FWS regarding a two and one half year Avian Collision Study intended to research the effect of lighting, height, and guy wires on avian collisions at selected towers in the 350-500 foot height range in the Michigan Public Safety Communication System (“MPSCS”).²⁰ Ultimately, the Michigan studies included 12 guyed and 9 unguyed towers between 380 and 480 feet AGL, with four different lighting configurations at night: white strobe lights; red strobe lights; red blinking incandescent lights; and red strobe lights interspersed with steady burning red lights.²¹ The studies also included three towers of over 1000 feet AGL using red strobe interspersed with steady burning red lights.²²

After announcing the Michigan studies and receiving comments on the *Migratory Bird NOI*, the Commission retained Avatar, an environmental risk consulting firm, to review the Commission’s record and the general state of the science regarding the impact, if any, of communications towers on migratory birds.²³ Avatar submitted its findings and recommendations in

¹⁹ *Migratory Bird NOI*, FWS Comments at 8.

²⁰ “Wireless Bureau Announces The State of Michigan to Initiate a Study Assessing the Impact of Communications Towers on Migratory Birds,” News Release (rel. Sept. 17, 2003).

²¹ *Migratory Bird NPRM*, 21 FCC Rcd at 13255-56.

²² *Id.*

²³ *Id.* at 13251.

September 2004, and the Commission released the report for public comment.²⁴ Avatar concluded, among other things, that: “no studies to date . . . demonstrate an unambiguous relationship between avian collisions with telecommunications towers and population decline in migratory bird species”; “[a]lthough biologically significant tower kills have not been demonstrated in the literature, the potential does exist. . . .”; and “[m]ore research is warranted in order to identify specific causes and possible solutions to this problem.”²⁵ Avatar found that “most of the causes and possible solutions for increased avian mortalities associated with communications towers remain(s) speculative.”²⁶

Those filing comments on the Avatar Report largely agreed with this conclusion.²⁷ The FWS for example stated: “it is still impossible to directly correlate [tower] collisions to impacts on bird populations”; “[w]e acknowledge the need to work with the applicable research entities and the industry to identify the most appropriate approach and mechanism(s) to develop guid-

²⁴ *Effects of Communications Towers on Migratory Birds*, Public Notice, “Wireless Telecommunications Bureau Seeks Comment on Avatar Environmental, LLC, Report Regarding Migratory Bird Collisions with Communications Towers, 19 FCC Rcd 24007 (rel. Dec. 14, 2004) (“*Avatar Public Notice*”).

²⁵ *Avatar Report* at 5-2 (emphasis supplied).

²⁶ *Id.* at 5-1.

²⁷ See *Avatar Public Notice*, Comments on the Avatar Report of CTIA and the National Association of Broadcasters, Appendix A, “Technical Comment on Notice of Inquiry Comment Review, Avian/ Communication Tower Collisions, Final (Avatar, *et al.* 2004)” (filed Feb. 14, 2005) (“*Woodlot Avatar Report*”); *Avatar Public Notice*, Comments of PCIA (filed Feb. 14, 2005); *Avatar Public Notice*, Comments of Cingular Wireless LLC (filed Feb. 14., 1005); *Avatar Public Notice*, Comments of AT&T Wireless Services, Inc. (filed Feb. 14, 2005); and *Avatar Public Notice*, Comments of Sprint Corporation (filed Feb. 14, 2005). While the comments of the American Bird Conservancy and the report submitted by the Land Protection Partners and authored by Dr. Travis Longcore, Catherine Rich, and Dr. Sidney Gauthreaux, Jr. (the “*Longcore Report*”) reached a contrary conclusion, neither filing included evidence that the relatively small numbers of birds killed in collisions with communications towers are having any significant effect in altering migratory bird populations. See *Avatar Public Notice*, Joint Reply Comments of CTIA and NAB at 12 (filed Mar. 14, 2005); *Avatar Public Notice*, Reply Comments of Cingular at 9-10 (Mar. 14, 2005). Moreover, on behalf of Industry Coalition members, Woodlot authored a study demonstrating that the statistical analyses used in the *Longcore Report* did not provide an accurate representation of nationwide avian mortality related to communications towers. See *Effects of Communications Towers on Migratory Birds*, Written *Ex Parte* Presentation, Technical Report of Woodlot Alternatives, Inc to the *Longcore Report* (filed June 24, 2005).

ance on standard methods and metrics for data collection and monitoring at communications towers;” and “[t]he Service acknowledges that the major focus of avian-communication tower research is to determine specifically why major mortality events occur, and what can be done to avoid them.”²⁸

Subsequent to the comments on the Avatar report, Dr. Joelle Gehring, the principal investigator in the Michigan studies, released reports of the interim results of the studies conducted during the Spring 2005 and Fall 2005 migration seasons.²⁹ Dr. Gehring recently filed additional reports with the Commission.³⁰ These reports all show a remarkably small number of migratory birds killed at all tower configurations with the numbers ranging from 0 birds killed in total at three ungued towers 116-146 m AGL in the Fall of 2003 to a maximum of 132 birds killed in total at three guyed towers \geq 305 m AGL in the Spring of 2005.³¹ During the relevant study periods:

. . . technicians did not observe any large bird fatality events like those involving hundreds (or even dozens) of birds reported elsewhere. In our study, the largest one night fatality events at individual towers included two nights during which 11 and 16 fatalities

²⁸ *Avatar Public Notice*, FWS Comments at 2-3; *see supra* text at note 18.

²⁹ *Effects of Communications Towers on Migratory Birds*, Gehring, Joelle, Ph.D., “Avian Collision Study for the Michigan Public Safety Communications System (MPSCS): Summary of Spring 2005 Field Season” at 1 (Aug. 12, 2005) (“*Gehring August 2005 Report*”); *Effects of Communications Towers on Migratory Birds*, Gehring, Joelle, Ph.D., “Avian Collision Study for the Michigan Public Safety Communications System (MPSCS): Summary of Fall 2005 Field Season” at 1 (Dec. 30, 2005) (“*Gehring Dec. 2005 Report*”).

³⁰ *Effects of Communications Towers on Migratory Birds*, Gehring, Joelle, Ph.D., Kerlinger, Paul, “Avian Collisions At Communications Towers: I. The Role of Tower Height and Guy Wires,” Prepared for State of Michigan (April 2007) (“*Gehring April 2007 Tower Height Report*”); Gehring, Joelle, Ph.D., Kerlinger, Paul, “Avian Collisions At Communications Towers: II. The Role of Federal Aviation Administration Obstruction Lighting Systems,” Prepared for State of Michigan (April 2007) (“*Gehring April 2007 Lighting Report*”).

³¹ *Gehring April 2007 Tower Height Report* at 7-8, Table 1 and Table 3; *see also Migratory Bird NPRM*, 21 FCC Rcd at 13255-56. These totals are far below the total bird kills one would expect to find if collisions with communications towers are in fact responsible for as many 50 million birds killed annually. *See Migratory Bird NPRM*, Separate Statement of Michael J. Copps, referring to comments by the FWS.

were found at towers >305 m AGL during 2004 and 2005, respectively. Most fatalities involved single individuals on given days.³²

Regarding the effect of various lighting regimes, Dr. Gehring's interim reports show:

. . . on a per-tower per-season basis, more than four times as many bird deaths at the 1000-foot towers than at the 380-480 foot towers using red steady lights, more than three times as many deaths at the 380-480 foot towers using red steady lights than at towers of the same heights with other lighting configurations, and more than three times as many deaths at guyed than at unguyed towers of the same heights using the same lighting.³³

The interim reports also indicate “that comparable numbers of bird carcasses were found when only red strobe or only white strobe lights were used, irrespective of the towers' heights and the presence of guy wires.”³⁴ Dr. Gehring's recent reports confirm these findings: “there was no significant difference in the fatality rates among towers lit only with red strobes vs. white strobes vs. red incandescent flashing beacons.”³⁵

While the Michigan studies represent an important first step towards developing protocols for more advanced study of a wider range of towers, these studies are not by any means definitive and significant additional research remains to be done. Indeed, Dr. Gehring herself states that although “bird collisions with communications towers have been documented since 1949 . . . , studies were not designed in a manner that would permit the testing of hypotheses regarding tower variables”³⁶ She describes her tower height/guy wire study as “the first study designed to test and quantify differences between towers of different heights and towers with and

³² *Gehring April 2007 Tower Height Report* at 10.

³³ *Migratory Bird NPRM*, 21 FCC Rcd at 13255-56.

³⁴ *Id.* at 13260, citing *Gehring Dec. 2005 Report* at 3; *Gehring August 2005 Report* at 3.

³⁵ *Gehring April 2007 Lighting Report* at 7.

³⁶ *Gehring April 2007 Tower Height Report* at 9.

without guy wires.”³⁷ With regard to tower lighting, Dr. Gehring states that there “is little quantitative information about the relationship between the types of FAA lights on communications towers and the attraction of birds to those towers” and that her studies are “the first to compare collision rates at communications towers equipped with different types of FAA obstruction lighting.”³⁸ Moreover, the Michigan studies are characterized by limited sample size and geographic area, lack of small towers and non-definitive lighting observation trends.³⁹ In addition, Dr. Gehring’s conclusions have not yet been peer-reviewed.⁴⁰ As such, the Michigan studies in and of themselves do not provide a viable and legally sufficient basis to change Commission rules. The Commission, therefore, should continue to stay its regulatory hand in this matter until an adequate scientific basis for resolving this issue has been developed.

III. THE COMMISSION SHOULD NOT ADOPT A PREFERENCE FOR WHITE STROBE LIGHTING.

A. There Is No Basis To Support A Preference For White Strobe Lights.

The *Migratory Bird NPRM* tentatively concludes that “medium intensity white strobe lights for nighttime conspicuity is to be considered the preferred system over red obstruction lighting systems to the maximum extent possible without compromising safety” and seeks comment on “whether scientific evidence supports such a requirement.”⁴¹ The answer is “no” – the scientific evidence does not support such a preference.

³⁷ *Id.*

³⁸ *Gehring April 2007 Lighting Report* at 11.

³⁹ *See generally Migratory Bird NPRM*, Infrastructure Coalition Comments; *see also Gehring April 2007 Tower Height Report* at 6 (“Likely due to small sample sizes and a potential outlier, data collected in the fall of 2005 was not significantly different between guyed towers >305 m AGL and guyed towers 116-146 m AGL (W = 7.5, P = 0.138).”).

⁴⁰ *Id.*

⁴¹ *Migratory Bird NPRM*, 21 FCC Rcd at 13242-43; *see also id.* at 13257, 13260, 13262.

As Avatar pointed out, while some studies and several anecdotal reports suggest that white strobe lights may be less attractive to birds, “this has not been proven to date.”⁴²

[N]o clear conclusions can be drawn, based on the existing literature, regarding the importance and effects of lighting color, duration, intensity, and type (*e.g.*, incandescent, strobe, neon, or laser) and bird attraction. Additional research is needed on the types of lights in conjunction with other factors that increase or decrease the risk of bird collisions with communication towers.⁴³

Similarly, while the Michigan studies do suggest that there may be less avian mortality at towers with white strobes as compared with towers equipped with red steady-burning lights, the studies also suggest that “comparable numbers of bird carcasses were found when only red strobe or only white strobe lights were used, irrespective of the towers’ heights and the presence of guy wires.”⁴⁴ In any event, given the shortcomings of the Michigan studies they cannot be relied upon to provide definitive conclusions.⁴⁵

The Commission’s reliance on the Federal Aviation Administration’s (“FAA”) 2004 Memorandum to support a preference for white strobe lights is similarly unavailing.⁴⁶ First, the 2004 FAA Memorandum was issued without notice to or input from other affected parties such as the wireless industry or the general public.⁴⁷ The 2004 FAA Memorandum was issued “in consideration of the agreement between the FAA and the American Bird Conservancy.”⁴⁸ In

⁴² *Avatar Report* at 3.43.

⁴³ *Id.* at 3.46

⁴⁴ *Migratory Bird NPRM*, 21 FCC Rcd at 13260, citing, *Gehring Dec. 2005 Report* at 3; *Gehring August 2005 Report* at 3.

⁴⁵ *See generally Migratory Bird NPRM*, Infrastructure Coalition Comments.

⁴⁶ *Migratory Bird NPRM*, 21 FCC Rcd at 13261-62, citing April 6, 2004 Memorandum from the FAA’s Program Director for Air Traffic Airspace Management, ATA-1, Sabra W. Kaulia, to Regional Air Traffic Division Managers (“2004 FAA Memorandum”).

⁴⁷ *See* 2004 FAA Memorandum.

⁴⁸ *Id.*

short, the 2004 FAA Memorandum represents nothing more than a private agreement between the American Bird Conservancy and the FAA and should be given no weight in this matter.

Second, the 2004 FAA Memorandum was released only as a stop-gap *interim measure* until the Commission resolved the issues under consideration in the instant proceeding.⁴⁹ It would turn logic on its head for the Commission to rely on this conditional document as providing substantive evidence of the FAA's support of new Commission rules favoring white strobe light. To the contrary, the 2004 FAA Memorandum reflects a strong ambivalence regarding the public safety and other problems associated with the use of white strobe lights. The memorandum makes clear that "the current standards and guidance are necessary to appropriately light obstacles and to avoid creating a hazardous condition for pilots" and thus white strobe lights are to be "considered" only "when feasible and in cases in which safety would not be derogated."⁵⁰

This limitation is due to the fundamental safety problems inherent with the use of white strobe lights, even medium intensity white strobes. The FAA states in Advisory Circular AC 70/7460-1K that the:

. . . use of a 24-hour medium intensity flashing white light system in urban/populated areas is not normally recommended due to their tendency to merge with background lighting in these areas at night. This makes it extremely difficult for some types of aviation operations, *i.e.*, med-evac, and police helicopters to see these structures.⁵¹

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ FAA Advisory Circular AC 70/7460-1K, "Obstruction Marking and Lighting," at 17. *See also* 2004 FAA Memorandum (the use of medium intensity white strobe lights "within three nautical miles of an airport or in populated urban areas is discouraged."); *see also Migratory Bird NPRM*, 21 FCC Rcd at 13261-62.

These concerns are validated by the comments of those with the greatest experience with this issue – pilots. For instance, the Louisiana Mosquito Control District states that many mosquito control districts in Louisiana:

. . . rely on aircraft as their primary means of controlling nuisance and disease carrying mosquitoes. Often, these aircraft are completing missions after dark, when the flashing red lights on antennas are the sole means of identifying their exact location. These red lights are critical to safety. The proposal to change to flashing white strobes represents a potential hazard to the pilots that fly these missions. The reason is because the bright strobe makes depth perception very difficult, if not impossible.⁵²

Comments by other pilot organizations confirm these concerns. St. Tammany Parish Mosquito Abatement District No. 2 states that white strobe lights pose “a serious detriment to depth perception and spatial orientation while flying” near towers equipped with white strobe lights.⁵³

Similarly, Jefferson Davis Parish Mosquito Abatement District No. 1 states that:

. . . since the introduction of the white strobe distance perception and disorientation because of the short white burst of light make it difficult from a safety standpoint to [spray for mosquitoes] around antenna structures with the bright white strobe lighting. Additionally the single white strobe on top of a tall tower tend[s] to blend with stars and planets from a low altitude making for a dangerous situation when guy wires support the structure.⁵⁴

Furthermore, the use of white strobe lights in urban and rural areas often results in complaints from residents.⁵⁵ Recent work by Sidney A. Gauthreaux Jr. and Carroll G. Baker states:

⁵² *Migratory Bird NPRM*, Comments of the Louisiana Mosquito Control Association (filed March 20, 2007).

⁵³ *Migratory Bird NPRM*, Comments of St. Tammany Parish Mosquito Abatement District No. 2 (filed March 12, 2007).

⁵⁴ *Migratory Bird NPRM*, Comments of Jefferson Davis Parish Mosquito Abatement District No. 1 (filed March 13, 2007); *see also Migratory Bird NPRM*, Comments of Georgie K. Stanford (Dec. 11, 2006) (“exposure to strobe lighting can cause flicker vertigo resulting in pilot disorientation, aircraft mishaps and loss of human life”. . . “The replacement of steady or blinking red communications tower lighting by any form or strobe lighting, especially white strobe lighting increases the hazard to aviation.”).

⁵⁵ FAA Advisory Circular AC 70/7460-1K, “Obstruction Marking and Lighting,” at 17.

People living in the vicinity of strobe light towers complain about the flashing lights, particularly on overcast, misty nights. They report that it is like living in a thunderstorm with constant lightning and no thunder.⁵⁶

Dr. Gehring also recognizes that “there is a general public disapproval of [white strobe] systems because they are more vexatious to humans than red strobes.”⁵⁷ Several states and state agencies also note in this proceeding that:

. . . many citizens do not welcome the construction of communications towers proximate to their neighborhood. One of the principle complaints of citizens is the annoyance of night time flashing white strobe lights.⁵⁸

The Commission’s rules also recognize concerns associated with the use of high intensity white strobe lights in residential areas by requiring applicants to file an environmental assessment (“EA”) in such instances.⁵⁹

In short, there is no credible support for the Commission’s proposed preference for white strobe lights. Moreover, while the Commission has a role in regulating communications towers, the FAA is the agency with primary responsibility for protecting air safety. The color and brightness of lights on communications towers are a critical air safety issue and such matters should continue to be addressed by the FAA in the first instance. Further, the FAA is “currently exploring the possibility of changing their recommendations to allow the non-flashing . . . red lights to be extinguished on towers lit with standard red light systems.”⁶⁰ The Commission

⁵⁶ Gauthreaux Article at 88.

⁵⁷ *Gehring April 2007 Lighting Report* at 12.

⁵⁸ *See Migratory Bird NPRM*, Comments of Prince George’s County, Maryland, Anne Arundel County, Maryland, Maryland Regional Planning Committee 42 (800 MHz), Commonwealth of Virginia, State of Maryland, Maryland Institute for Emergency Medical Services Systems, and State of Maryland, State Highway Administration at 7 (filed Jan 5, 2007).

⁵⁹ *See* 47 C.F.R. § 1.1307.

⁶⁰ *Gehring April 2007 Lighting Report* at 12.

should defer to the FAA’s judgment as expressed in formally released Advisory Circulars – as opposed to an informal memorandum outlining an agreement reached between an FAA staff person and the American Bird Conservancy – regarding the safety hazards associated with the use of medium intensity white strobe lights and should not adopt a “one size fits all” assumption regarding white strobe lights that would in any way undermine the FAA’s responsibilities regarding air safety.⁶¹ If the FCC were to proceed otherwise, it would create, on a national scale, new public safety and health issues.

B. A Preference For White Strobe Lights Would Impose Significant Economic and Environmental Costs.

The *Migratory Bird NPRM* also seeks comment on the economic, environmental and other costs of a requirement to use white strobe lights compared to other lighting systems.⁶² Specifically, the Commission asks about the comparative costs and longevity of white strobe lights; whether requiring white strobe lights at night would have an adverse impact on communications facilities deployment; and whether medium intensity strobe lights have the same environmental impact as high intensity white strobe lights.⁶³ Mandating the use of white strobe lights would disrupt, and add significant costs, to AT&T Mobility’s infrastructure deployment efforts.

For example, under the Commission’s rules, a mandate for the use of high intensity white lights would substantially increase the number of EAs AT&T Mobility would have to prepare

⁶¹ In this regard, AT&T Mobility notes that the Commission asserts that the FAA’s Advisory Circular AC 70/7460-1K prohibits the use of red strobe lights without steady burning red lights instead. *Migratory Bird NPRM*, 21 FCC Rcd at 13261-62. This is not necessarily the case where medium intensity white strobe lights are used. Advisory Circular AC 70/7460-1K at 17. Indeed, AT&T Mobility has recently been given FAA approval to use red strobe lights at night and medium intensity white strobe lights during the day on two towers.

⁶² *Migratory Bird NPRM*, 21 FCC Rcd at 13263.

⁶³ *Id.* at 13263-64.

and the Commission would have to process.⁶⁴ Further, as both the FAA and Avatar recognize, white lights would create potential safety hazards and would increase the degree of complaints from affected citizens, making it more difficult to secure local building permits and local zoning approvals.⁶⁵ Moreover, local zoning authorities typically discourage the use of white strobe lights at night and many local ordinances prohibit the use of white lights at night. All of this means that a Commission requirement to use white strobe lights on towers will certainly delay, if not defeat, the deployment of many needed towers.

The Commission also seeks input on whether it should require existing towers to conform to its preferred white strobes-at-night lighting, for example, by requiring tower owners to switch to white strobes when red lights burn out, or by setting a five-year transition period after which all existing towers must use white lights.⁶⁶ The Commission should not impose any such requirement. First, as discussed there is no basis in law or fact to support requiring the use of white lights in lieu of red lights. Indeed, FWS admits that Dr. Gerhing's study supports the use of red lights.⁶⁷ Second, retrofitting existing towers with white lights would be an enormously expensive proposition that could not be justified by the small, if any, incremental benefit to migratory birds.

Switching from traditional red obstruction lighting to white strobes is not simply a matter of paying for a tower climb and replacing a light bulb. The entire wiring of the tower would need to be replaced. AT&T Mobility's best estimate is that retrofitting existing towers with

⁶⁴ See 47 C.F.R. § 1.1307(a)(8) (requiring applicants to file an EA whenever it proposes to use high-intensity white strobes in residential neighborhoods).

⁶⁵ See FAA Advisory Circular AC 70/7460-1K at 17; see also *Avatar Report* at 3.43 ("white strobe lighting often is not favored by residents located within sight of the tower; therefore, this becomes an aesthetic issue as well.").

⁶⁶ *Migratory Bird NPRM*, 21 FCC Rcd at 13264.

⁶⁷ *Migratory Bird NPRM*, FWS Comments at 18.

white strobe lights would cost between approximately \$13,000.00 and \$22,000.00 per tower depending on the tower height. AT&T Mobility has approximately 14,000 lighted towers which means that a mandate to retrofit each tower will cost between \$182,000,000.00 and \$308,000,000.00.⁶⁸ This figure, however, only covers materials and labor; it does not include the indirect costs associated with resolving the local land use issues and complaints from residents resulting from the switch to white strobe lights. Thus, the actual costs to AT&T Mobility will likely be higher.

In sum, the Commission should not force owners of existing towers to switch to white strobe lights. If the Commission mandates such measures, resources now being devoted to rolling out broadband services would have to be redirected to modifying existing towers.

IV. THERE IS INSUFFICIENT SCIENTIFIC EVIDENCE TO SUPPORT NEW RESTRICTIONS REGARDING THE USE OF GUYED TOWERS, TOWER HEIGHT, OR THE LOCATION OF TOWERS

A. The Commission Should Not Restrict the Use of Guyed Towers

The *Migratory Bird NPRM* seeks comment on whether the Commission should adopt any requirements governing the use of guy wires because of the potential impact posed to migratory birds.⁶⁹ In support, the Commission cites to a statement in the *Avatar Report* suggesting that “it appears” that “[t]owers with guy wires are at higher risk [to birds] than self-supporting towers.”⁷⁰ The Commission also references comments filed by the American Bird Conservancy that assert, without evidentiary support, that birds are killed by flying into guy wires that support the towers and to the Michigan studies interim reports, which seem to provide some evidence to suggest that

⁶⁸ These numbers also indicate that Dr. Gehring’s unsupported conclusion that the elimination of steady burning red lights can be achieved “at minimum cost on existing towers” may be true but only if the red lights can be eliminated without installing new lights. *Gehring April 2007 Lighting Report* at 1.

⁶⁹ *Migratory Bird NPRM*, 21 FCC Rcd 13264.

⁷⁰ *Id.* citing *Avatar Report* at 5-1.

towers with guy wires had more avian mortality than towers of similar height with no guy wires.⁷¹ The Commission should not restrict the use of guyed towers.

First, the sources cited by the Commission provide scant support for any new restrictions on the use of guy wires. For example, Avatar itself recognizes that, at the time of its report, there were “[n]o specific studies comparing avian collisions between guyed and self-supporting structures.”⁷² Woodlot came to the same conclusion, stating that Avatar’s assertion that “[t]owers with guy wires are at higher risk than self-supporting towers” have not been substantiated by well-controlled, peer-reviewed experiments.⁷³ Moreover, while the interim reports from the Michigan studies do seem to show greater avian mortality at guyed towers, Dr. Gehring’s conclusions have not been peer reviewed and are based upon too small a sample to be definitive.⁷⁴

Second, a restriction on the use of guyed towers would impose enormous new costs on carriers and their subscribers. In AT&T Mobility’s experience, given the steel and engineering requirements, monopoles are an efficient choice only for towers below 200 feet, above that height they become cost prohibitive. Lattice construction is preferred for towers between 200 and 300 feet. Above 300 feet, guyed towers are preferred because the costs of lattice towers increase exponentially above that height due to the increased amount of steel required and expanded foundation requirements. In general, a lattice tower at 300 feet costs \$95,000.00 more than a guyed tower. At 350 feet the cost differential between lattice and guyed towers is \$195,000.00 and at 400 feet the difference is \$450,000.00.

⁷¹ *Id.* citing *Migratory Bird NOI*, Joint Comments of American Bird Conservancy, *et al.* at 14-15; *Avatar Public Notice*, Comments of Dr. Joelle Gehring at 4-5; *Gehring Dec. 2005 Report* at 3; *Gehring August 2005 Report* at 3.

⁷² *Id.*, 21 FCC Rcd at 13264, citing *Avatar Report* at 3-37.

⁷³ *Woodlot Avatar Report* at 6.

⁷⁴ *See generally Migratory Bird NPRM*, Infrastructure Coalition Comments.

Third, a restriction on the use of guyed towers would necessitate carriers turning to large stand-alone towers or to a greater number of shorter towers in order to achieve the same coverage. Large stand-alone towers would create enormous footprints resulting in substantially more terrestrial impact for each tower. Such towers also require substantially more steel making them much heavier and the lack of guy wires makes such towers more likely to fall in the event of a catastrophic failure. As such, it would be much more difficult for carriers to secure the necessary building permits and local zoning approvals.

Proposing a multitude of smaller towers instead of a single larger tower is also no solution. Building many sites where a single tower would suffice results in inefficiencies in the use of terrestrial resources and is economically inefficient. Moreover, given the public's general dislike for communications towers, increasing the number of towers to be built would increase exponentially the difficulties associated securing building permits and zoning approvals.

Fourth, the Commission also should not require applicants to file an EA in order to construct a guyed tower.⁷⁵ Requiring applicants to file an EA for any guyed tower would be tantamount to banning the construction of guyed towers throughout the United States. EAs are costly and time consuming, both for the tower owner to prepare and for the Commission to process. Each EA costs approximately \$4,000.00 to prepare and file and it takes a minimum of 60 - 90 days for the Commission to process and approve an EA. The expense of preparing an EA, coupled with the uncertainty as to when a decision would be reached, create a *de facto* bar to the construction of guyed towers.

⁷⁵ *Migratory Bird NPRM*, 21 FCC Rcd at 13266.

Finally, the Commission should not adopt any regulations relating to marking guy wires as there are not conclusive data to support this requirement.⁷⁶ To the contrary, most songbirds that migrate do so at altitudes that are far above most communications towers (*i.e.*, 500-2000 meters).⁷⁷ When the celestial aids and landscape features relied upon by migrating birds are obscured by cloudy or foggy weather, birds migrate at lower altitudes and it is during inclement weather at night that most tower strikes seem to occur.⁷⁸ Under such conditions, bird diverters or other visual marking devices will simply not be effective.

Moreover, retrofitting existing towers with bird diverters or marking devices is an extraordinarily expensive operation. Contractors cannot climb guy wires and it is not clear how they could reach 300 to 400 feet in order to attach markers. Thus, the contractor would have to disconnect one guy wire at a time in order to attach markers. The costs for such an operation would be \$4,500.00 to \$15,000.00, assuming towers with the average number of nine to 18 guy wires.

B. The Commission Should Not Restrict Tower Height

The *Migratory Bird NPRM* also seeks comment on whether the Commission should adopt requirements relating to the height of communications towers in order to minimize the impact of such towers on migratory birds.⁷⁹ In support, the Commission references Avatar's statement that "all other things being equal, taller towers with lights tend to represent more of a hazard to birds than shorter, unlit, towers."⁸⁰ The Commission also notes that the FWS's voluntary

⁷⁶ *Id.*

⁷⁷ Wild Birds Unlimited web site, www.wbu.com/edu/migr.htm.

⁷⁸ Kerlinger, P. 2000, "Avian Mortality at Communication Towers: A Review of Recent Literature, Research, and Methodology," citing a papers by Beason presented at the Workshop on Avian Mortality at Communication Towers, August 11, 1999, Cornell University, Ithaca, NY.

⁷⁹ *Migratory Bird NPRM*, 21 FCC Rcd at 13267.

⁸⁰ *Id.* citing *Avatar Report* at 5-1.

guidelines recommend that communications towers be shorter than 200 feet if possible to avoid, in most instances, the requirement that the towers have aviation safety lights⁸¹ and that some commenters have argued restricting the height of communications towers would minimize the presence of two features that are most harmful to birds, lights and guy wires.⁸²

Again, however, the science on this point is not clear cut. Avatar states that “existing data are not sufficient to draw direct conclusions between tower height and migratory bird collisions” and “there have been few mortality studies and monitoring programs for the ‘short towers’ (500 ft and less).”⁸³ And, Woodlot has pointed out, the claim that “taller towers with lights tend to represent more of a hazard to birds than shorter, unlit towers” has not been substantiated by well-controlled, peer-reviewed experiments.⁸⁴ The Michigan studies also provide no basis for drawing conclusions regarding towers deployed by wireless telecommunications companies since the shortest towers included within the Michigan study were approximately the same height as the tallest towers generally deployed by wireless telecommunications companies.

Further, CMRS carriers need to maintain flexibility with regard to tower height because, from their perspective, tower heights are a function of the spectrum being used. AT&T Mobility, for example, generally requires taller towers for its 1900 MHz PCS licenses than for the 800 MHz cellular licenses because of the propagation characteristics of the two spectrum bands and

⁸¹ *Id.* citing *Migratory Bird NOI*, FWS Comments at 10.

⁸² *Id.* citing *Migratory Bird NOI*, Joint Comments of American Bird Conservancy, *et al.* at 16-17.

⁸³ *Avatar Report* at 3.34, 3.36.

⁸⁴ *Woodlot Avatar Report* at 5-6.

the power output allowed for the two services.⁸⁵ Carriers must have the flexibility to build infrastructure appropriate to the spectrum they are using.

Carriers also need the flexibility to build infrastructure that is appropriate to the market they are serving. As the South Dakota Public Utilities Commission points out:

For optimum use and benefit of resources, wireless communications towers built in our rural areas should be at heights greater than 200 feet to enable a stronger signal to reach a wider geographic area. . . . If restrictions on taller towers are adopted, these restrictions would have a negative impact on South Dakota. For example, in order to offer similar service to the same rural geographic area in South Dakota, a provider would need to erect three shorter towers as compared to one taller tower. Understanding the considerable investment a wireless provider makes when constructing a new tower, it is unlikely the provider would be willing to place three times the number of shorter towers in South Dakota when one taller tower would provide the same service.⁸⁶

The Governor of South Dakota concurs:

For build-out in South Dakota's underserved rural areas to take place, it will likely be necessary for towers to be taller than 200 feet for the optimum benefit of the end users, as well as for the wireless provider erecting the tower.⁸⁷

Prince Georges County, Maryland points out that it considered limiting tower height for new towers to 200 feet when building its 700 MHz system. However, to "achieve the same level of

⁸⁵ The one notable exception is the need for cellular companies to utilize taller towers in sparsely populated rural areas. The FCC designed more flexible height-power requirements for this very purpose. *See generally* 47 C.F.R. § 22.9

⁸⁶ *Migratory Bird NPRM*, Comments of the South Dakota Public Utilities Commission at 2 (filed March 8, 2007); *see also Migratory Bird NPRM*, Comments of Nickolaus E. Leggett at 2 (Nov. 16, 2006) ("a 200-foot high antenna tower indicates a radio horizon of 20 miles. Applying the same formula to a 1000-foot high tower indicates a radio horizon of 44.7 miles. . . . A tower is a comparatively cheap system for reaching a large number of listeners/viewers. The tall tower is especially effective for reaching large rural areas with low population density.")

⁸⁷ *Migratory Bird NPRM*, Comments of the Governor of the State of South Dakota at 1 (filed March 13, 2007).

in-building coverage, the County estimated that an additional six to eight towers would be required with an added project cost in excess of \$12,000,000.00 to \$16,000,000.00.⁸⁸

In sum, the Commission's proposals to limit tower height or to use a 200 foot threshold as the breakpoint for regulating towers to minimize the use of lights are entirely unwarranted.⁸⁹ As discussed above, there are no conclusive data to support any particular threshold tower height, much less the Commission's proposed 200 foot threshold. In fact, several recent non-peer-reviewed studies suggest that towers could be built to heights more than twice the Commission's proposed threshold without posing any great threat to migratory birds.⁹⁰ It is thus premature for the Commission to propose any regulatory threshold.

Similarly, the Commission should not impose a blanket requirement that applicants file an EA for all towers that exceed a specified threshold.⁹¹ As discussed, the peer-reviewed scientific evidence is insufficient to support conclusions regarding the role of tower height and there is no established threshold effect reported in the literature. Moreover, and as discussed above, drastically increasing the number of EAs filed with the Commission is tantamount to banning utilization of said towers and will impose enormous costs on carriers, deprive their customers of rural service, and severely strain the Commission's limited resources.

⁸⁸ See *Migratory Bird NPRM*, Comments of Prince George's County, Maryland, *et al.* at 8.

⁸⁹ *Migratory Bird NPRM*, 21 FCC Rcd at 13266.

⁹⁰ While Dr. Gehring's data show some greater avian mortality at towers over 1000 feet tall, the data also suggest that towers at least as tall as 500 feet pose no significant hazard to migratory birds. See *Migratory Bird NPRM*, 21 FCC Rcd at 13255-56. In another recent study, Dr. Kerlinger concluded that while towers greater than 500-600 feet AGL present a greater risk to birds, "[s]horter towers, especially those below 400 feet have, almost never," been involved in large scale avian fatalities. See Kerlinger, "Assessment of Collision Risk to Newell's Shearwater and Hawaiian Petrel at an AT&T Wireless Telephone Tower in Hawaii" (June 4, 2004), filed in FCC File No. A0147567 (2004), second unnumbered page. Dr. Kerlinger concluded that towers less than 400 feet in height "kill relatively few night migrating birds." *Id.*

⁹¹ *Migratory Bird NPRM*, 21 FCC Rcd at 13266.

C. The Commission Should Not Restrict Tower Siting Based Upon The Proposed Location.

The *Migratory Bird NPRM* seeks comment on whether towers located in certain areas might cause a sufficient environmental impact on migratory birds such that, when considered with other relevant factors, some Commission action might be justified.⁹² The Commission should not restrict tower siting based on tower location, such as in wetlands, along ridgelines or in bird migration corridors. There is no scientific basis for such restrictions and people living in or near such areas need wireless communications services as much as anyone else. The Michigan study was designed to measure the effect of communications towers on bird mortality in the middle of a flyway at the height of the migration season. The relatively few bird mortalities registered in that study reflect no need for regulations that would make wireless service unavailable to people living in or near such areas.

CONCLUSION

Given the paucity of peer reviewed scientific study, no rule changes are justified. The state of the science does not warrant the Commission adopting a preference for white strobe lights or taking any other action in this proceeding. More troubling still is that there is insufficient evidence to demonstrate that the Commission's proposals will, at best, provide nothing more than a marginal decrease in avian mortality. At the same time, however, the record does show that the Commission's proposals would deprive rural subscribers of new service, delay the ability to provide advanced services and build-out of new facilities throughout the country, incur significant expenditure of both the Commission's and the wireless industry's resources, and re-

⁹² *Id.*

tard the upgrade of public safety and homeland security facilities. The Commission therefore should refrain from regulating given the current state of the science.

Respectfully submitted,

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