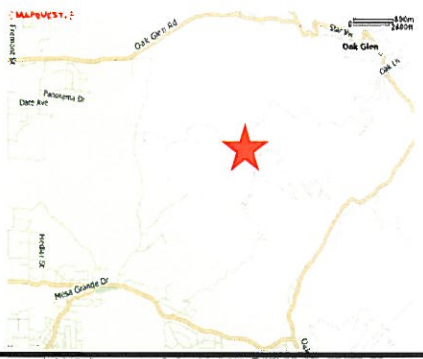
LAND USE SERVICES DEPARTMENT
Planning Division
PLANNING COMMISSION STAFF REPORT

HEARING DATE: March 17, 2011 **AGENDA ITEM NO: 3**

Project Description **Vicinity Map** ↑ N

APPLICANT: **LAZER BROADCASTING CORPORATION**
APN: **0325-011-19**
PROPOSAL: A) CONDITIONAL USE PERMIT TO CONSTRUCT AN FM RADIO BROADCAST FACILITY CONSISTING OF A FREE STANDING 43 FOOT LATTICE TOWER & AN EQUIPMENT SHELTER ON 38.12 ACRES.
B) MAJOR VARIANCE TO REDUCE THE FUEL MODIFICATION AREA FROM 100 FEET TO 30 FEET ON A 425 SQUARE FOOT PORTION OF 38.12 ACRES
COMMUNITY: OAK GLEN/3RD SUPERVISORIAL DISTRICT
LOCATION: PISGAH PEAK ROAD, WEST SIDE APPROXIMATELY 1.5 MILES NORTH OF WILDWOOD CANYON ROAD.
PROJECT NO.: P201000215
STAFF: KEVIN WHITE
REP('S): DAVE MYLNARSKI



324 Hearing Notices sent on: **March 4, 2011** **Report Prepared By:** **Kevin White**
PC Field Inspection Date: **March 9, 2011** **Field Inspected by:** **Comm. Ray Allard**

SITE DESCRIPTION:
Parcel Size: 38.12 acres.
Terrain: Steep Slopes greater than 30%.
Vegetation: Dense Chaparral shrub species

EXISTING LAND USES AND ZONING DISTRICT DESIGNATIONS:

AREA	EXISTING LAND USE	LAND USE ZONING DISTRICT	OVERLAYS
Site	Vacant	Oak Glen/Rural Living – 20 Acre Minimum Lot Size.	Fire Safety 1 / Low To Moderate Landslide Suceptablity
North	Vacant	Oak Glen/Rural Living – 20 Acre Minimum Lot Size.	Fire Safety 1 / Low To Moderate Landslide Suceptablity
South	Vacant	Oak Glen/Rural Living – 20 Acre Minimum Lot Size.	Fire Safety 1 / Low To Moderate Landslide Suceptablity
East	Vacant	Oak Glen/Rural Living – 20 Acre Minimum Lot Size.	Fire Safety 1 / Low To Moderate Landslide Suceptablity
West	Wildwood Canyon State Parks	City of Yucaipa, San Bernardino National Forest	N/A

	AGENCY	COMMENTS
City Sphere of Influence:	None	Not in Sphere Yucaipa opposes
Water Service:	None	N/A - Unmanned
Septic/Sewer Service:	None	N/A - Unmanned

STAFF RECOMMENDATION: Deny the Conditional Use Permit to allow the construction of a radio broadcast tower with a major variance to reduce the required Fuel Modification Area.

In accordance with the Development Code, this action may be appealed to the Board of Supervisors

BACKGROUND:

This application for a Conditional Use Permit (CUP) seeks approval to establish an unmanned self-supporting (no guy wires), 43-foot tall tower for radio broadcast (KXRS-FM 105.5). The total facility occupies 365 square feet of a 38.12-acre parcel. This includes the tower (on 65 square feet), a 100-square foot equipment shelter, and a parking space. A Major Variance is also requested to reduce the required 100-foot perimeter fuel modification area to 30 feet. The applicant proposes ten feet of clearing and twenty feet of thinning around the equipment shelter. These proposed improvements (Project) are located in the general proximity of the intersection of Oak Glen and Wildwood Canyon Roads, west of Pisgah Peak Road. The Project site is in the unincorporated portion of the County of San Bernardino in the Oak Glen Planning Area. The County General Plan designates the Land Use District for the Project site as OG/RL-20 (Oak Glen/Rural Living – 20 acre minimum lot size). The Project is within the Fire Safety Overlay Review Area One (FS-1) overlay district.

In 2007, the applicant previously applied for a CUP for a radio tower on this parcel, as well as a major variance to reduce the fuel modification area. At the time of this original application, the proposal included a 140 foot tower located near the upper portions of the Project site with potential visibility above the ridgeline. Staff worked extensively with the applicant to revise various aspects of the proposal, including tower height and location on the hill in relation to the ridgeline. Following these revisions, the proposed radio tower was reduced to 80 feet in height and was to be located lower on the hill so as not to be visible above the ridgeline. During this earlier review process, approximately 200 letters of opposition were received by staff.

The public hearing before the Planning Commission was held on November 6, 2008; at which eleven people spoke in opposition and nine in favor. The Planning Commission conditionally approved this version of the Project by a 4-1 vote.

On November 17, 2008, the Citizens for Preservation of Rural Living filed an appeal, claiming, among other things, that the earlier project required an Environmental Impact Report (EIR). The Board of Supervisors (BOS) heard the appeal on January 27, 2009. Approximately eleven speakers spoke in opposition to the project with another 21 asking that their support of the project be recorded. Ten speakers spoke favorably to the project with another twelve asking that their support be noted. Following the public hearing, the BOS voted unanimously to declare an intent to grant the appeal and deny the project with prejudice and continue the matter to March 3, 2009, with directions to staff to prepare appropriate findings. Prior to that hearing, the project applicant submitted a written request that the project application be withdrawn.

At the March 3, 2009, hearing, the BOS did not take public testimony but allowed the appellant and the applicant the opportunity to address the request to withdraw. The BOS then voted unanimously (Supervisor Biane was absent) to deny the request to withdraw the application, grant the appeal, deny, with prejudice, the application, and adopt the findings supporting the denial. The "with prejudice" denial was significant as it prevented the Project from being resubmitted for 12 months. The Findings were reflective of testimony provided at the BOS public hearing and that represented the BOS's judgment that the previous project was not appropriate for the site and that the project was not compatible with the existing and future land uses in the vicinity.

For purposes of comparison between the project that was previously denied by the BOS and that which is currently being proposed, the prior tower was 80 feet tall rather than 43 feet as currently proposed; the equipment shelter was 250 square feet as compared to 100; and the proposal included a backup generator and a 500 gallon fuel tank, which is now not part of the applicant's request. The currently-proposed fuel modification is comparable to that proposed in 2007. For the former project, staff had recommended approval of the proposed project and the adoption of a Mitigated Negative Declaration. No environmental determination is required for the Project denial currently being recommended.

ANALYSIS:

The 43-foot tall lattice tower is proposed to be placed on a western facing slope, approximately 200 feet below the ridgeline of a small remote mountain range. A lattice tower design was chosen by the applicant to visually blend into the existing background hillside. The Project will require minimal grading (less than 25 cubic yards) to establish a small pad for the equipment shelter and one parking space for maintenance personnel. The shelter will be nine feet tall and painted a neutral color to match the surrounding terrain. The broadcast tower will utilize a pier foundation system to conform to the existing terrain and not require any grading. The tower is expected to be constructed by utilizing a helicopter to deliver the proposed tower in sections, to set the pier foundations, and to pour the necessary concrete.

The unmanned facility will not require water or sewer. The applicant will extend electrical lines to the site underground to reduce visual impacts. The applicant has also proposed to provide an open space easement to the Wildwood Canyon Park and to also relinquish any future development rights for the remainder of the parcel not occupied by the tower development or otherwise required by the Federal Communications Commission (FCC) guidelines and safety regulations.

Public Input. Substantial correspondence (more than 5000 letters) has been received expressing opposition and support of this proposal. The approximate 3000 letters submitted opposing the Project raise issues regarding aesthetics, fire safety, biological resources, growth inducement, cultural resources, and requests for an EIR. The letters in support of the Project (approximately 2000) generally speak to the desire for Lazer Broadcasting Corporation to increase its coverage area and expand its listenership.

Aesthetics. The largest issue of controversy regarding this Project has been the potential visual impacts of the proposed tower. The previous project was denied as the BOS found that the project was not consistent with the goals of the Wildwood Canyon State Park and the existing and future land uses in the area. This finding was based partially on the fact that proposed locations of the tower and equipment shelter are visible from many portions of the Wildwood Canyon State Park. Specifically, it was determined that the construction of the radio tower project will be contradictory and detrimental to a primary goal of the State Park, which is to provide a pristine wilderness experience to park visitors.

The current Project proposal includes a reduction in the height of the proposed tower that will result in a smaller visual impact than the previously proposed tower. However the 43 foot tower currently proposed will be placed on a higher position on the Project site so the top of proposed tower will be at same elevation as the previously proposed tower. Therefore, while the size of the tower has been reduced by almost 50%, the impact on the views from the State Park and other properties in the area will be similar to the previous proposal. The BOS decided this was a significant negative impact. There are no new mitigation measures presented that would effectively reduce the impacts on the environment with respect to aesthetics as previously determined, and therefore, staff is unable to support the proposed Conditional Use Permit.

Variance/Fire Safety. The proposed Project is located within the FS-1 Overlay area, which identifies areas with moderate-to-steep terrain and moderate-to-heavy fuel loading. The Development Code requires a fuel modification plan to reduce fuels in a minimum 100-foot perimeter for projects located within FS-1. The applicant requests the variance to reduce the visual impact by significantly reducing the amount of area required to be cleared and thinned. The applicant does not believe that the normal fuel modification is necessary since the tower is not combustible and the equipment shelter is an unmanned facility. The BOS previously found that granting of the Variance to reduce the fuel modification area from 100 feet to 30 feet may be materially detrimental to other properties or land uses in the area as it would result in a reduction of area necessary for the thinning of moderate vegetation on the Project site. A complete fuel modification would help to prevent the spread of wildland fires to other properties in the vicinity. In addition, a denial of the CUP as staff recommends would render the proposed variance moot. Therefore, staff recommends denial of the Major Variance.

RECOMMENDATION: That the Planning Commission:

A) **DENY** the Conditional Use Permit to constuct a maximum 43-foot tall lattice tower with a radio broadcast antenna, an equipment building on a portion of 38.12 acres;

B) **DENY** the Major Variance, to reduce the required fuel modification area to 30 feet in lieu of the required 100 feet around the perimeter of the Project structures; and

C) **ADOPT** the Findings as contained in the Staff Report.

Attachments:

Exhibit A:	Findings
Exhibit B:	Official Land Use District Map
Exhibit C:	Site Plan
Exhibit D:	Photos
Exhibit E:	Correspondence

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EXHIBIT A

FINDINGS

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FINDINGS: Conditional Use Permit

(1) Although the site for the proposed use is adequate in terms of shape and size to accommodate the proposed landscaping, parking areas, setbacks, yards and other required features it is inadequate in terms of open space because the project site is completely visible from portions of the Wildwood Canyon State Park. Construction of the radio tower project will be contradictory and detrimental to a primary goal of the State Park, which is to provide a pristine wilderness experience to park visitors. Furthermore, the low-lying vegetation on the project site does not provide natural screening of the project to mitigate visual impacts for the users of the Wildwood Canyon State Park.

(2) The site for the proposed unmanned use does not have adequate access to the project site, even for infrequent maintenance trips, in that the legal and physical access to the site is from Pisgah Peak Road, which is very narrow, unpaved and contains steep grades that are greater than 14%. Therefore, the project does not comply with the access requirements of the Fire Safety Overlay.

(3) The proposed use will have a substantial adverse effect on abutting properties and the allowed uses of the abutting properties since the proposed radio broadcast tower is located on property adjacent to the Wildwood Canyon State Park. The radio broadcast facility would have a negative visual impact, because the tower can be seen from several locations within the Wildwood Canyon State Park. The facility is also not compatible with existing and future residential development on other properties adjacent to the project site.

(4) The proposed use and manner of development are not consistent with the goals, maps, policies, and standards of the General Plan and Oak Glen Community Plan. Specifically the project is inconsistent with the following General Plan and Oak Glen Community Plan goals and policies:

GENERAL PLAN – Open Space Element

Goal LU2: Improve and preserve open space corridors through the Mountain Region.

Development of the proposed project would be inconsistent with the goal to preserve and improve the open space corridor that is attached to the Wildwood Canyon State Park, as well as supporting the expansion of the Wildwood Canyon State Park.

OAK GLEN COMMUNITY PLAN:

Goal OG/CO 1: Preserve the unique environmental features of Oak Glen including native wildlife, vegetation and scenic vistas.

Development of the project will have a negative impact upon the environmental features of this portion of Oak Glen. The project would specifically affect scenic vistas from Wildwood Canyon State Park and reduce the natural vegetation on site.

Policy OG/CO 1.1: The following areas are recognized as important open space areas that provide for wildlife movement and other important linkage values. Projects shall be designed to minimize impacts to these corridors.

a. Little San Gorgonio
b. Pisgah Peak
c. Wildwood Canyon State Park

The project site is located within the Pisgah Peak corridor and is adjacent to the Wildwood Canyon State Park. Development of the project would negatively impact on the preservation of the natural conditions of the open space corridor and the maintenance of the scenic vistas from Wildwood Canyon State Park.

(5) There is currently a lack of adequate supporting infrastructure to accommodate the proposed development.

(6) Proposed conditions of approval will not adequately protect the general welfare of the public because no feasible mitigation measures have been identified that would allow the project to be developed without disrupting the scenic views from Wildwood Canyon State Park and preservation of the open space corridor.

(7) The design of the site has considered the potential for the use of solar energy systems and passive or natural heating and cooling opportunities. The use of solar energy system(s) would also be disruptive to goals of preserving scenic vistas and preservation of an open space corridor.

FINDINGS: Major Variance

(1) The granting of the Variance to reduce the fuel modification area from 100 feet to 30 feet may be materially detrimental to other properties or land uses in the area as it would result in a reduction of the area necessary for thinning of moderate vegetation on the project site. Complete fuel modification would help to prevent the spread of wildland fires to other properties in the vicinity.

(2) There are no exceptional or extraordinary circumstances or conditions applicable to the subject property or to the intended use that do not apply to other properties in the same vicinity and land use zoning district because other properties in the vicinity have similar restraints based on their ingress and egress, topography and remote location.

(3) The strict application of the land use zoning district does not deprive the subject property of privileges enjoyed by other properties in the vicinity or in the same land use zoning district in that the property owner may use the site for rural residential purposes.

(4) The granting of the Variance is not compatible with the maps, objectives, policies, programs, and general land uses specified in the General Plan because the variance would allow for the reduction of the Fire Safety Overlay Development Standards in a high fire hazard area.

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EXHIBIT B

OFFICIAL LAND USE DISTRICT MAP

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Land Use Zoning District Map

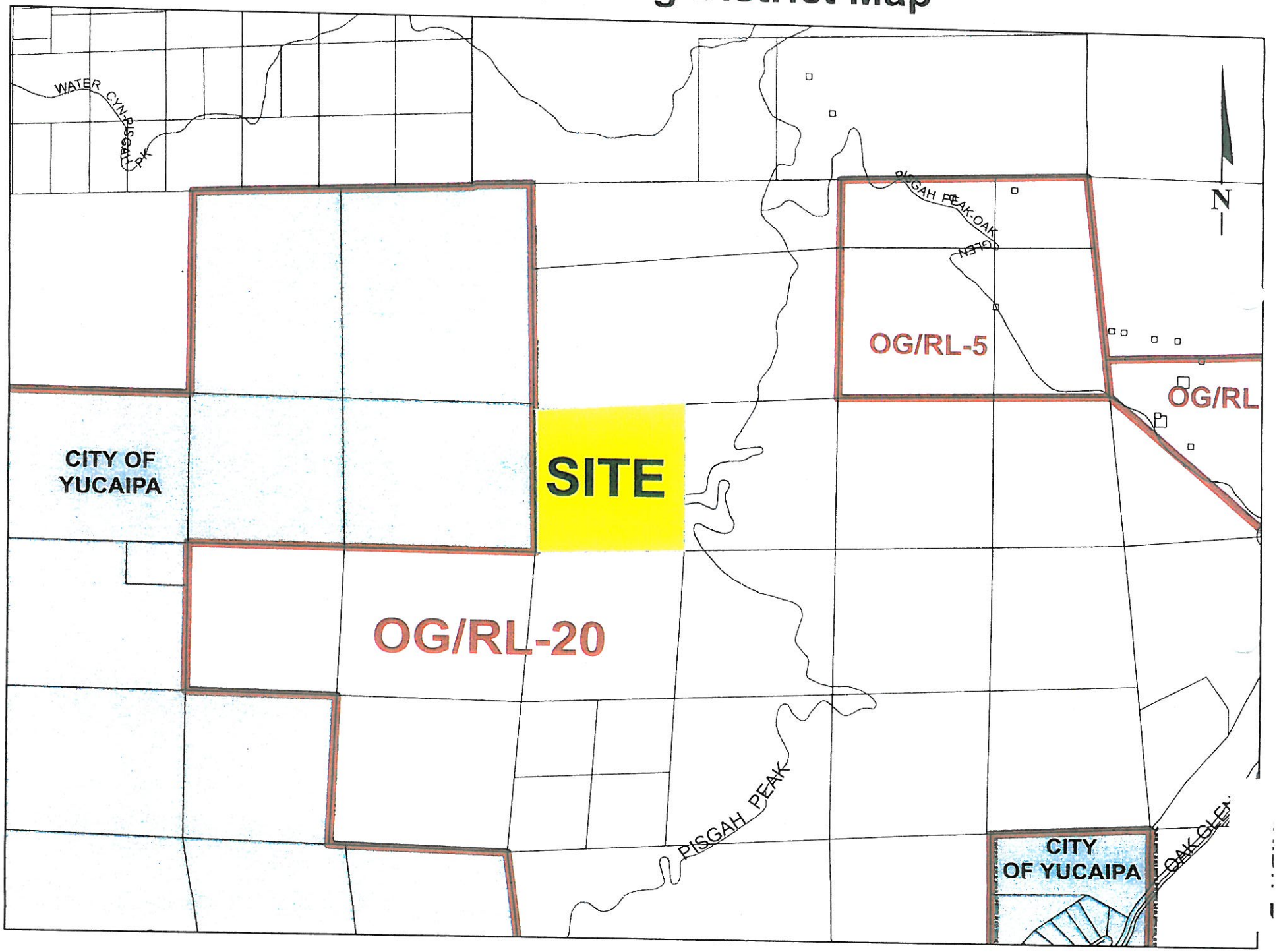

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EXHIBIT C

SITE PLAN

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EXHIBIT D

PHOTOS

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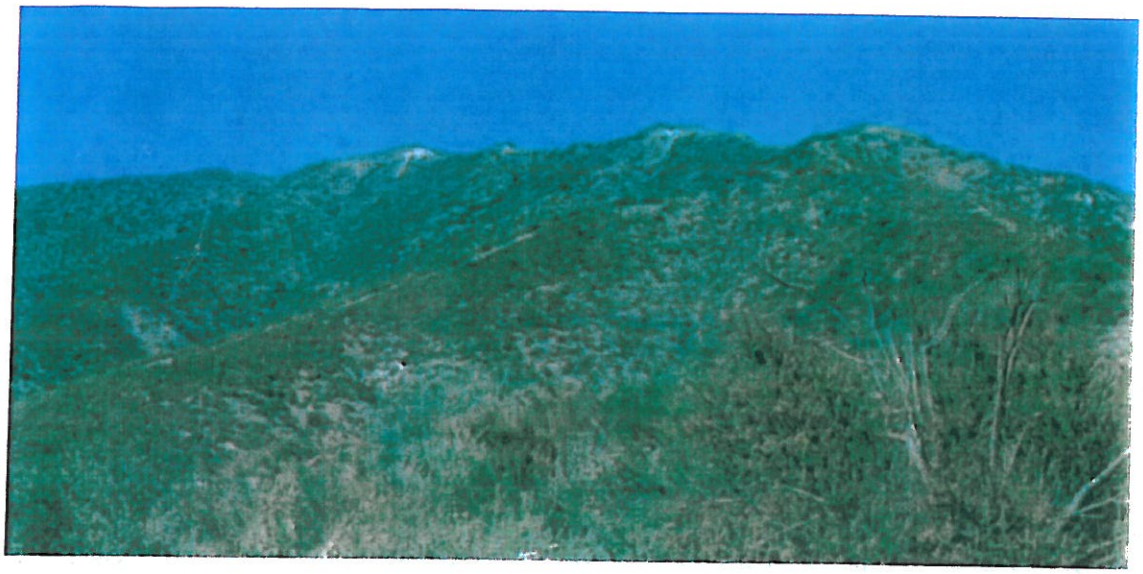
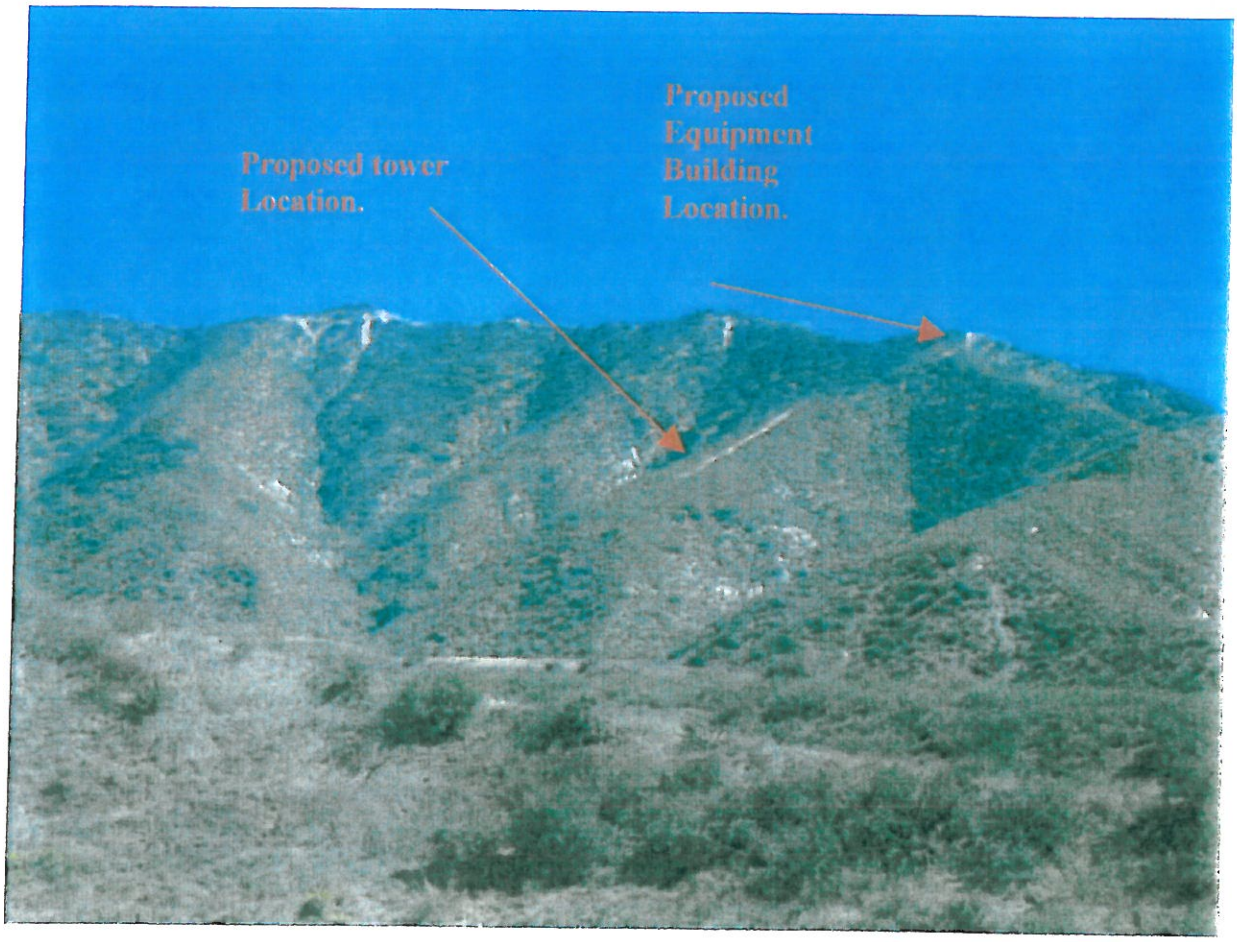
VIEW OF THE PROJECT SITE LOOKING NORTHEAST FROM THE SOUTHWEST CONER OF THE PROJECT SITE.



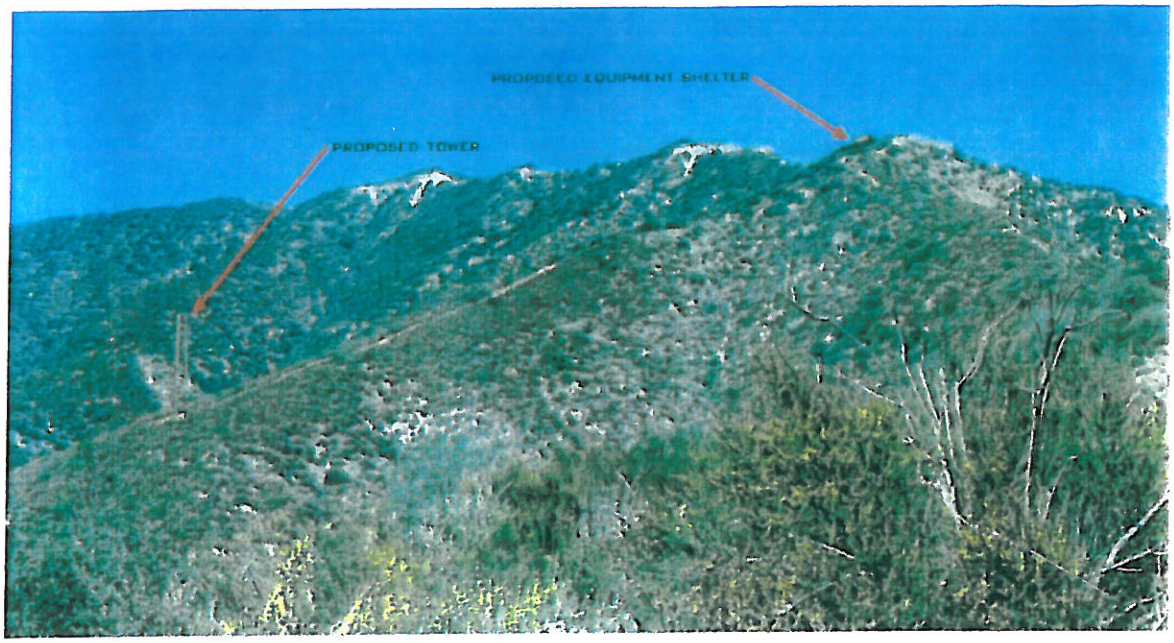
Distance from tower approximately 900 feet.

VIEW OF THE PROJECT SITE LOOKING EAST FROM WILDWOOD CANYON STATE PARK (MAIN PARK ROAD)



Distance from tower approximately 6,000 feet.

PHOTOSIMULATION OF THE PROPOSED TOWER AND EQUIUPMENT SHELTER LOOKING NORTHEAST FROM THE SOUTHWEST CONER OF THE PROJECT SITE.



Distance from tower approximately 900 feet.

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EXHIBIT E

CORRESPONDENCE

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INDIVIDUAL LETTERS IN SUPPORT

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HARRY F. COLE
ANNE GOODWIN CRUMP
PAUL J. FELDMAN
JEFFREY J. GEE
CHRISTINE GOEPP*
KEVIN M. GOLDBERG
FRANK R. JAZZO
M. SCOTT JOHNSON
DANIEL A. KIRKPATRICK
MITCHELL LAZARUS
STEPHEN T. LOVELADY*
SUSAN A. MARSHALL
HARRY C. MARTIN
MICHELLE A. McCLURE
MATTHEW H. McCORMICK
FRANCISCO R. MONTERO
LEE G. PETRO*
RAYMOND J. QUIANZON
JAMES P. RILEY
DAVINA SASHKIN
PETER TANNENWALD
KATHLEEN VICTORY
HOWARD M. WEISS

* NOT ADMITTED IN VIRGINIA

FLETCHER, HEALD & HILDRETH, P.L.C.
ATTORNEYS AT LAW
11th FLOOR, 1300 NORTH 17th STREET
ARLINGTON, VIRGINIA 22209

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ROBERT M. GURSS*
RICHARD F. SWIFT

WRITER'S DIRECT
(703) 812-0415
MARTIN@FHHLAW.COM

October 14, 2010

VIA FEDERAL EXPRESS
Honorable Chairman and Members
San Bernardino County Planning Commission
385 North Arrowhead Avenue, 1st Floor
San Bernardino, California 92415-0182

Re: FM Station KXRS, Proposed Move to Pisgah Peak
Project No. P21000215/CF

Dear Chairman Cramer and Members:

This letter is written on behalf of our client, Lazer Broadcasting Corporation ("Lazer"), and responds in part to the September 29, 2010, letter to the Planning Commission from the City of Yucaipa (the "City").

The Klein Report Should be Eliminated From the Record

The City's letter picks up on erroneous material included in Mirau, Edwards, Cannon, Lewin & Tooke's June 18, 2010, letter to the planning staff about the availability of alternate transmitter sites for KXRS. Specifically, the City makes reference to the "Klein Report," which is mentioned on page 15-17 of the Mirau letter, for the proposition that there are alternative sites for KXRS. But the Klein Report has no validity. As shown below, the report ignores a key factor in determining site availability under the FCC's rules. Moreover, as shown in the Engineering Statement of Hatfield & Dawson submitted by Lazer (the "Eng. Statement") and my covering memo of July 12, 2010, there are in fact no alternative sites available.

Section 73.315 of the FCC's rules, 47 CFR Sec. 73.315, prescribes the restrictions on FM station transmitter site location. The rule requires that a minimum signal strength ("70 dBu") be placed over the community of license—here, Hemet. The rule also requires that "line of sight" must be obtained over the community of license, and adds, "in no event should there be a major obstruction in this path." Line of sight is important because terrain obstacles such as mountains distort FM signals. Eng. Statement, page 4.

The Klein Report is defective because it ignores *completely* these line-of-sight and terrain obstruction requirements. These factors cannot be ignored due the mountainous terrain in the areas considered in the Klein Report. Indeed, terrain is a factor of paramount importance in locating an FM station in or near the San Jacinto Mountains. The Eng. Statement shows that the that the Klein-selected sites—in proximity to the "funnel" shown in Exhibit C of the Eng. Statement-- are not acceptable under FCC Rule Section 73.315 because (a) in the areas below Pisgah Peak intervening terrain blocks the signal or (b) in the areas above Pisgah Peak, prospective sites would be too far away from Hemet to permit placement of the minimum signal strength over the city. Eng. Statement, pages 4-6.

Hatfield & Dawson otherwise shows that, due to the proximity of other radio stations (as shown by the funnel in Exhibit C of the Eng. Statement, which shows required mileage separations to other stations), there are no alternate sites for KXRS.

Based on these showings, the Klein Study should be eliminated from the record in this proceeding.

Approving Lazer's Application Will Not Usher In New Towers

The City also states its concern that letting Lazer bring power to its site will mean other communications sites will follow. This argument, like the use of the Klein Report, is based on faulty information. Lazer will pay for and own a discrete private power run to its site. No one else will be able to use this facility. While it is possible others in the area may apply to construct communications facilities in the future, that will be true whether Lazer's application is approved or rejected. Such followers would have to meet all County requirements, just as Lazer is doing, and pay for their own power runs. Thus, the City is asking that Lazer be penalized on the basis of what others may lawfully do in the future.

The City need not worry about a Lazer approval from a legal standpoint. The precedent that would be created by such an approval, *i.e.*, that it is permissible to erect a 43-foot pole on a 38-acre parcel of private property in an uninhabited area so a new radio service (and new business opportunities) can be brought to 1,917,637 persons—would not open the floodgates as the City fears.

Questions about the matters addressed in this letter should be directed to the undersigned.

Very truly yours,

Harry C. Martin
FCC Counsel to
Lazer Broadcasting Corporation

HCM:jpg

cc: Supervisor Neil Derry
Mr. Kevin White
Mayor Dick Riddell

THE NOS EVENTS CENTER
Home of the National Orange Show Festival

689 South "E" Street
San Bernardino, CA 92408
tel (909) 888-6788
fax (909) 889-7666
www.nosevents.com

August 12, 2010

San Bernardino County LUSD
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415-0182

RE: Case No.:P200700557

To Whom It May Concern:

On behalf of the National Orange Show I would like to express the importance of upgrading KXRS 105.7 in order to improve radio coverage in our community. The National Orange Show is a non-profit for public benefit organization and serves thousands of people on average per month. We service a wide variety of customers ranging from promoters to vendors, to the average consumer.

Lazer Broadcasting is one of the media sources used for the promotion of events held at the NOS.

In conclusion we feel that the NOS along with the region would benefit from the upgraded coverage that KXRS 105.7 could provide and respectfully ask that the San Bernardino County Planning Commission approve the Lazer Broadcasting project.

Sincerely,

Dan Jimenez, CEO

8/13/1010

San Bernardino Planning Commission
Land Use Services Department
385 N. Arrowhead Avenue, 1st floor
San Bernardino, Ca 92415-0182

Neil Derry, 3rd District Supervisor
County Government Center
385 N. Arrowhead Avenue, 5th Floor
San Bernardino, Ca 92415-0182

RE: Lazer Radio Project # 2010-00215

Dear Planning Department and Supervisor,

Freeway Insurance is an established Insurance Broker in San Bernardino County that serves the community in the Inland Empire. We wish to go on record in support of the permit for the proposed tower.

Freeway Insurance benefits from Lazer's programming and community service efforts of providing low cost insurance for drivers.

It is critical that Lazer provide the on-going and enhanced broadcast opportunity for Freeway Insurance to reach our core customers. Lazer's service has helped our business grow and prosper in the County.

As a local business serving the needs of local and regional residents and businesses, we support the proposed project, and the local and regional benefits that follow.

Sincerely,

Barney Harris
Director Of Advertising
Freeway Insurance
714-252-2700

UniZas

FULL ADVERTISING AGENCY

August 13, 2010

San Bernardino Planning Commission
Land Use Services Department
385 N. Arrowhead Avenue, 1st floor
San Bernardino, Ca 92415-0182

Neil Derry, 3rd District Supervisor
County Government Center
385 N. Arrowhead Avenue, 5th Floor
San Bernardino, Ca 92415-0182

RE: Lazer Radio Project # 2010-00215

Dear Planning Department and Supervisor,

Unizas Corporation is an established organization in Los Angeles County with some clients in San Bernardino and Los Angeles County. With our campaigns, we reach Spanish-speaking customer base through advertising on **KXRS Lazer Radio**. We wish to go on record in support of the permit for the proposed tower.

It is critical that Lazer provide the on-going and enhanced broadcast opportunity for this organization to reach our core customers. Alfredo Plascencia, the owner at Lazer, has gone out of his way to help our chain grow and prosper in the County.

As a local business serving the needs of local and regional businesses and individuals, we hope this letter demonstrates our unwavering support of the proposed tower, and the local and regional benefits that follow. Thank you for the opportunity to provide this letter of support.

Sincerely,

HAIVERT

HAIVERT MENDEZ
Advertising Manager

cc Lazer Broadcasting

8060 E FLORENCE AVE. SUITE 220 DOWNEY, CA. 90240. PH 562 231 4710 FAX 562 9232304
www.teleservinc.com

August 23, 2010

San Bernardino Planning Commission
Land Use Services Department
385 N. Arrowhead Avenue, 1st floor
San Bernardino, Ca 92415-0182

Neil Derry, 3rd District Supervisor
County Government Center
385 N. Arrowhead Avenue, 5th Floor
San Bernardino, Ca 92415-0182

RE: Lazer Radio Project # 2010-00215

Dear Planning Department and Supervisor,

Los Defensores is an established joint legal advertiser in San Bernardino County that serves the community by providing access to quality legal help throughout Southern California. We wish to go on record in support of the permit for the proposed tower.

Los Defensores benefits from Lazer's programming and community service efforts by helping hundreds of thousands of individuals across California in need of legal help get access to experienced personal injury attorneys and experts in workers' compensation law.

It is critical that Lazer provide the on-going and enhanced broadcast opportunity for Los Defensores to reach our core customers. Lazer's service has helped our business grow and prosper in the County.

As a local business serving the needs of local and regional residents and businesses, we support the proposed project, and the local and regional benefits that follow.

Sincerely,

Paola Alvarez
Marketing Manager
310.427.3408

WALKER ADVERTISING | Tel: 1-800-409-0909
1010 S. Cabrillo Avenue | Fax: (310) 519-4090
San Pedro, CA 90731-9953 | www.walkeradvertising.com

PASS PHYSICAL THERAPY

September 1, 2010

San Bernardino Planning Commission
Land Use Services Department
385 N. Arrowhead Avenue, 1st floor
San Bernardino, Ca 92415-0182

Neil Derry, 3rd District Supervisor
County Government Center
385 N. Arrowhead Avenue, 5th Floor
San Bernardino, Ca 92415-0182

RE: Lazer Radio Project # 2010-00215

Dear Planning Department and Supervisor,

Pass Physical Therapy is an established medical practice in San Bernardino County that serves the communities of Yucaipa, Calimesa, and Redlands. We wish to go on record in support of the permit for the proposed tower.

Pass Physical Therapy benefits from Lazer's programming and community service efforts. The ability to broadcast to potential Spanish speaking clients is very powerful.

It is critical that Lazer provide the on-going and enhanced broadcast opportunity for Pass Physical Therapy to reach our core customers. Lazer's service has helped our business grow and prosper in the County.

As a local business serving the needs of local and regional residents and businesses, we support the proposed project, and the local and regional benefits that follow.

Sincerely,

09/01/2010

Dr. Leo Adorador, PT, DPT
CEO

Latino Business Chamber
of Greater Los Angeles

August 24, 2010

San Bernardino Planning Commission
Land Use Services Department
385 N. Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

RE: Lazer Radio Project # 2010-00215

Although a vote has already been taken on the construction of a new Lazer Radio broadcasting tower, we feel it was not a decision in the best interests of the community. We write to you to express our support for the diversity of media services to the people of San Bernardino County. We represent many businesses in the greater Los Angeles region, including San Bernardino County. We want to express our interest and Radio Lazer's interest in media growth and media diversity.

As a chamber representing indivdiauls with diverse backgrounds, with many located in San Bernardino County, it is critical that we voice our displeasure with the decision made concerning the broadcast tower as a harmful one to our constituents located in the area. Radio Lazer merits reconsideration on your part. Not only will Radio Lazer promote media diversity but it will also have an inconsequential impact on the environment.

We hope you will reconsider your actions and promote growth, jobs and diversity.

Sincerely,

Jorge C. Corralejo
Chairman & CEO
Latino Business Chamber of Greater Los Angeles

634 S. Spring Street, Suite 600, Los Angeles, CA 90014
213-347-0008 (phone) 213-347-0009 (fax) www.lbcgla.org

LAZER BROADCASTING

September 3, 2010

Kevin White, Senior Associate Planner
LUSD, Current Planning Division
385 N. Arrowhead Ave., First Floor
San Bernardino, CA 92415-0182

RE: Lazer – Yucaipa Project No. P201000215

Dear Mr. White,

Enclosed please find copies of 1,525 letters in support of our project from the San Bernardino community.

Please send an email to lizp@radiolazer.com confirming that you received these letters.

Thank you for your consideration.

Sincerely,

Elizabeth Plascencia
Executive Assistant

200 S. A Street, Suite 400, Oxnard, CA 93030
Ph: (805) 240-2070 Fax: (805) 240-5960

Latino Business Chamber of Greater Los Angeles

August 24, 2010

San Bernardino Planning Commission
Land Use Services Department
385 N. Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

RE: Lazer Radio Project # 2010-00215

Although a vote has already been taken on the construction of a new Lazer Radio broadcasting tower, we feel it was not a decision in the best interests of the community. We write to you to express our support for the diversity of media services to the people of San Bernardino County. We represent many businesses in the greater Los Angeles region, including San Bernardino County. We want to express our interest and Radio Lazer's interest in media growth and media diversity.

As a chamber representing indivdiauls with diverse backgrounds, with many located in San Bernardino County, it is critical that we voice our displeasure with the decision made concerning the broadcast tower as a harmful one to our constituents located in the area. Radio Lazer merits reconsideration on your part. Not only will Radio Lazer promote media diversity but it will also have an inconsequential impact on the environment.

We hope you will reconsider your actions and promote growth, jobs and diversity.

Sincerely,

Jorge C. Corralejo
Chairman & CEO
Latino Business Chamber of Greater Los Angeles

634 S. Spring Street, Suite 600, Los Angeles, CA 90014
213-347-0008 (phone) 213-347-0009 (fax) www.lbcgla.org

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INDIVIDUAL LETTERS IN OPPOSITION

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Kevin

JOHN K. MIRAU*
MARK C. EDWARDS
ROBERT W. CANNON†
MICHAEL J. LEWIN
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* Certified Specialist, Taxation Law, The State Bar of California Board of Legal Specialization
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LAW OFFICES OF

MIRAU, EDWARDS, CANNON, LEWIN & TOOKE

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Facsimile (909) 793-0790

June 7, 2010

S2197-002

First Class Mail
Department of Land Use Services
County of San Bernardino
385 North Arrowhead Avenue – 1st Floor
San Bernardino, CA 92415

RECEIVED
JUN 08 2010
LAND USE SERVICES DEPT.
ADVANCE PLANNING DIVISION

RE: Project No.: P201000215
APN: 0325-011-19-0000

To Whom It May Concern:

On behalf of Citizens for Preservation of Rural Living, please add our name to your notice and distribution list for the above-referenced project. Please provide us with the acceptance notice of the application, final deadline for comments, notices of hearings or determinations, staff reports or other written documentation, the project notification list and a complete copy of the accepted application and all related documentation. Please contact my paralegal, Diane Sanchez, to arrange for pick up of the requested information, or send it to us at the following address:

Citizens for Preservation of Rural Living
c/o Mr. John K. Mirau, Esq.
Mirau, Edwards, Cannon, Lewin & Tooke
P. O. Box 9058
Redlands, CA 92375

Thank you for your attention to this request.

Very truly yours,

MIRAU, EDWARDS, CANNON,
LEWIN & TOOKE
A Professional Corporation

By:
John K. Mirau, Esq.

Ltr.jkm.LandUseServices.060710.doc

JOHN K. MIRAU*
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December 20, 2010

Ms. Dena M. Smith, Director
San Bernardino County Land Use Services Department
Planning Division
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415-0182

RE: Project No. P201000215/CF - Radio Tower Application
Lazer Parcel - APN 0325-011-19-0000
Application for Temporary Use Permit

Dear Ms. Smith:

This firm represents the Citizens for the Preservation of Rural Living ("CPRL"). CPRL is a public interest association that seeks to ensure that the open space and natural wilderness values of the Pisgah Peak and Wildwood Canyon State Park areas are preserved. We have previously submitted comments to the project application submitted by Lazer Broadcasting, Inc., which proposes the construction of a 43-foot tall radio tower ("Project") on an undeveloped 40-acre parcel of land in the San Bernardino Mountains. We also submitted objections to the granting of a Temporary Use Permit.

We are writing to formally express our serious concerns and register our objections regarding the recent granting of a Temporary Use Permit Application allowing Lazer Broadcast Corporation ("Lazer") to install a "wooden pole mock-up to show visible implications of a proposed 43-ft broadcast tower, proposed under CUP Project Application No. 201000215."

As we have previously indicated, in a letter dated September 30, 2010, the standards set forth in the Development Code have not been satisfied in connection with Lazer's application to install the wooden pole. Installation of the pole is inconsistent with adjacent land uses, including hiking, biking and horseback riding in the Wildwood Canyon State Park. In addition, the

granting of the permit, after Lazer had already illegally installed a pole, rewards illegal behavior and encourages future violations of the Development Code by Lazer as well as others.

Despite the fact that the temporary use permit has been improperly granted, CPRL has made a determination not to file a formal appeal regarding the grant of the Temporary Use Permit, based upon our express understanding that the Temporary Use Permit will be strictly construed and limited to the exact scope set forth therein. Accordingly, CPRL specifically understands and hereby confirms our understanding of the following with respect to the implementation of the Temporary Use Permit:

A. Lazer will not be permitted to utilize the pole, or construct any other structures pursuant to the temporary use permit, to operate a radio station from the site. CPRL continues to oppose the installation of the Lazer radio tower which is adjacent to the State Park and will have an adverse visual and scenic impact on the park;

B. Granting of the Temporary Use permit will have no precedential effect in connection with the future consideration by the Planning Commission and the Board of Supervisors of the CUP and Major Variance that will be necessary to install the lattice radio tower; and

C. Lazer will be required to strictly comply in all respects with the stated terms and scope of the Temporary Use Permit.

If our understanding of the scope of the uses and activities permitted under the Temporary Use Permit is incorrect in any respect, please advise immediately as CPRL will wish to review its options for taking action regarding this matter.

Please note that the basis for the position that a Temporary Use Permit may not be utilized as a means to authorize operation of a radio station is set in numerous provisions, including Development Code Section 85.15.010 which specifically provides that the chapter "establishes procedures and standards for the granting of Temporary Use Permits for allowed short-term activities [emphasis added]. Operation of a radio station is clearly not a "short-term activity."

Development Code Section 85.15.080 sets forth allowed short-term activities, including batch plants, construction yards, events such as arts and crafts exhibits, model homes, seasonal sales lots, etc. None of the activities permitted as short-term activities under this Development Code section are in any way similar to operation of a radio station. The reason why a conditional use permit is required for a radio station is because special issues arise and special conditions need to be imposed before a radio station can be permitted.

The project description for which the Temporary Use Permit was granted is as follows: "Temporary Use Permit for a 43 foot tall Wooden Pole Mock-up to show the visual implications of a Proposed 43 foot Broadcast Tower on 38.12 acres." We assume that the project description must be strictly followed by Lazer. However, the original pole installed by Lazer was a PVC

pole. On Thursday of this last week, we could see (from Wildwood Canyon State Park) that a pole is now installed on the site. It is not clear whether the pole is the original pole or a new wooden pole that complies with the terms and conditions of the Temporary Use Permit. When the current rain ceases, we will travel to the site to determine the nature of the pole that has been installed. We assume that the Land Use Department will strictly enforce the terms of the permit.

Condition 11 of the Temporary Use Permit allowing installation of the pole is that Lazer "obtain approval of building permits for any building, sign or other structure to be constructed or located on the project site." We called the County Building Department on Thursday, December 16, 2010 and were informed that as of that date Lazer had not been granted a building permit. If that information is inaccurate, please provide a copy of the building permit with the date of issuance. If the information provided to us is correct, Lazer has not yet complied with the requirements of the temporary use permit. Lazer should not be provided the benefits of the Temporary Use Permit unless and to the extent Lazer fully complies with each and every requirement set forth therein and also complies with the terms of governing laws, rules and regulations.

CPRL also objects to the granting of the permit because the very reason for the permit is to deceive the Planning Commission, Board of Supervisors, and citizens of the County as to the nature of the radio tower that Lazer plans to build pursuant to its CUP application. Lazer's application clearly provides that it wishes to build a 43 foot lattice-style radio tower at the subject site. The purported purpose of granting a Temporary Use Permit was to allow Lazer to install a pole which is a "mock-up to show the visual implications" of the radio tower that Lazer proposes to build. In fact, the Temporary Use Permit allows Lazer to install a 43 foot pole that in no way resembles the tower that Lazer actually wishes to construct as set forth in its CUP application. This is sleight-of-hand. Lazer is attempting to show through the use of this temporary that the Lazer radio tower, when constructed in accordance the CUP application, will not be visible. By granting the permit, the Land Use Department has permitted Lazer to engage in this attempted manipulation of the public by falsely claiming that the lattice radio tower is visually similar to the 43 foot tall pole that was installed for the purpose of falsely minimizing the visual impact of the tower that will actually be built.

It is clear from the photo simulation study filed by Lazer itself that the radio tower will be visible from within the State Park. At a minimum, in order to cause the so-called "mockup tower" to have any use whatsoever in connection with the application for the lattice tower, Lazer should be required to place balloons or flags on the temporary pole so that citizens who view it can clearly see where the lattice tower will be visible from within the State Park. Even if that were done, anyone viewing the pole would not be able to visualize what the lattice-style tower will look like from the State Park. Therefore, we trust that the permission granted under the terms of the current Temporary Use Permit will be limited in accordance with its express terms and will not facilitate the use of the "mock up pole" for any other purpose. Further, we trust that due consideration will be given to the fact that the mock up does not in fact reflect the true visual impact and environmental impact of the structure Lazer ultimately wishes to build.

We at CPRL appreciate your consideration, and reserve all of our rights. Please feel free to call me with any questions or comments you may have.

Very truly yours,
MIRAU, EDWARDS, CANNON,
LEWIN & TOOKE

By: 
John K. Mirau, Esq.

Cc: Supervisor Neil Derry
Mayor Dick Riddell
Mr. Bill Collazo
Mr. Kevin White
Mr. David Myers, The Wildlands Conservancy
Mr. Frank Sissons, Yucaipa Valley Conservancy

JOHN K. MIRAU*
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January 10, 2011

Ms. Dena M. Smith, Director
San Bernardino County Land Use Services Department
Planning Division
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415-0182

RE: 18,000 sq. ft. SFR on APN 0325-011-19-0000
Application for Single Family Residence;
Project No. P201000215/CF - Radio Tower Application
Lazer Parcel - APN 0325-011-19-0000
Application for Temporary Use Permit

Dear Ms. Smith:

This firm represents the Citizens for the Preservation of Rural Living ("CPRL"). CPRL is a public interest association that seeks to ensure that the open space and natural wilderness values of the Pisgah Peak and Wildwood Canyon State Park areas are preserved. We have previously submitted comments to the project application submitted by Lazer Broadcasting, Inc., which proposes the construction of a 43-foot tall radio tower ("Project") on an undeveloped 40-acre parcel of land in the San Bernardino Mountains.

1. Requests for Information regarding Lazer Parcel.

CPRL has been monitoring the proposed Lazer Broadcast radio tower on property located in the Oak Glen area of the county for the last two years. CPRL has worked closely with the City of Yucaipa, The Wildlands Conservancy, Yucaipa Valley Conservancy, Crafton Hills Conservancy, and thousands of citizens opposed to the Lazer radio tower.

CPRL has made written and oral requests for information on the status of Lazer's project on a continual basis since approximately May of 2010. CPRL has continued to closely monitor the Lazer project because of the significant adverse impact the Lazer radio tower project would have on the open space surrounding the proposed project site.

The week before Christmas, I sent my paralegal, Diane Sanchez, to the Planning Department counter at the County Government Center to review the status of the Lazer tower application. By talking to the clerk at the counter, she discovered that Lazer had also filed an application to construct an 18,000 square foot residence on the same site as the proposed tower project. Needless to say, I am disappointed and dismayed that, after weekly requests as to the status of the Lazer project, my requests were interpreted as solely relating to the tower project. It appears that staff intentionally failed to disclose to me the fact that Lazer was also processing an application to build an 18,000 sf single-family residence on its property.

I do not expect the County to act impartially on my behalf. However, I do expect fair treatment and transparent government so that when specific requests are made for information they are not narrowly interpreted to keep secret a development plan on the very property that I have been monitoring for the last several years.

Request is made that in the future when requests for information are made, they be complete and accurate without misleading omissions.

2. Single Family Residence (SFR) Application not a Good Faith Application for a SFR.

It is clear that Lazer's application to construct an 18,000 square foot home on Pisgah Peak Road is not based upon a desire to build or live in a massive residence on that site, but rather is a strategy in connection with its attempt to obtain approval of a radio tower on the same parcel of property.

Pisgah Peak Road is a fire road that is barely passable much of the year. In winter rainy season, a four wheel drive Jeep has a difficult time navigating Pisgah Peak Road to the area in which the proposed home is to be built. In addition, construction of an 18,000 square foot home on such a site is clearly proposed in retaliation for the community opposition to the radio tower. In essence, Lazer is telling the community it must support its tower or it will destroy the view from the adjacent Wildwood Canyon State Park to punish the community for its opposition to the radio tower. We do not believe that Lazer will spend $2-$3 million to build this home, but rather is using the application for a single-family residence as a stalking horse for obtaining approval to grade the site which will later be used for the radio tower if they can get it approved.

The radio tower project and the purported single-family residence project are closely tied together in many ways. First, they are both located on the same single parcel. Access to both projects will be from Pisgah Peak Road. In addition, because 98% of the proposed site has slopes greater than 30%, there are only small areas of the parcel that are flat and buildable. There is one area immediately adjacent to and North of Pisgah Peak Road which is approximately 2,000 to

3,000 square feet in size that is proposed for both the footprint of the single-family residence as well as the exact same site slated for the equipment building to service the proposed radio tower. It is not possible to build both facilities on the same site, unless a portion of the single family residence or garage is to be used as the equipment building for the radio tower. If the single-family residence is constructed as proposed, it will be physically impossible to maintain the proposed radio tower except by going through the yard and driveway surrounding the single-family residence from Pisgah Peak Road to the radio tower site. Electricity brought to the project site would be jointly shared by the single-family residence and the radio tower.

In summary, the two applications are so intertwined that they must be treated as a single project, composed of a residential building and a commercial use.

3. Land Use Approvals are Required to construct the Proposed SFR

When I visited the county's land-use counter a week or so ago, I discussed the proposed single-family residence with the planning staff. They informed me it was their opinion that, because the proposed site has a land-use designation of RL-20, Lazer has a right to build the 18,000 square foot home as a matter of right because Lazer is merely proposing the construction of a single-family residence in a rural living land-use zone.

There are several reasons why this analysis is incorrect. First, because of the size of the home, and the fact that 99.6% of the proposed site has slopes in excess of 15%, it will be necessary to significantly grade the property including the grading of slopes in excess of 15%. As a result, the county hillside ordinance (Development Code Chapter 83.08 Hillside Grading Standards) requires submittal of various maps and other materials (discussed below) and a discretionary grading review.

Secondly, due to the fact there are concurrent applications for a proposed radio tower and a single-family residence on the same site, the combined project constitutes a "dwelling use in conjunction with a commercial use." Under the definitions of the Development Code, a "Dwelling Use in Conjunction with Commercial Use" is defined as follows: "one or more dwelling units developed along with one or more commercial uses in a mixed-use project." It is clear that the joint application for a single-family residence and the application for a radio tower fall within this definition. Accordingly, the use is no longer a single-family residence by itself and does not fall within the rules permitting construction of a single-family residence without a discretionary planning approval.

4. Applicability of Hillside Grading Ordinance.

The Hillside Grading Standards are set forth in Chapter 83.08 of the Development Code. Development Code Section 83.08.020 provides that the Hillside Grading Standards are applicable as follows:

"(a) Slope gradient of 15 percent or greater. The standards contained in this Chapter apply to all uses and structures within areas having a natural slope gradient of 15% or greater over the area being graded and requiring a Grading Permit....

(b) Site conditions requiring Hillside Grading Review. If the slope gradient is 15 percent or greater and if any one of the following thresholds applies on a particular site meeting the criteria set forth in subsection (a) above, a full analysis and compliance with this Chapter shall be required and a Hillside Grading Review shall be conducted in compliance with Section 83.08.030 (Hillside Grading Review):

(1) The volume of proposed grading is more than 500 cubic yards per lot or more than a total of 2,000 cubic yards for the total project.

(2) If retaining walls or the proposed cut or fill slopes greater than 15 feet in height will be visible and exposed to permanent public view or will be adjacent to designated open space or public lands.

(3) The width of proposed cut or fill slopes is greater than 75 feet in the Valley and Mountain Regions and 150 feet in the Desert Region as measured at the widest point of the slope.

(4) The area of proposed disturbance is more than 50 percent of the site area, or the proposed disturbed area exceeds 10,000 square feet, whichever is less."

Attached is copy of a topographical map submitted by Lazer in connection with its CUP application for a radio tower. The slope analysis set forth on the map summarizes that .4% of the parcel (5,935.77 sf) has a slope ranging from 0 to 15% slope, 2% of the parcel (32,712.60 sf) has a slope between 15% and 30% grade, and 97.6% of the parcel (1,621,834.01 sf) has a slope of 30% or greater.

The single-family home proposed to be built by Lazer meets two of the criteria set forth above. First, the grading plan indicates that the volume of grading will be 2,500 cubic yards, greater than the requirement of paragraph (b)(1) set forth above. In addition, the grading plan calls for retaining walls in excess of 15 feet in height. Accordingly, the Hillside grading standards set forth in Chapter 83.08 of the Development Code apply to the single-family residence proposed by Lazer.

Development Code Section 83.08.030 sets forth the procedure for the Hillside grading review. Paragraph (b) requires submittal of a natural features map, a grading plan (which must include details as to drainage, elevations, a separate map with proposed fill colored green and cut areas colored red, and contours for existing natural conditions and proposed work), a drainage map, a slope analysis map, and slope profiles. When I reviewed the file for the single-family residence, there was simply a conceptual grading plan which did not meet the requirements for a grading plan set forth in Development Code Section 83.08.030 (d)(2). In addition, none of the

other submittals required by Development Code Section 83.08.030 had been submitted. Accordingly, the grading plan application submitted by Lazer is incomplete and cannot be acted upon by the County.

There are many standards set forth in the Hillside grading ordinance designed to preserve the natural topography and to discourage development that will create or disproportionately increase fire, flood, slide or other safety hazards to the public health, welfare and safety. The standards include, but are not limited to, the following:

1. Table 83-8 sets forth site standards for different slope categories, depending upon whether the slope is 15 to 30% slope, 30 to 40% slope, or greater than 40% slope. It is clear from the topographical map that some of the graded areas will fall within the 30 to 40% slope category, and possibly in the 40% or greater category. A complete application must provide this information. With respect to the 30 to 40% slope category, the following standard applies:

   "Development within this category shall be restricted to those sites where it can be demonstrated that safety will be maximized while environmental and aesthetic impacts will be minimized [Underline added]. Use of large parcels, variable setbacks, variable building structural techniques (e. g. stepped foundations) shall be expected. Extra erosion control measures may be included as conditions of approval.

   For grading on slopes of 40% or greater, the following standard applies:

   > "This is an excessive slope condition. Pad grading shall not be allowed. Grading for driveways and roads shall be reviewed through the Minor Use Permit application process."

2. Development Code Section 83.08.040(a)(2)(A) provides as follows: "All manufactured cut and fill slopes exceeding 15 feet in height, which will be either exposed to permanent public view or adjacent to environmentally sensitive areas, shall be designed with features characteristic of natural slope so that their ultimate appearance will resemble a natural slope. This shall include slopes along streets and highways, slopes adjacent to parks, schools, open spaces and other public facilities, and other prominent and highly visible slopes." [Underline added] Because the proposed site for the single-family residence is immediately adjacent to and visible from Wildwood Canyon State Park, this grading standard is particularly relevant and must be complied with.

3. Section 83.08.040(c)(1)(A) provides that "cut and fill slopes shall not be created greater than 50 percent (2:1)."

4. Section 83.08.040(c)(1)(F). "Grading operations shall be prohibited during the rainy season, October 15 to April 15, unless adequate erosion control measures are

implemented as approved by the Director to control run-off and retain sediment on-site."

5. Section 83.08.040(c)(1)(G). "Retaining walls associated with lot pads shall not exceed four feet in height, where they will be visible to the public. Where an additional retained portion is necessary due to unusual or extreme conditions (i.e., parcel configuration, steep slope, or road design), the use of terraced retaining structures shall be considered on an individual parcel basis and shall only be allowed where landscaping is provided between the walls to soften the overall appearance. Terraced walls shall be separated by a minimum of three feet with appropriate landscaping. No more than three terraced or stepped walls shall be permitted without obtaining a Variance for more. Terraced retaining walls shall not be used as a typical solution within a development and shall be limited to the minimum required subject to approval of the Director." This standard is also particularly relevant, since the grading plans seem to indicate a retaining wall 20 to 35 feet in height.

6. Section 83.08.040(c)(2)(C). "Building Permits and Grading Permits shall not be issued for construction on any site without an approved location for disposal of runoff waters, (i.e., a drainage channel, public street or alley, or private drainage easement)."

7. Section 83.0 8.040(c)(3)(B). "Where retaining walls are necessary adjacent to roadways or within street setbacks, they shall be limited to three feet in height where they will be visible from the street in order to avoid obstruction of motorists' and pedestrians' field of view and to create an aesthetically pleasing streetscape. No more than four terraced or stepped retaining walls shall be utilized. Walls shall be separated by a minimum of three feet and include appropriate landscaping."

Because Lazer is proposing to build an 18,000 sf home on a 40 acre parcel with slightly more than 5,000 sf of level area, many of these standards come into play and will impact how and what can be built on the proposed site.

5. Soil Erosion and Sediment Control Plans/Permits.

Development Code Section 8.13.080 sets forth rules and regulations relating to preparation of soil erosion and sediment plans to control runoff, etc. Section (a) of that section, relating to applicability states as follows: "The regulations in this Section apply to all areas within Fire Safety (FS) Overlays, except ministerial projects within the FS2 Areas, and ministerial projects in FS3 Areas that are located on parcels that are less than 1 acre and have a slope of less than 10 percent."

The Lazer parcel is located within Fire Safety Overlay Area 1, which means that Development Code Section 82.13.080 is applicable to this project. Accordingly, the soil erosion and sediment control plan must be submitted and approved before the issuance of a grading

permit. When I reviewed the file a week or so ago, it did not include a soil erosion and sediment control plan.

6. Fire safety, access and utilities and height restrictions.

Because Lazer has applied to build an 18,000 sq. ft. home on a site with minimal access within Fire Safety Overlay Area 1, there are significant public safety issues as well as issues relating to access to the property and the ability to provide utilities.

Development Code Section 84.21.030 sets forth infrastructure requirements for construction of single-family residences. Physical access to the site of the home is one of the requirements. Generally, the requirement is physical access on a road which is traversable in a standard (two-wheel drive) sedan. That clearly is not true with respect to the Lazer site. If the general standards are not satisfied, the Director has the discretion to waive the requirements for legal access, conditional upon the owner executing an agreement acknowledging inadequate access and agreeing to provide subsequent owners notice thereof.

A second significant requirement relates to the provision of water. Generally there must be substantiated water well. There is nothing in the Lazer file which indicates the existence of substantiated water well. Pursuant to this Development Code section, hauled water is not allowed without approval from the Division of Environmental Health Services. Again, there is no indication that such approval has been required.

There is no sewer provider in the remote area in which the house is proposed to be built. Accordingly, there must be a septic system or holding tanks. Pursuant to this Development Code section, septic systems are allowed only "in compliance with the local Regional Water Quality Control Board regulations." Again, the file does not contain any proof that a septic system is feasible or that the water quality control board regulations have been complied with.

Development Code Section 84.21.030 also requires "adequate fire flow in compliance with the Uniform Fire Code and with Section 23.018 (Amendments to the Uniform Fire Code) of the County Code." Again, there are no water lines that reach this remote site. Accordingly, water must be provided by a substantiated well if there is one available. Even if there is an available well, it is likely that in order to provide adequate fire flow for a four-story 18,000 sf home it would be necessary to install some sort of a water tank or reservoir at a height above the height of the home. Again, there is no indication that this requirement has been addressed or analyzed.

Lastly, Table 82-9A provides that, within the rural living land-use zone, residential structures cannot exceed 35 feet in height. Calculation of the height restriction is in accordance with Development Code Section 83.02.040. Because only a conceptual grading plan was available for review, we have not yet been able to determine if the proposed four-story structure exceeds the 35 foot height limitation.

7. Applicability of CEQA.

Normally, the California Environmental Quality Act (CEQA) would not apply to construction of a single-family residence. However, it is impermissible under CEQA to segment a single project into component parts and approve a portion of the project as ministerial. In this case, there are concurrent applications for a single-family residence and for a radio tower. Those projects are so intertwined as to constitute a single project. It is not permissible to treat construction of the single-family as the ministerial project, and then treat phase 2 of the project (building a radio tower) as a discretionary project.

In Orinda Ass's v. Board of Supervisors (1986) 182 CA3d 1145, the court held as follows:

> A public agency is not permitted to subdivide a single project into smaller individual sub-projects in order to avoid the responsibility of considering the environmental impact of the project as a whole. "The requirements of CEQA, 'cannot be avoided by chopping up proposed projects into bite-size pieces which, individually considered, might be found to have no significant effect on the environment or to be only ministerial.' [Citation.]" (*Topanga Beach Renters Assn. v. Department of General Services* (1976) 58 Cal.App.3d 188, 195-196, 129 Cal.Rptr. 739.) "[T]he term **1172* 'project,' ... means the *whole of an action* which has a potential for physical impact on the environment, and ... '[t]he term *"project" refers to the underlying activity and not the governmental approval process.*' [Citation.]" (*Natural Resources Defense Council, Inc. v. Arcata Nat. Corp.* (1976) 59 Cal.App.3d 959, 969, 131 Cal.Rptr. 172,emphasis added by the *Natural Resources* court.) "It is, of course, too late to argue for a grudging, miserly reading of CEQA.... [T]he Legislature intended CEQA 'to be interpreted in such manner as to afford the *fullest possible protection* to the environment within the reasonable scope of the statutory language.' (Italics added.) ...

As discussed above, construction of the radio tower and the single-family residence are integrally tied together due to the fact they will be built on the same site, they will share access and provision of utilities including water and electricity. Because they are so closely tied together, they are in essence a single project and it is impermissible under CEQA to treat the grading permit and construction of a single-family residence as a ministerial project, and then treat construction of the radio tower as a discretionary project. Now that Lazer has applied for the single-family residence, a new environmental impact report must be prepared which takes into account the construction of the radio tower as well as construction of the single-family residence, and analyze the environmental impact of the entire integrated project.

Issuance of a grading permit is also oftentimes treated as a ministerial act. However, in some circumstances issuance of a grading permit is discretionary in nature, constitutes a discretionary approval, and thus an environmental impact report must be prepared. In Day v. City of Glendale (1975) 51 Cal 3817, the court held that issuance of a grading permit is discretionary if the agency must not only determine whether technical requirements are met but

also make judgments, such as whether recommendations in the grading plan should be approved, what condition should be imposed, and whether to deny the permit based on geological or flood hazards.

Pursuant to Development Code Chapter 83.08, Hillside Grading Standards, there are numerous discretionary decisions that must be made by the Planning Department. Section 83.08.040 sets forth the hillside grading standards, which require discretionary approvals as to the design of the building pad and revegetation standards. Table 83-8 provides that, with respect to grading in areas of 30% to 40% slope, "development within this category shall be restricted to those sites where it can be demonstrated that safety will be maximized while environmental and aesthetic impact will be minimized." The determination as to whether that standard has been satisfied is discretionary. In Section 83.08.040(c)(2)(C), the Development Code provides that "Building Permits and Grading Permits shall not be issued for construction on any site without an approved location for disposal of runoff waters, (i.e., a drainage channel, public street, alley, or private drainage easement). Again, this is a discretionary approval whereby the application of standards set forth in the Development Code must be applied to a particular project.

In summary, the issuance of a grading permit in this case is not ministerial. Significant portions of the hillside grading ordinance require discretionary approvals, thus making granting of the grading permit a discretionary act which requires an environmental impact report under CEQA.

8. Conclusions.

Based on the foregoing, CPRL's position regarding the combined residential and commercial project is as follows:

a. Lazer does not have a good faith intent to construct an 18,000 sf single family residence. Rather, the single family residence application is a strategy to obtain approval of its radio tower application.
b. The Hillside Grading Standards apply to the proposed single family residence. The application filed by Lazer is incomplete and cannot be acted upon until the submittal requirements of Development Code Chapter 83.08 have been satisfied. In addition, application of the Hillside Grading Standards appear to prevent the grading, retaining walls and construction proposed by Lazer.
c. Development Code requirements relating to fire safety, access, utilities and height restrictions have not been addressed in any way. Neither approval of the single family residence nor the grading permit can be considered until Lazer submits data and documents that show that these requirements have been satisfied.
d. The Radio tower application and single family residence application constitute a single project. Because the project is a combined residential and commercial project, the two applications must be processed together and are subject to a CUP

for the radio tower and a full CEQA review of both projects. The grading plan itself is subject to CEQA due to the discretionary determinations that must be made under the Hillside Grading Standards.

e. To date, no environmental review of the single family residence has been done. Because the environmental review for the radio tower project fails to analyze the environmental impact of construction of the single family residence along with the impacts of the radio tower, the environmental review for the tower is inadequate and must be redone. Because the project has a significantly greater impact on the environment (including grading and even greater visual and aesthetic impacts due to the visibility from the State Park), a full environmental impact report for the combined project must be completed before consideration of the project by the Planning Commission or the Board of Supervisors.

Demand is made that the grading permit for the proposed single family residence not be issued without full compliance with the Development Code and CEQA requirements described above.

In addition, demand is hereby made that CPRL receive notice of all filings, administrative determinations and all other actions relating to the radio tower application and/or the single family residential application.

We at CPRL appreciate your consideration, and reserve all of our rights. Please feel free to call me with any questions or comments you may have.

Very truly yours,

MIRAU, EDWARDS, CANNON,
LEWIN & TOOKE

By: John K. Mirau, Esq.

Cc w/out Encl Supervisor Neil Derry
Mayor Dick Riddell
Mr. Bill Collazo
Mr. Kevin White
Mr. David Myers, The Wildlands Conservancy
Mr. Frank Sissons, Yucaipa Valley Conservancy

Yucaipa Valley Conservancy

P. O. Box 102 Yucaipa, Calif. 92399-0102
Phone (909) 790-2226

June 12, 2010

Mr. Kevin White, Project Planner
San Bernardino County Planning Division
385 N. Arrowhead Ave.
San Bernardino, CA 92415-0182

Re: Project Number #P 201 0002 15/CF
Assessor Parcel #0325-011019

The San Bernardino County Plan (Open Space Element) specifically identifies area 47 (Pisgah Peak), and more specifically Section 3 of R1W T25, as an area that should be protected and habitat values maintained.

The proposed antenna tower is directly above Wildwood Canyon State Park and will be clearly visible from approximately two-thirds of the park. The area is unique in that it has seen no development, and it supports deer, bear and many other forms of wildlife.

The Yucaipa Valley Conservancy, the Crafton Hills Open Space Conservancy, and a vast majority of the citizens of Yucaipa (and others who use this area) oppose this project. This will be detrimental to our existing open space and is contrary to good planning and the San Bernardino County General Plan.

Sincerely,

F. O. Sissons, Director
Yucaipa Valley Conservancy

June 14, 2010

Kevin White, Project Planner
Land Use Services Department/Planning
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415 - 0182

RE: Lazer Broadcasting, Inc. (APN: 0325-011-19)
Conditional Use Permit and Major Variance (P201000215/CF)

Dear Mr. White:

This is in response to the Project Notice for Case Number P201000215/CF. Please be advised that the City of Yucaipa appreciates the opportunity to review and comment on this project.

While the level of information that was provided in the Project Notice was beneficial in our efforts to evaluate the development of this FM broadcasting tower and its ancillary facilities, the City still has the same concerns that were submitted for the company's previous application. For this reason, we continue to believe that a fair argument can be made that this project will result in a significant and unavoidable adverse impact on the scenic resources of Wildwood Canyon State Park. Although the visual impact analysis prepared by David Moss & Associates indicates that the tower height has been reduced to 43 feet, as noted previously, once electrical service has been established at this remote site, nothing in the current project proposal will preclude the development of a taller tower, or additional antennae towers in the future.

The City of Yucaipa continues to support the position of the Friends of Wildwood Canyon State Park and the Yucaipa Conservancy regarding this proposal, as this facility would be inconsistent with their long range plans for this area. Furthermore, we believe that the cumulative impact associated with larger and/or additional towers would have a significant effect on the relatively pristine scenic resources of this area, and we would strongly encourage the County to require that an Environmental Impact Report be prepared to fully evaluate these potential impacts, as well as alternative tower locations. All available evidence indicates that the proposed tower would have a substantial adverse effect on an undeveloped scenic vista, and that it would substantially degrade the existing visual quality of the site and its surroundings.

Sincerely,

CITY OF YUCAIPA
John McMains
JOHN McMAINS, Director
Community Development Department

cc: Ray Casey, City Manager

City of Yucaipa
34272 Yucaipa Boulevard, Yucaipa, CA 92399-9950
909/797-2489 ◆ FAX 909/797-6390228 ◆ e-mail: city@yucaipa.org

THE WILDLANDS CONSERVANCY

June 18, 2010

San Bernardino County Land Use Services Department
Attn: Kevin White, Senior Associate Planner
385 N. Arrowhead Avenue, Third Floor
San Bernardino, CA 92415-0110

Re: Project # P20100021

Dear San Bernardino Planning Commissioners:

Wildwood State Park is again threatened by a laser radio tower from Lazer Broadcast Corporation similar to the way our Oak Glen Preserve was threatened by the 500 kilovolt steal lattice towers proposed by Los Angeles Department of Water and Power. This is such a unique community where over 350,000 visitors come each year and more than 40,000 visitors from all over the United States have signed postcards opposing this project because of the visual impact on Oak Glen.

We support the continued opposition to this radio tower from the City of Yucaipa and the Yucaipa Conservancy. We ask the Planning Commissioners to remember the position the San Bernardino County Supervisors have taken to oppose the Green Path North Project and their unanimous vote to deny this previous radio tower project in the same location. State Parks protect remnants of California's most significant and treasured landscapes and public planning decisions should seek to preserve their scenic beauty.

Sincerely,

Dana Rochat

Dana Rochat
Projects Coordinator

June 14, 2010

San Bernardino County Land Use Services Department
Planning Division
385 North Arrowhead Avenue, First Floor
San Bernardino, California 992415-0182

Re: Project Number P201000215/CF, Lazer Broadcasting Corporation

I am the owner of the property designated as APN 0325-022-0-000 in San Bernardino County. I am in receipt of your notification of the development proposal by Lazer Broadcasting Corporation to erect a 43-foot FM radio broadcasting tower and equipment shelter on the nearby property designated as APN 0325-011-19.

This is the second attempt by Lazer Broadcasting Corporation to obtain approval by the Planning Division for this project. I want to register my strong opposition to this proposal. The radio tower would destroy the ascetic balance of the area, including my property. The site is near a state park, and would negatively affect the views to which the public is entitled in their use of that park. In addition,the potential radiation from the tower would be a mandated disclosure to any purchaser of my property, and would be expected to reduce the property value significantly, and it's future potential use.

I request that this project again be rejected.

Sincerely,

Amram Yahalom

6055 Maury av
Woodland Hills CA 91367

6/15/2010

June 17, 2010

County of San Bernardino
Land Use Services Department, Current Planning Division
Attn: Kevin White, Senior Associate Planner
385 N. Arrowhead Avenue, 3rd Floor
San Bernardino, CA 92415-0110

Re: Lazer Broadcast Corp: CUP/Major Variance–Radio Broadcast Tower
Assessor Parcel Number: 0325-011-19

Dear Mr. White and Supervisor Derry:

We OPPOSE the Lazer proposal to construct a 43 foot tall radio broadcast tower in the Wildwood Canyon State Park and Pisgah Peak areas and we DEMAND that a full Environmental Impact Report be prepared.

In 2009, Lazer proposed to build a radio tower on exactly the same parcel of land on which this radio tower is proposed. The County Board of Supervisors denied the 2009 radio tower application and made the following findings that continue to apply to this substantially similar radio tower application:

- Construction of the radio tower will have a negative impact upon the scenic vistas from Wildwood Canyon State Park
- No feasible mitigation measures have been identified that would allow the radio tower to be constructed without disrupting the scenic views from the park
- Neither a Conditional Use Permit nor a Major Variance can be granted because the radio is inconsistent with the County General Plan and the Oak Glen Community Plan, including the goal to provide a pristine wilderness experience to park visitors

The current application for construction of a radio tower is substantially similar to the 2009 radio tower application that was denied by the Board of Supervisors. Although the tower has been reduced to 43 feet, the base of the tower has been moved 60 feet higher up the slope so that the tower will have more visibility from Wildwood Canyon State Park than the 2009 radio tower application that was denied. All of the same community leaders and organizations that opposed the 2009 tower continue to oppose this slightly modified tower.

We are especially CONCERNED with the following environmental issues that need complete and clear analysis in an Environmental Impact Report that are not adequately assessed and mitigated.

- Aesthetic/Land Use Impacts to this pristine open space area
- Biological impacts to sensitive vegetation, migratory birds and species of concern that inhabit the area
- Recreational impacts including view impacts from surrounding Wildwood Canyon State Park and San Bernardino Mountains
- Precedent setting, which could result in even more broadcast towers being located in this area (this would already be the second)

This radio tower has been denied in 2009. There is no basis for approving the radio tower today. Consideration of this project should not proceed forward without a full EIR. When considered, the tower project should be denied due to inconsistency with the General Plan and Oak Glen Community Plan and because it will cause significant, unavoidable adverse impacts to the environment.

Thank you,

CITY OF YUCAIPA - TRAILS & OPEN SPACE COMMITTEE

By: DOTTIE PETER - CHAIR

Address: _____

E-mail: dottie@cybertime.net

___ If checked, please add my name to County's distribution list to receive notices of hearings and additional information regarding the proposed project.

June 15, 2010

County of San Bernardino
Land Use Services Department, Current Planning Division
Attn: Kevin White, Senior Associate Planner
385 N. Arrowhead Avenue, 3rd Floor
San Bernardino, CA 92415-0110

Re: Lazer Broadcast Corp: CUP, Major Variance—Radio Broadcast Tower
Assessor Parcel Number: 0325-011-19

Dear Mr. White and Supervisor Derry:

I OPPOSE the Lazer proposal to construct a 43 foot tall radio broadcast tower in the Wildwood Canyon State Park and Pisgah Peak areas and I DEMAND that a full Environmental Impact Report be prepared.

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- No feasible mitigation measures have been identified that would allow the radio tower to be constructed without disrupting the scenic views from the park
- Neither a Conditional Use Permit nor a Major Variance can be granted because the radio tower is inconsistent with the County General Plan and the Oak Glen Community Plan, including the goal to provide a pristine wilderness experience to park visitors

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This radio tower has been denied in 2009. There is no basis for approving the radio tower today. Consideration of this project should not proceed forward without a full EIR. When considered, the tower project should be denied due to inconsistency with the General Plan and Oak Glen Community Plan and because it will cause significant, unavoidable adverse impacts to the environment.

Thank you,

Dick Riddell

Name: DICK RIDDELL (YUCAIPA MAYOR)

HOME Address: 37125 OAK VIEW ROAD, YUCAIPA, CA

Email: DRIDDELL@YUCAIPA.ORG

___ If checked, please add my name to County's distribution list to receive notices of hearings and additional information regarding the proposed project.

June 15, 2010

County of San Bernardino
Land Use Services Department, Current Planning Division
Attn: Kevin White, Senior Associate Planner
385 N. Arrowhead Avenue, 3rd Floor
San Bernardino, CA 92415-0110

Re: Lazer Broadcast Corp: CUP/Major Variance—Radio Broadcast Tower
Assessor Parcel Number: 0325-011-19

Dear Mr. White and Supervisor Derry:

I OPPOSE the Lazer proposal to construct a 43 foot tall radio broadcast tower in the Wildwood Canyon State Park and Pisgah Peak areas and I DEMAND that a full Environmental Impact Report be prepared.

In 2009, Lazer proposed to build a radio tower on exactly the same parcel of land on which this radio tower is proposed. The County Board of Supervisors denied the 2009 radio tower application and made the following findings that continue to apply to this substantially similar radio tower application:

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- Neither a Conditional Use Permit nor a Major Variance can be granted because the radio tower is inconsistent with the County General Plan and the Oak Glen Community Plan, including the goal to provide a pristine wilderness experience to park visitors

The current application for construction of a radio tower is substantially similar to the 2009 radio tower application that was denied the Board of Supervisors. Although the tower has been reduced to 43 feet, the base of the tower has been moved 60 feet higher up the slope so that the tower will have more visibility from Wildwood Canyon State Park than the 2009 radio tower application that was denied. All of the same community leaders and organizations that opposed the 2009 tower continue to oppose this slightly modified tower.

I am especially CONCERNED with the following environmental issues that need complete and clear analysis in an Environmental Impact Report that are not adequately assessed and mitigated:

- Aesthetic/Land Use Impacts to this pristine open space area
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- Precedent setting, which could result in even more broadcast towers being located in this area (this would already be the second)

This radio tower has been denied in 2009. There is no basis for approving the radio tower today. Consideration of this project should not proceed forward without a full EIR. When considered, the tower project should be denied due to inconsistency with the General Plan and Oak Glen Community Plan and because it will cause significant, unavoidable adverse impacts to the environment.

Thank you,

Karen Pope

Name: Karen Pope (Cotton Hills Open Space Conservancy) Executive Director

Address: P.O. Box 1425 Yucaipa, CA 92399

Email: Lpope66987@aol.com

✓ If checked, please add my name to County's distribution list to receive notices of hearings and additional information regarding the proposed project.

- Precedent setting, which could result in even more broadcast towers being located in this area (this would already be the second)

This radio tower has been denied in 2009. There is no basis for approving the radio tower today. Consideration of this project should not proceed forward without a full EIR. When considered, the tower project should be denied due to inconsistency with the General Plan and Oak Glen Community Plan and because it will cause significant, unavoidable adverse impacts to the environment.

Thank you,

Ingrid Lagerlof

Name: Ingrid Lagerlof

Address: 39841 Eureka Ave, Yucaipa, CA 92399

Email: ingrid.lagerlof@verizon.net

X If checked, please add my name to County's distribution list to receive notices of hearings and additional information regarding the proposed project.

JOHN K. MIRAU*
MARK C. EDWARDS
ROBERT W. CANNON†
MICHAEL J. LEWIN
WILLIAM P. TOOKE

* Certified Specialist, Taxation Law, The State Bar of California Board of Legal Specialization
† Certified Specialist, Estate Planning, Trust and Probate Law, The State Bar of California Board of Legal Specialization

LAW OFFICES OF
MIRAU, EDWARDS, CANNON, LEWIN & TOOKE
A PROFESSIONAL CORPORATION

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Suite "C"
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Redlands, CA 92375
909-793-0200
Fax 793-0790

June 18, 2010

Mr. Kevin White
San Bernardino County Land Use Services Department
Planning Division
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415-0182

RE: Project No. P201000215/CF - Radio Tower Application
Lazer Parcel - APN 0325-011-19-0000

Dear Mr. White:

This firm represents the Citizens for the Preservation of Rural Living ("CPRL") and on its behalf submits the following comments on the above-referenced project. CPRL is a public interest association that seeks to ensure that the open space and natural wilderness values of the Pisgah Peak and Wildwood Canyon State Park areas are preserved. We have reviewed the project application submitted by Lazer Broadcasting, Inc., which proposes the construction of a 43-foot tall radio tower ("Project") on an undeveloped 40-acre parcel of land in the San Bernardino Mountains.

In 2007, Lazer proposed a substantially similar project which was denied by the County Board of Supervisors. The Lazer application fails to reference that denial, and in fact is completely misleading as to the findings made by the County Board of Supervisors in denying the project. On page 5 of the Land Use Application Questionnaire, Lazer includes the following statement:

> "A substantial record has previously been created by County Planning Staff, indicating that there were no unmitigated impacts for an 80-foot tall tower and ancillary backup power generator and fuel tank, approved by the County Planning Commission on 11/06/08."

This statement is false and misleading. Both the recommendations of the County Planning Staff, as well as the findings of the County Planning Commission, were preliminary in nature subject to

the final determination made by the Board of Supervisors. The Board of Supervisors made that final determination, and concluded that the project had significant impacts on the environment and that the requirements for granting of the variance and a conditional use permit were not satisfied. It is improper and unethical for Lazer to file an application that cites the recommendations of the Planning Staff and the Planning Commission when Lazer knows that the final determination by the Board of Supervisors was to deny the project because it failed to satisfy the standards for granting of a variance or a conditional use permit. All of the recommendations of the Planning Staff and the Planning commission supportive of the prior radio tower application were rejected by the Board of Supervisors and cannot be cited as precedent for this planning application. That would be the equivalent of citing a lower court decision as precedent in a case, knowing that the Court of Appeals had reversed that decision and found exactly the opposite.

In addition, as detailed below, the application fails to include information required by applicable County regulations, is missing information necessary for the County to be able to assess the potential impacts of the Project, and it is clear that several potential significant environmental impacts would be caused by the Project requiring that it be analyzed in an environmental impact report ("EIR") pursuant to the California Environmental Quality Act ("CEQA").

In 2007-09, CPRL was one of the principal opponents to the tower project then proposed by Lazer. Despite this, when notices of this project were sent out, CPRL did not receive a notice that a new application had been filed. We have since obtained a copy of the notice which states that the deadline for submitting comments that "will be included in the final project action" is June 18, 2010. A careful review of the notice indicates that it has no date on it, but it was sent out on approximately June 6 to June 8. This provided somewhere between 10 and 12 days for the general public to find out that Lazer submitted a revised application, to analyze the application and to submit letters of opposition. That timeframe is completely inadequate, especially considering the fact that hundreds of letters of opposition were mailed in connection with the prior Lazer application for a radio tower. Establishing an approximate 10 to 12 day deadline for submitting comments is totally in inappropriate considering the large community opposition to the prior project that was substantially similar to this application. There is no basis nor is there a need for establishing such a short deadline, other than to discourage public participation and comment on the project.

Request is made that the June 18 date be extended for 45 days so that members of the public who submitted opposition letters to the prior project have an opportunity to find out that there is a new project, analyze the project, and submit letters which will be included within the final project action. Such an extension is particularly necessary in light of the fact that the project has been filed at the beginning of summer, when many members of the community who oppose the project last time will be on vacation.

Please enter these comments in the official record for this Project, and keep us notified of any proceedings related to the Project's consideration by the County. Please note that these comments are preliminary, given the very limited amount of time provided by the County for this

initial review of the Project application. Further comments will be provided when we have had an opportunity to review the additional documentation related to the Project application.

In addition to entering these comments in the official record for the project, request is made that all letters of opposition, studies, and other materials relating to opposition of the 2007-09 Lazer application be included in the administrative record for this Project application. The basis for this request is that the current 2010 Project is substantially similar to the 2007-09 Lazer application. Due to the similarity, many of the comments will be the same. There is no reason to require that all of the voluminous materials submitted in opposition to the 2007-09 Lazer application be resubmitted. Request is made that the County Planning Staff respond in writing to this request so that CPRL knows whether or not it must resubmit all of the materials that it submitted in connection with the 2007-09 Lazer application. Regardless of County's response to this request, all of the letters, studies, staff reports, responses, as well as the original 2007-09 Lazer application (and all modifications and supplements) are hereby incorporated herein by this reference.

A. Project Application Is Inaccurate and Misleading

The Project application for the radio tower which is substantially similar to the 2007-09 Lazer application for a radio tower, Lazer presents the project as if the county had previously made final findings supportive of its application. Lazer makes reference to staff reports with findings supportive of the project, and further makes reference to Planning Commission findings supportive of the project. These references are misleading, inaccurate and are intended to obfuscate the fact that exactly the opposite happened, i.e. the project was denied. All of the recommendations by county planning staff, county fire staff and the Planning Commission were advisory in nature. None of those determinations were final; all of them were simply recommendations to the Board of Supervisors which exercise the final authority to make determinations of findings of fact either supportive of or in denial of the project.

The application further states, on Page 2, that the proposed development area has a "400 sq. ft. project area". This statement is blatantly false because it only includes the footprint of the base of the radio tower and the equipment building. The project also includes 6,700 feet of underground of electrical wires to the site as well as a 730 foot trench bringing power from Pisgah Peak Road to the base of the tower. Assuming that the undergrounding of utilities and the trench to the base of the tower is 2 feet wide, the project in fact is approximately 15,000 square feet. This means that the actual footprint of the project is approximately 37.5 times larger than the footprint claimed in the application.

Section 4 of the application attachment (Aection 4A) states that Lazer is willing to deed restrict or convey 95% of the site for purposes of open space "via a mechanism satisfactory to the State Parks Department, The Wildlands Conservancy, and the Friends of Wildwood Canyon". The implication is that these organizations have been consulted and are supportive of the project. In fact, both The Wildlands Conservancy and the Friends of Wildwood Canyon oppose the project. Contrary to the statements in the application that the project is consistent with the General Plan and Oak Plan Community Plan goals for Wildwood Caynon State Park, those organizations, as well as the Yucaipa Valley Conservancy and the Citizens for Preservation

of Rural Living, continue to assert that the radio tower will have a substantial adverse impact on the park due to the significant adverse impact on the aesthetics and views from the park and an adverse environmental impact as specified below.

In addition, in denying the 2007-09 Lazer application, the Board of Supervisors specifically found that the tower project was not consistent with the goals, maps, policies and standards of the General Plan and Oak Glenn Community Plan. In connection with denial of the 2007-09 Lazer application, the Board of Supervisors specifically found that the tower "would negatively impact on the preservation of the natural conditions of the open space corridor and the maintenance of the scenic vistas from Wildwood Canyon State Park."

B. CUP and Variance Findings Cannot be Made; Prior Denial is Res Judicata on Findings Necessary for Granting a CUP or Variance.

1. <u>Findings in denial of CUP.</u>

Findings required for the County to approve a CUP and Major Variance include, among others, that the Project be found to be consistent with the goals, policies and standards of the County General Plan and applicable Community Plan. *See* Development Code, Title 8, §§ 83.02.040(a)(4), 85.17.060(a)(4). As stated above, Lazer processed a substantially similar radio tower project in 2007-09. In denying that project, the Board of Supervisors made adverse findings relating to the requirements for granting a conditional use permit or variance. Those findings include the following:

A. The site for the proposed use is inadequate in terms of open space because the project site is completely visible from portions of The Wildwood Canyon State Part.
B. The site for the proposed use does not have adequate access to the project site because Pisgah Peak Road is a very narrow, unpaved and contains grades that are greater than 14%. Therefore, the project does not comply with the access requirements of the Fire Safety Overlay.
C. The proposed use will have a substantial adverse effect on the abutting properties and the allowed uses of the abutting properties since the proposed radio broadcast tower is located on property adjacent to Wildwood Canyon State Park. The radio broadcast facility would have a negative visual impact, because the tower can be seen from several locations within the park. The facility is also not compatible with existing and future residential development on other properties adjacent to the project site.
D. The proposed use and manner of development are not consistent with the goals, maps, policies and standards of the General Plan and Oak Glen Community Plan. More specifically, the findings found that the project is inconsistent with General Plan, Open Space Element, Goal LU2 to improve and preserve open space corridors throughout the mountain regions; Oak Glen Community Plan, Goal OG/C 1 to preserve the unique environmental features of Oak Glen including native wildlife, vegetation and scenic vistas; Policy OG/C 1.1 to recognize Pisgah Peak as an important open space area that provides for wildlife movement and other important linkage values.

E. There is currently a lack of adequate supporting infrastructure to accommodate the proposed development.
F. Proposed conditions of approval will not adequately protect the general welfare of the public because no feasible mitigation measures have been identified that would allow the project to be developed without disrupting the scenic views from Wildwood Canyon State Park and preservation of the open space corridor. [Underlining added]

2. Findings in denial of variance.

In 2009, the Board of Supervisors also made adverse findings relating to requirements for granting of a variance, including the following:

A. The granting of the Variance to reduce the fuel modification area from 100 feet to 30 feet may be materially detrimental to other properties or land uses in the area.
B. There are no exceptional or extraordinary circumstances or conditions applicable to the subject property or to the intended use that do not apply to other properties in the same vicinity and land-use district because other properties in the vicinity have similar restraints based on their ingress and egress, topography and remote location.
C. The strict application of the land-use zoning district does not deprive the subject property of privileges enjoyed by other properties in the vicinity or in the same land use zoning district in that the property owner may use the site for rural residential purposes.
D. The granting of the Variance is not compatible with the maps, objectives, policies, programs and general land uses specified in the General Plan because the variance would allow for the reduction of the Fire Safety Overlay Development Standards in a high fire hazard area.

3. Prior Findings of Board of Supervisors is Binding; Res Judicata.

The current Project is substantially similar as the 2007-09 Lazer application for which the above findings were made. The project is proposed on exactly the same parcel for which the above findings were made. This tower is 43 feet in height while the 2007-09 Lazer application was 80 feet in height, but the base of the newly proposed tower is 60 feet higher up the mountain so the visibility is greater than the visibility of the previously proposed tower. Additional changes include the 500 gallon fill tank has been dropped from the project, the equipment shelter has been decreased from 250 square feet to 100 square feet and the number of parking spaces has been decreased from two parking spaces to one parking space.

None of these changes are significant, and none of them have any relevance whatsoever to the above findings. The project is still located on exactly the same lot, suffers from the same access problems, would still be visible from Wildwood Canyon State Park (as admitted in the application), and is inconsistent with the goals, maps, policies and standards of the General Plan any Oak Glen Community Plan.

The California courts have recognized the legal principal of res judicata (the legal doctrine meant to bar or preclude continued litigation of such cases between the same parties) in

administrative proceedings in which the decision making body is acting in a judicial or quasi judicial capacity. In City of Lodi v. Randtron, 118 Cal. App. 4th 337 (2004), the court held as follows:

> "Collateral estoppel, which is an aspect of res judicata, has been applied to give preclusive effect to an administrative decision if the issue was actually litigated in an administrative proceeding by an agency acting in its judicial capacity." See also, Penn-Co. v. Board of Supervisors (1984) 158 Cal. App. 3d 1072.

The decision to grant a conditional use permit or a variance is a quasi-judicial decision in which the administrative decision-making body plays a judicial like role in applying legal standards set forth in the development code to the specific facts of the case. The issue of whether or not the requirements for the granting of a variance and a conditional use permit were fully argued and "litigated" as part of the hearing held by the Board of Supervisors in connection with the appeal of the Planning Commission approval of the 2007-09 Lazer application.

Section 86.06.080 of the County Development Code provides that, after 12 months following the date of a disapproval with prejudice, the applicant can refile the application for the same project. However, that Development Code section does not state that the new application will be heard on a de novo basis. Rather, to the extent that the project is identical to the prior filing, the findings of fact previously made by the Board of Supervisors are res judicata (meaning that they are binding on the applicant) because the key findings relating to the requirements to the granting of a variance and a conditional use permit are unchanged by the minor changes in the new application. Accordingly, there is already a binding determination that neither a variance nor a conditional use permit can be granted for the 2010 Project.

4. **Tower Project will have significant negative impact on Open Space and Conservation Resources associated with Pisgah Peak and Wildwood Canyon State Park.**

The Project is within the Pisgah Peak Open Space Policy Area of the County General Plan's Open Space Element. Among other things, this area is so designated in order to protect and maintain the natural open space for scenic resources and habitat values. *See* http://www.co.san-bernardino.ca.us/landuseservices/General%20Plan%20Update/Mapping/5b-Open%20Space%20Overlay%20Maps/Default.asp.

As discussed in more detail below, the proposed Project would have a significant negative impact on the open space and conservation resources associated with Pisgah Peak and the Wildwood Canyon State Park. The Project is directly adjacent to the Park and permitting construction of this type would be inconsistent with the policies of both minimizing impacts to these corridors and supporting the expansion of the Park. Allowing a proliferation of high profile towers such as proposed by the Project will create a substantial detrimental impact on the aesthetics and open space values of this area. Because the Project is inconsistent with these policies, the findings required to approve a CUP and Major Variance will not be able to be made for the Project.

5. **An EIR Must Be Prepared.**

CEQA requires the County to consider the environmental impacts of the Project before any approvals are granted for the Project. Among the purposes of CEQA are (1) informing the government decision makers and the public about the potential environmental impacts of proposed activities, (2) identifying ways to avoid or reduce environmental damage from such activities, (3) preventing environmental damage by requiring changes in projects, either by adoption of mitigation measures or alternatives, and (4) disclosure to the public of why a project is approved if the project would have significant effects on the environment. Cal. Pub. Res. Code §§ 21000, 21001.

To accomplish these purposes, CEQA requires agencies such as the County to first conduct an initial study of non-exempt projects to determine if the project may have a significant effect on the environment and second, depending on the results of the initial study, prepare either a negative declaration ("ND"), mitigated negative declaration ("MND") or EIR. *Id.* §§ 21080.1, 21080.3, 21002.1, 21061, 21064, 21064.5, 21080; CEQA Guidelines §§ 15063, 15065; *Gentry v. City Murrieta* (1995) 36 Cal.App.4th 1359, 1371-1372. Preparation of an EIR is required whenever it can be fairly argued that a project "***may*** have a significant effect on the environment." Pub. Res. Code §§ 21000(a), 21151 (emphasis added); *No Oil v. County of Los Angeles* (1974) 13 Cal.3d 68, 85. CEQA sets a low threshold for requiring preparation of an EIR. *Ocean View Estates Homeowners Ass'n, Inc. v. Montecito Water District* (2004) 116 Cal.App.4th 396, 399-400. Thus, preparation of a ND or a MND is only permitted if there is no substantial evidence of a "fair argument" that the project may adversely affect the environment. CEQA Guidelines § 15063(b)(2); *Quail Botanical Gardens v. City of Encinitas* (1994) 29 Cal.App.4th 1597, 1602.

We have been informed by County staff that an initial study has not yet been prepared for the Project and thus no decision has been made as to what type of CEQA document the County plans to prepare for the Project. As detailed below, even with just the limited information currently available about the Project, however, it is clear that there is at least a fair argument that the Project may have an adverse environmental impact and thus an EIR should be prepared.

The issue of whether there is a "fair argument" that the project may adversely affect the environment must be determined in light of the findings previously made by the Board of Supervisors in connection with the 2007-09 Lazer application. The following findings of fact were made relating to the project's impact on the environment:

1. "The radio broadcast facility would have a negative visual impact, because the tower can be seen from several locations within the Wildwood Canyon State Park."
2. "Development of the project will have a negative impact upon the environmental features of this portion of Oak Glen. The project would specifically affect scenic vistas from Wildwood Canyon State Park and reduce the natural vegetation on-site."

3. "Development of the project would negatively impact on the preservation of the natural conditions of the open space corridor and the maintenance of the scenic vistas from Wildwood Canyon State Park."
4. "Proposed conditions of approval will not adequately protect the general welfare of the public because no feasible mitigation measures have been identified that would allow the project to be developed without disrupting the scenic views from Wildwood Canyon State Park and preservation of the open space corridor."

These findings of fact continue to be applicable to the 2010 radio tower application. The only difference made with respect to the tower is that it is 43 feet in height rather than 80 feet in height; however, the base of the radio tower is now located 60 feet higher up the mountain so that the top of the tower is similar to where it was when the tower was 80 feet in height. Accordingly, the tower remains visible from many areas within the park. Applicant itself admits (page 7 of Visual Study and Photo simulations submitted by applicant) that the 43 foot tower will be visible from the following locations:

A. View to northeast from southeast corner of Project parcel;
B. Southeast view from unmarked footpath in WCSP;
C. View from WCSP trail;
D. View east from WCSP Main Road (Pisgah Peak Road);
E. View from Poplar Avenue, just west of Mesa Verde Drive.

The admission set forth in applicants Visual Study and Photosimulations relate only to the specific viewpoints that applicant chose to include within its study. In testimony before the Planning Commission and Board of Supervisor in connection with the hearing for the 2007-09 Lazer application, Frank Sissons (Yucaipa Valley Conservancy) testified that the proposed 80 foot tower was visible from approximately 65% of the areas within the park. Although this tower is shorter, the top of the tower is approximately at the same location as the top of the 80 foot tower, so the visibility within the park will be similar to the 80 foot tower.

In summary, the findings made in connection with the 2007-09 Lazer application are applicable to the 2010 Project. This means that findings have already been made that the project will have significant adverse impacts to the environment. Accordingly, the determination made with respect to the 2007-09 Lazer application that a full environmental impact report was not necessary cannot be made in connection with the 2010 Project.

6. **Aesthetic/Land Use Impacts.**

On page 4 of Land Use Application Questionnaire (question 9) it states that the Project will not "change scenic views from existing residential areas, public lands or roads." There is simply no support for this statement. As stated above, page 7 of the Visual Study and Photosimulations admits that the 43 foot tower will be visible from five areas including public lands (Wildwood Canyon State Park) and from a nearby residential area.

The application fails to acknowledge that Wildwood Canyon State Park borders the Project site and that substantial other areas of publicly owed lands are nearby. **Exhibit 1**

attached hereto shows some of the nearby parcels that are publicly owned or likely to become publicly owned in the future. The Project area is also a popular hiking and mountain biking area. Indeed, Pisgah Peak Road is well known as a mountain biking trail.

The proposed 43-foot lattice tower just off Pisgah Peak Road will be highly visible from the Pisgah Peak Road and from areas within Wildwood Canyon State Park. As noted in the Final Environmental Impact Report for the County of San Bernardino's General Plan Program (SCH #2005101038), dated February of 2007 ("FEIR"), vast undeveloped areas and undisturbed scenic vistas within the County provide a significant scenic resource as they contrast against the developed areas. FEIR at IV-5. In addition, as noted above, the County has identified as areas of primary scenic importance, ridge tops within mountain communities, and within Oak Glen, the important open space areas of Pisgah Peak and Wildwood Canyon State Park. FEIR at IV-4; Oak Glen Community Plan Policy OG/CO1.1; General Plan Open Space Element, Policy Area 47. The proposed radio tower will pose a significant adverse impact to scenic vistas from the eastern portion of the Wildwood Canyon State Park. The Park has actively maintained trails with scenic vistas.

This significant adverse impact is likely to become more severe, as The Wildlands Conservancy and the Yucaipa Valley Conservancy continue to work to purchase additional property to expand the Park from its current size of approximately 850 acres to 3,500 acres or more. The County is committed to supporting and actively pursuing the expansion of Wildwood Canyon State Park, including cooperation with open space community groups such as The Wildlands Conservancy and the Yucaipa Valley Conservancy. *See* Oak Glen Community Plan Policy OG/OS 1.2. The approval of structures such as the radio tower in the middle of this wilderness open space area could harm these efforts and is clearly inconsistent with County policy.

The proposed Project would cause a significant adverse impact to scenic vistas and views from these areas. The introduction of these structures would also be inconsistent and incompatible with the aesthetic, open space and wilderness values of the area. Thus, the Project has the potential to cause a significant adverse impact as it will "have a substantial adverse effect on a scenic vista" and will "substantially degrade the existing visual quality of the site and its surroundings." CEQA Guidelines, Appendix G (question I(a), (c)); *Ocean View*, 116 Cal.App.4th at 402 (requiring EIR due to potential averse aesthetic impacts). The Project would also be inconsistent with applicable County land use policies and thus would result in significant impacts related to land use as well. Because of these significant impacts, an EIR must be prepared to analyze aesthetic and land use impacts, and develop appropriate mitigation measures.

7. **Biological Impacts.**

On Page 4 of the Application Attachment, the applicant notes the potential for the Project to impact songbird and raptor mortality, but contends that no adverse impacts would occur from the proposed tower. The applicant's conclusion in this regard appears to be based on a number of personal conversations four to seven years ago, and not any site specific study or survey. This is not sufficient evidence upon which to make a determination that significant impacts with respect to avian mortality would not occur.

There is general agreement and well documented evidence that communications towers result in dramatically increased avian mortality rates. *See, e.g.*, Travis Longcore, Ph.D. et al., *Scientific Basis to Establish Policy Regulating Communications Towers to Protect Migratory Birds*, Land Protection Partners (2005), attached hereto as **Exhibit 2**. Studies show that for the ten avian species killed most frequently at communication towers, total annual mortality is estimated to be from 490,000 to 4.9 million for each species. The avian mortality crisis is compounded by the growing impacts of communication towers, such as the proposed tower, whose construction is occurring at an exponential rate.

In addition, the concerns of avian mortality at the proposed tower are heightened by a number of factors. There is already a 199-foot radio tower located about a mile away along Pisgah Peak Road, which coupled with the proposed radio tower, will put the migratory birds and raptors at a heightened risk of tower strikes. Guidelines to reduce avian mortality suggest that towers should be designed to accommodate additional antennas, to reduce the number of future towers. *See, e.g.*, Albert M. Manville, II, Ph.D., *The ABCs of Avoiding Bird Collisions at Communication Towers: The Next Steps*, U.S. Fish and Wildlife Service, Division of Migratory Bird Management (2000), attached hereto as **Exhibit 3**. Particularly with a radio tower in such close proximity, the County must require the applicant to fully evaluate this option prior to construction of the proposed tower.

The topography of the San Bernardino Mountains also poses an increased risk of avian mortality. A recent multi-modal research study in New Hampshire revealed the effect of topography of the Appalachian Mountains on migratory birds, finding exceptional numbers of birds flying at low heights over mountain ridges. As a result, placement of the proposed tower in this mountainous area is likely to result in increased risk of bird mortality and injury from tower strikes. *See* **Exhibit 2**. The applicant contends it has strategically placed the tower in a "bowl" on the site. Although it is clear from pictures and site plans submitted by applicant that the proposed tower is on the side of a ridge, not in a bowl, if applicants claim that the tower is located in a bowl, this bowl would most likely collect fog, which also enhances the risk of avian mortality.

Moreover, even if permitted to construct the proposed radio tower, applicants must in an EIR evaluate appropriate mitigation measures to reduce impacts to migratory birds. For example, applicants must analyze the appropriate time to construct the proposed radio tower, so as to avoid construction during months in which migratory birds are nesting. In addition, applicants should consult the California Department of Fish and Game ("CDFG") and the U.S. Fish and Wildlife Service ("USFWS") regarding the proposed tower design, as well as monitoring measures that could be put in place to track the tower's impacts to migratory birds and raptors. *See* **Exhibit 2**.

While the Land Use Application Questionnaire (question 23) indicates that there are no known sensitive or protected plant or animal species on site, the Biologist Letter Report attached to the application is nothing other than a recap of prior biological information submitted in connection with the 2007-09 Lazer application. In his letter of April 14, 2010, biologist Ty M. Garrison states that "the fieldwork was conducted in 2008 prior to this proposal for a substantially larger project previously proposed on the same property." This statement is false.

First, the 2007-09 tower application is substantially similar. The fact that the tower is shorter does not mean that the 2007-09 tower project was "substantially larger". In addition, the statement that the fieldwork was done in 2008 is blatantly false. Upon reviewing the previously submitted biological letters, it becomes clear that the biologist visited the site on June 2, 2006 to determine if there were any significant biological constraints to development in connection to the access road or the Project parcel. The biologist visited the site three more times (in December of 2006, February of 2007, and August of 2007) but in each of those cases the visit was for limited purposes and did not constitute a survey of biological restraints. This means that the survey on which this project now relies was conducted four years ago, in a drought year. During the 2009/2010 rain year, there was not a drought but rather a normal rainfall. This means that the plant species that would be located on the property as well as adjacent properties would be significantly different than in a drought year. Accordingly, the resubmission of the prior biological study which references a survey conducted four years ago is inadequate to draw any conclusions as to whether or not there are known sensitive or protected plants located on the site or other affected areas. Increased rainfall also has a positive effect on mammal, bird and reptile populations.

Moreover, the statement is contradicted by the County's approved General Plan FEIR which indicates that the Mountain Region (where the Project site is located) sustains many unique plant associations due to the diverse geology and varied micro climates, and that, among other things, the CDFG recognizes 14 Areas of Special Biological Importance within the Mountain Region. *See* FEIR at IV-6, IV-41. Moreover, other recent studies of nearby parcels indicate that federally threatened and endangered plant and animal species have a moderate to high likelihood of occurring in this area, including Plummer's Mariposa Lily, Hall's monardella, and as many as 30 sensitive animal species. *See* **Exhibit 5** (EA at p. 15 and studies referenced therein). Thus, it is reasonably probable that the Project may cause significant adverse impacts to biological resources in the Project area. Thus, an EIR must be required and a site specific biological report and survey conducted in order to assess potential impacts and develop appropriate mitigation measures if necessary. Moreover, the CDFG and USFWS should be consulted since they would have jurisdiction over the biological resources on the site.

8. **Construction Impacts.**

CEQA requires that construction impacts be analyzed, even though they are temporary. *City of Arcadia v. State Water Resources Control Board* (2006) 135 Cal.App.4th 1392, 1425 (EIR required to analyze temporary construction air quality and noise impacts). The application provides very little information related to the construction of the Project. It indicates that some grading will be required and states that the majority of the construction will be coordinated via a ground crew working closely with a helicopter service to install the tower and equipment shelter. However, the application provides no information related to the number of workers that will be involved in the construction, how these workers will get to the site, the length of the construction period, the number of truck trips associated with bringing workers and materials to the site, the number, frequency or time of day of helicopter trips associated with bringing workers and/or materials to the site, or the location of a staging area for materials, workers or the noted helicopter trips. For example, will the helicopters be bringing all the materials and equipment to the site, or just some? Where will these helicopter flights originate? Where on the site will they

land? Where will workers park? Pisgah Peak Road is a single lane, unpaved dirt road. Can it handle the truck trips needed to transport workers and materials to the site to construct the Project? Will truck routes include going through the nearby residential areas to reach Pisgah Peak Road? The County needs answers to these questions in order to assess the potential construction impacts associated with the Project.

Included with the radio tower application is a Geotechnical Report and Site Plan Review prepared by Southern California Geotechnical. That report recommends the following work be done in order to assure that the tower is placed on a proper foundation:

A. "Based on the subsurface conditions encountered at the site, the drilled piers should be founded at a depth of 20 to 30 feet". (Page 1)
B. "It appears that the most economical method of support for the new tower will be to extend the foundation elements down to the dense bedrock at depths of 20+ feet". (Page 11)
C. "All fill soil should be compacted to at least 90% of the ASTM D-1557 maximum dry density." (page 11)
D. "In general, all utility trench backfill should be compacted to at least 90% of the ASTM D-1557 maximum dry density. As an alternative, a clean sand (minimum Sand Equivalent of 30) may be placed within trenches and flooded in place." (Page 11)."

The work described above will require substantial drilling, digging and trenching, including drilling and/or digging within dense bedrock. The application in no way explains how that work will be accomplished. What equipment will be used? What noise and dust will result from the use of that equipment? What air emissions will be released as a result of the necessary equipment? These details as to how the work will be performed is critical in analyzing the construction impacts of the project.

Because of the missing information noted above, the County is without the information necessary to analyze the potential for grading, truck trips, helicopter use, and related construction activity to cause significant air quality impacts. The San Bernardino Mountains are located within the South Coast Air Quality Management District ("SCAQMD"). FEIR at IV-27. The topography and climate of the region make the SCAQMD an area with a high potential for air pollution. *Id.* at IV-26. Air pollutants of greatest concern in San Bernardino County include PM_{10}, because the County is currently in non-attainment with the Ambient Air Quality Standards ("AAQS") for this pollutant. *Id.* at IV-29. Construction related dust pollution is a major contributor to PM_{10} emissions. *Id.* Because the construction of the Project will contribute to this already adversely impacted situation, the Project is likely to result in significant adverse construction-related air quality impacts with respect to at least PM_{10} emissions.

CEQA mandates that a project should not be approved if there are feasible mitigation measures available which would substantially lessen the project's significant environmental effects. Cal. Pub. Res. Code § 21002; *see also Sierra Club v. State Bd. of Forestry* (1994) 7 Cal.4th 1215, 1233. Because of the non-attainment status related to PM_{10} in the SCAQMD, the FEIR recommends that developers such as the applicant, to mitigate air quality impacts during

construction, address site-specific analysis of (i) grading restrictions and/or controls on the basis of soil types, topography or season; (ii) landscaping methods, plant varieties, and scheduling to maximize successful revegetation; and (iii) dust-control measures during grading, heavy truck travel, and other dust generation activities. FEIR at IV-30. Among other things, the applicant must also develop a construction vehicle plan, which restricts the number of daily trips of helicopters and trucks to the construction site, and ensures that such trips are made during hours that are least likely to impact the neighboring residential communities along Oak Glen Road. *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 794. Because the Project has the potential to cause significant air quality impacts during construction, the County must prepare an EIR to analyze the potential air quality impacts and develop feasible measures to mitigate such impacts.

9. **Hazards - Safety Impacts.**

CEQA requires that a project's potentially significant fire impacts be analyzed in an EIR. *Arviv Enterprises, Inc. v. South Valley Area Planning Commission* (2002) 101 Cal.App.4th 1333 (project's potential fire impacts, among other things, raised fair argument requiring preparation of an EIR). The Project site is located within County Fire Safety Area 1 ("FS1 Area"). The FS1 Area is "characterized by areas with moderate and steep terrain and moderate to heavy fuel loading contributing to ***high fire hazard conditions***." Development Code § 82.13.030 (emphasis added). There have been several major wildfires in the San Bernardino Mountains over the years including one in 2006 which was caused by lightening, and burned tens of thousands of acres, including 485 acres of the San Bernardino National Forest. *See* the Mountain Area Safety Taskforce website, available at www.calmast.org. Extreme heat, arid surroundings, erratic winds, thunderstorms, and difficult mountainous terrain make such wildfires in the San Bernardino Mountains extremely dangerous and difficult to contain. *Id.*

The Project will enhance the risk of wildfire already associated with the high fire hazard conditions in the area. The lattice tower and tower antenna will contribute to this increased risk by adding a new source of electricity and new structures which could attract lightening during storms. Because the Project clearly has the potential to cause adverse wildfire impacts and is located in an area with high fire hazard conditions, an EIR must be prepared to analyze the impacts and develop appropriate feasible mitigation measures.

Moreover, because of the Project site's location within the FS1 Area, a thorough and detailed analysis of the Project's potential fire impacts, as specified in the Development Code, is required. The applicant must submit the Project application to the San Bernardino County Fire Department and the appropriate Natural Resource Conservation Service Office for review and recommendation, and any recommendations received, where possible, must be incorporated into Project conditions. Development Code § 82.13.040. The applicant must also analyze the Project's potential fire impacts on the nearby residential communities along Oak Glen Road. In addition, the Project application must include the following: (i) a Slope Analysis, including a topographic map of the proposed Project area and all adjoining properties within 150 feet (with contoured lines obtained by aerial or field survey, done under the supervision of a licensed Land Surveyor or Registered Engineer); (ii) a Preliminary Grading Plan, which includes all slope ratios, flow lines, pad elevations, and additional information; and (iii) a Fuel Modification Plan, which must address a number of factors, and is subject to review and approval by the responsible

Fire Authority in conjunction with the County of San Bernardino Fire Marshall. *Id.* Finally, based on the Project's location within the FS1 Area, the applicant must submit for approval a Soil Erosion and Sediment Control Plan, and ensure that all clearing and grading activities comply with such Plan. *Id.* § 82.13.080.

The applicant must also ensure appropriate site and emergency access for fire fighting vehicles is available, as specified in Development Code Section 82.13.060(e). *Arviv Enterprises, Inc.*, 101 Cal.App.4th at 1348. Moreover, the Project site must contain appropriate water storage capacity, as described in the uniform Fire Code. Development Code § 82.13.060(b). The applicant must also create a permanent fuel modification area at least 100 feet in width around the portions of the development adjacent or exposed to hazardous fire areas. *Id.* § 82.13.060(b); *see also* Cal. Pub. Res. Code §4291(a); *Endangered Habitats League, Inc.*, 131 Cal.App.4th at 794. The Board of Supervisors has already determined in the 2007-09 project findings that the requirements for granting a variance for this requirement cannot be satisfied.

The only mention of the Project's potential impacts related to fire in the application is brief note that the "[f]ire department has indicated that there is no increased risk of emergency vehicle demand and that the access road can be maintained per historic conditions." Application Attachment at p. 4. It does not appear that the applicant has submitted all of the noted studies and other information required by the Development Code. No further action to process the Project should be undertaken until all required studies and information related to the Project's fire risk are provided.

10. **Historic/Archeological/Paleontological Impacts.**

The Land Use Application Questionnaire (questions 11 and 23) asserts there are no known cultural or historic resources on site. However, the application also admits that the site has not been surveyed for historical, paleontological or archaeological resources. Such surveys must be preformed. Until they are, it is not possible for the County to assess these potential impacts.

11. **Cumulative Impacts.**

CPRL is quite concerned that there is the potential for the Project area to become a magnet for the type of development proposed by the Project. As noted in the Project application, there is already one radio tower structure in the area. If this Project is approved, it could result in an even greater proliferation of tower structures for communications facilities in the Mountain Region. If this happened, it would permanently alter the character of the area and mar the mountain landscape for decades to come. As discussed above, the proposed Project has the potential to have several significant adverse impacts on the environment. The County should ensure that an EIR is prepared and that it fully considers the potential cumulative impacts associated with the possible proliferation of these types of structures in the area.

12. **Need/Desire for Project Irrelevant to Determination if the Requirements for a CUP or Variance have been Satisfied.**

During the hearings held in 2009, Lazer arranged for the testimony of many persons relating to the reputation of Lazer, the economic impact of the project, and the need to serve certain members of the community with its radio broadcasting. Obviously, that testimony is permitted; any testimony is permitted in a public hearing. However it is completely irrelevant as to the issues being presented to the Planning Commission and the Board of Supervisors. In Orinda Ass'n v. Board of Supervisors, 182 Cal App 3rd 1145 (1986) the court addressed the relevancy (with respect to the granting of a variance) of testimony similar to that presented by Lazer in the 2007-09 hearings as follows:

> "[D]ata focusing on the qualities of the property and project for which the variance is sought, the desirability of the proposed development, the attractiveness of its design, the benefits to the community, or the economic difficulties of developing the property in conformance with the zoning regulations, lack legal significance and are simply irrelevant to the controlling issue of whether strict application of zoning rules would prevent the would-be developer from utilizing his or her property to the same extent as other property owners in the same zoning district."

We can expect that Lazer will solicit similar testimony in the hearings relating to its 2010 Project. However, just as it did in the 2007-09 hearings, the Board of Supervisors should disregard such testimony as irrelevant to the issues before the board, namely whether the requirements exist for the granting of a variance for a conditional use permit.

13. **Alternative Site are Available for Lazer Radio Tower; Lazer is demanding a "Super Tower" to Maximize Profits Ignoring its Adverse Environmental Impacts.**

At the Planning Commission hearing on November 6, 2008, Lazer representatives asserted that the proposed Project site on Pisgah Peak road was the ***only*** place the Project could be located due to the site's unique features, elevation and FCC requirements. Laser has attached an "RF Engineering Statement", dated April 2010, prepared by Hatfield & Dawson to its current application. The essence of that Engineering Statement, again, is that the proposed project site is the only place in the world in which they can locate a new radio tower for the Lazer radio tower station KXRS . Does this mean that if Lazer had been unable to purchase the site, it would have simply abandoned its plans to expand the station? Unlikely. The claim that the Pisgah Peak Road site is the only place the tower can go is simply not credible. There are likely dozens of potential alternative locations where Lazer could build a tower or place a radio transmitter so it can expand its business. The County should not simply accept Lazer's word for it that there are no other possible locations for the Project.

CPRL engaged a broadcast engineer to review the Lazer Report and advise if there were any existing towers upon which Lazer could locate its tower and still meet applicable Federal Communications Commission ("FCC") requirements. The Engineering Analysis & Statement prepared by Klein Broadcast Engineering, LLC (the "Klein Report") is attached as **Exhibit 6** for your review.

As discussed in detail in the Klein Report, there are at least two existing towers located within the "Area to Locate" (the funnel shaped area) that was identified in the Lazer Report and is shown in Exhibits E-1 and E-1A in the Klein Report. Both of these existing towers are viable alternative sites for the proposed Project. Both of the alternative sites identified by the Klein Report would comply with FCC regulations, would allow Lazer to cover its Principal Community of License, Hemet, CA, and would allow Lazer to greatly increase its coverage area as compared to the proposed Pisgah Peak Road location. Both alternative sites have existing tower facilities of sufficient height, so that no additional height would be required. The Klein Report also makes clear that given the size of the Area to Locate, there are likely dozens of additional alternative sites that are available for Lazer to co-locate its transmission facilities. In fact, the "funnel" shaped Area to Locate in which Lazer admits it can locate its tower and meet FCC requirements is ***over 73 square miles*** in size. It defies common sense that nowhere in this vast area could an alternative location be found that is not adjacent to a State Park and would not forever mar valuable open space areas used by thousands of San Bernardino County residents and visitors. Given the identified alternative sites and the potential for additional ones where Lazer could locate and expand its operations without creating *any* new environmental impacts, there is simply no reason why the County should permit the construction of the proposed 80-foot tower adjacent to the Wildwood Canyon State Park in the Pisgah Peak open space area.

The Lazer Report claims (with no detailed information provided) that other locations were ruled out due to zoning restrictions, lack of access or unwilling landowners. However, the preferred Pisgah Peak Road site has such poor access that the equipment and materials to construct the Project's tower must be flown in by helicopter. Moreover, significantly, the zoning on the Project site does not permit the tower to be located there as a matter of right. The Lazer parcel is zoned OG-RL 20 (Oak Glen/Rural Living - 20 acre minimum lot size), which allows certain open space, residential, agricultural, and accessory uses as of right. *See* San Bernardino County Code, Chapter 82.04, Table 82-7. A CUP is required for the Lazer Project broadcast tower. Therefore, initial consideration of the Project site would have ruled out this location too. Again, the County should not simply accept the assertion that other locations were validly ruled out for these reasons without additional information.

Although the Lazer Report implies that Lazer is required to move from its existing location, this too is not accurate. As explained in the Klein Report, the existing Lazer station is compliant with all applicable FCC Rules and Regulations, and it has not been mandated by the FCC to move or improve its operations. In fact, the Lazer Report actually discloses that the true reason why the proposed Project is claimed to be "needed" and why the Pisgah Peak site is claimed to be the "only" possible location is because Lazer was able to purchase the site and it will provide a very large coverage area while still meeting its FCC requirement to serve Hemet, its city of license. The Lazer Report even admits that there are potential alternative locations in the northern part of the Area to Locate funnel, but argue that the location is inferior because a station in that location would only be able to reach 652,000 people versus 2 million that would be reached from the proposed Project site (even though that would be three times the number of people Lazer currently reaches from its existing location in Hemet).

The two additional alternative sites identified in the Klein Report would allow Lazer to expand its coverage to approximately 1.3 million and 1.7 million people, respectively. In other words, relocation to either of these alternative locations would allow Lazer to expand the population it covers by between 590% and 900%, without sacrificing the environment. The fact is that while alternative locations may not provide the *exact* coverage area as Lazer's preferred location adjacent to the Wildwood Canyon State Park, there are numerous alternative locations that would allow Lazer to greatly expand its business and still cover 80% of Hemet as it is required to do. And, most importantly, these alternative locations would not have the significant environmental impacts that the proposed Project would have since they are already existing towers.

In any event, it is not the County's obligation to ensure that Lazer can expand its business ten-fold to serve large areas of Riverside and San Bernardino Counties at the expense of damage to San Bernardino's valuable open space and State Park areas. San Bernardino's Spanish speaking community is also well served by at least a dozen radio stations, including some owned by Lazer Broadcasting.

In summary, there are alternative sites in which Lazer can relocate its radio tower, but it is insisting on its right to have a "super tower" that reaches the maximum amount of potential listeners so that it can make a maximum amount of money.

CPRL is not opposed to Lazer expanding its business, but believes that there can and should be a compromise that allows it to expand without damaging San Bernardino's precious open spaces in the process. There clearly are alternatives potentially available, and Lazer will not be required to seriously examine unless the County requires it to prepare an environmental impact report ("EIR"). Unless a full, objectively prepared alternative analysis is required as part of an EIR, the County will never truly know what alternatives are possible.

* * *

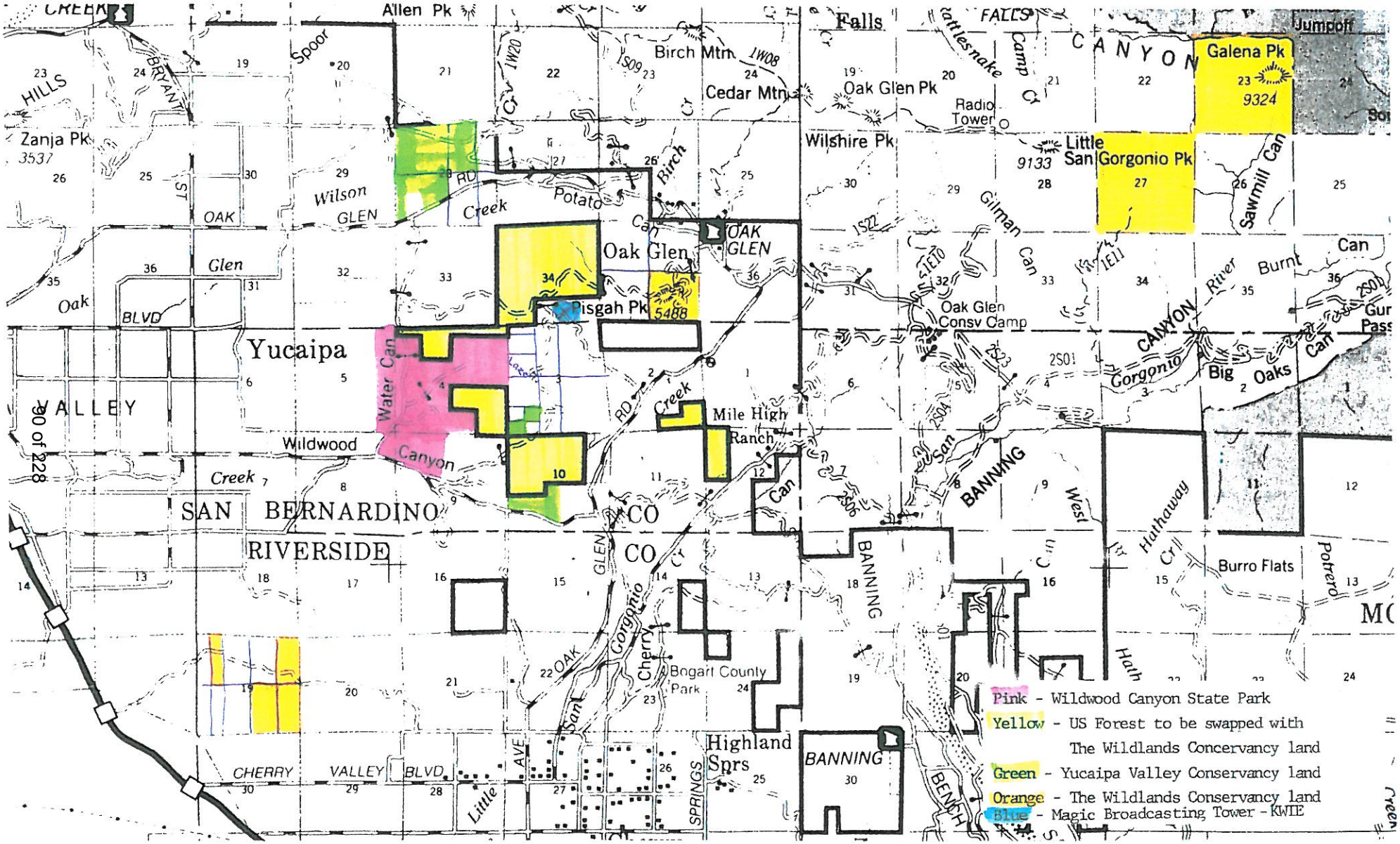
Thank you for this opportunity to comment on the proposed Project. Please keep us informed of any actions on the matter, and keep us on the mailing list for any notices associated with the preparation of any environmental documents for the Project and the County's consideration of the Project. We also request, pursuant to the California Public Records Act, copies of any additional documents of any kind submitted by the applicant related to the Project and any documents created by the County related to the Project.

Very truly yours,

John K. Mirau

Enclosures

Cc: Supervisor Neil Derry
Mr. Bill Collazo
Mr. David Myers, Wildlands Conservancy
Mr. Frank Sissons, Yucaipa Valley Conservancy


Allen Pk
Falls
Jumpoff
Galena Pk
9324
Oak Glen Pk
Radio Tower
Wilshire Pk
Little San Gorgonio Pk
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Zanja Pk
3537
Birch Mtn
Cedar Mtn
Oak Glen
Pisgah Pk
5488
Oak Glen Consv Camp
Yucaipa
Mile High Ranch
Wildwood Canyon
Wildwood Creek
SAN BERNARDINO CO
RIVERSIDE CO
BANNING
Burro Flats
Bogart County Park
Highland Sprs
CHERRY VALLEY BLVD
Pink - Wildwood Canyon State Park
Yellow - US Forest to be swapped with The Wildlands Concervancy land
Green - Yucaipa Valley Conservancy land
Orange - The Wildlands Conservancy land
Blue - Magic Broadcasting Tower - KWIE

Land Protection Partners
P.O. Box 24020, Los Angeles, CA 90024-0020
Telephone: (310) 276-2306

Scientific Basis To Establish Policy Regulating Communications Towers To Protect Migratory Birds: Response to Avatar Environmental, LLC, Report Regarding Migratory Bird Collisions With Communications Towers, WT Docket No. 03-187, Federal Communications Commission Notice of Inquiry

Prepared for:

American Bird Conservancy
Defenders of Wildlife
Forest Conservation Council
The Humane Society of the United States

February 14, 2005

Prepared by:

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Sidney A. Gauthreaux, Jr., Ph.D.[2]

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EXHIBIT D

Scientific Basis To Establish Policy Regulating Communications Towers To Protect Migratory Birds: Response to Avatar Environmental, LLC, Report Regarding Migratory Bird Collisions With Communications Towers, WT Docket No. 03-187, Federal Communications Commission Notice of Inquiry

1. Introduction

On December 14, 2004, the Federal Communications Commission ("FCC") made available a review of comments received for its Notice of Inquiry on Avian/Communication Tower Collisions. The Notice of Inquiry was issued on August 20, 2003 and closed on December 6, 2003. A team of consultants (Avatar Environmental, LLC, EDM International, Inc., and Pandion Systems, Inc.) was retained by the FCC in May 2004 and reviewed all of the comments received. Their report, "Notice of Inquiry Comment Review Avian/Communication Tower Collisions" ("Avatar Report"), dated September 30, 2004, includes recommendations of actions that might be taken by the FCC.

Land Protection Partners was engaged by the American Bird Conservancy, Forest Conservation Council, Defenders of Wildlife, and The Humane Society of the United States to provide an analysis of the conclusions and recommendations of the Avatar Report, and to provide the scientific basis, if any, for regulating communications towers to protect birds. We have found that the conclusions of the Avatar Report do not adequately represent the current state of scientific knowledge about bird kills at communications towers in many important respects, and that the recommendations derived from those conclusions are insufficient to address the adverse impacts of communications towers on birds.

This report is based on a review of the published scientific literature (both studies discussed in the Avatar Report and others), a peer-reviewed study now in press,[1] progress reports of a scientific study now in progress,[2] and personal communications with scientists working in this field. We first consider the question of whether bird kills at communications towers are biologically significant. We then address various factors that influence the number and rate of bird kills at towers: tower height, tower configuration, tower lighting, and local topography. Although weather influences bird kills at towers, it is not discussed in detail here because it cannot be regulated.

All parties involved in the debate over tower kill acknowledge that birds are killed in some number at towers. The Avatar Report documents this and finds that, "Overall, there is general agreement that there is sufficient documented evidence of avian mortality by communications towers and that the construction and operation of tall structures will

1. Gauthreaux, S.A., Jr., and C. Belser. 2005. Effects of artificial night lighting on migrating birds. *In* C. Rich and T. Longcore (eds.), *Ecological consequences of artificial night lighting*. Island Press, Covelo, California.
2. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS): Spring 2004 summary. Central Michigan University, Mount Pleasant. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS): Fall 2004 summary. Central Michigan University, Mount Pleasant.

likely result in the risk of bird collisions and possible mortalities,"[3] and, "That birds are colliding with towers has been well documented."[4] The Avatar Report further cites several sources estimating that mortality is between 2 million to 5 million birds per year, but ignores a letter to the FCC Chairman from the Director of the U.S. Fish and Wildlife Service dated November 2, 1999, where the Director references data indicating that the number of migratory birds killed by communications towers may be 4 million per year to an order of magnitude above this (40 million per year).

Assessment of the cumulative significance of tower-caused avian mortality is confounded by the absence of monitoring at a large number of towers. Because the FCC does not require monitoring at towers that it registers or otherwise approves, and because tower operators do not conduct such monitoring, bird kills reported in the literature represent only a minimum measurement of the total mortality. The majority of tower sites are never checked for mortality and even those that are checked are done so only on a sporadic basis. In addition, the reported numbers are based on actual carcasses found and there is no extrapolation for predator/scavenger removal or search efficiency. This means, as the Avatar Report notes, that the numbers of birds killed are higher than reported. Two of the longer-term studies with periodic searches confirm that numbers of birds killed can be significant at one tower: a 38-year study of a single 1,000-foot television tower in west central Wisconsin documented 121,560 birds killed representing 123 species,[5] and a 29-year study at a Florida television tower documented the killing of more than 44,000 birds of 186 species.[6] Neither of these studies adjusted carcass counts upward to account for search efficiency and predator/scavenger removal.

We do know that communications towers kill millions of birds annually, and that a very high percentage of these are neotropical migratory birds that migrate at night.[7]

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3. Avatar Report, p. 3-19.
4. Avatar Report, p. 3-20.
5. Kemper, C.A. 1996. A study of bird mortality at a central Wisconsin TV tower from 1957-1995. *Passenger Pigeon* 58:219-235.
6. Crawford, R.L., and R.T. Engstrom. 2001. Characteristics of avian mortality at a north Florida television tower: a 29-year study. *Journal of Field Ornithology* 72:380-388.
7. See Shire, G.G., K. Brown, and G. Winegrad. 2000. *Communication towers: a deadly hazard to birds*. American Bird Conservancy, Washington, D.C. Banks, R.C. 1979. Human related mortality of birds in the United States. *U.S. Fish and Wildlife Service, Special Scientific Report – Wildlife* 215:1-16. Clark, J.R. 14 September 2000. Service guidance on the siting, construction, operation and decommissioning of communications towers. U.S. Fish and Wildlife Service, Washington, D.C. Erickson, W.P., G.D. Johnson, M.D. Strickland, D.P. Young, Jr., K.J. Sernka, and R.E. Good. 2001. *Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the United States*. National Wind Coordinating Committee (NWCC) Resource Document. Woodlot Alternatives. 2003. An assessment of factors associated with avian mortality at communications towers — a review of existing scientific literature and incidental observations. Topsham, Maine ("Woodlot Report").

2. Kills of Birds at Communications Towers Can Be Biologically Significant

Scientists do not have an accepted definition of "biological significance," and, in fact, do not use the term in any regular fashion. The terms "significant" and "significance" are generally reserved for the description of statistical results. To be useful to a scientist, "biological significance" must be defined in terms that can be measured. The Avatar Report states that, "biologically significant mortality is any mortality that is of sufficient magnitude and importance that it causes the viability of a particular population or species to be affected."[8] Elsewhere, the Avatar Report states that, "declines of local, regional, or range-wide populations [of species] would be biologically important,"[9] and presumably "significant." It is important to note that the Avatar Report provides no statutory basis for establishing this standard, nor does it attempt to apply this standard to any of the avian species or populations that are killed by towers.

It is apparent from the comments submitted in response to the Notice of Inquiry, especially those by the communications industry, that the standard for significance at issue is not a scientific standard, but rather a statutory standard under the National Environmental Policy Act ("NEPA").[10] For purposes of this report, we assume that "biologically significant" means a significant impact to biological resources under NEPA.

The Avatar Report does not outline the standards used by the FCC to determine significance of impacts to biological resources under NEPA.[11] The report does assert, however, that analysis of biological significance would be possible for well-studied bird populations such as Kirtland's Warbler and Red-cockaded Woodpecker, but then does not conduct any analysis or provide any insight into whether tower kill would be "biologically significant" for these species.

The communications industry likewise fails to present a coherent analysis of biological significance.[12] The industry relies on an argument that bird kills at communications towers are so small relative to other forms of human-caused bird mortality that they are insignificant by definition.[13] Because this argument is repeated (without critical analysis) in the Avatar Report, it deserves special consideration.

The communications industry bases its conclusions about the "significance" of bird kills at towers on the report prepared by Woodlot Alternatives ("Woodlot Report"). In this report, Woodlot Alternatives attempts to tabulate all of the sources of human-caused mortality for birds. From these rough estimates, Woodlot Alternatives concludes that

8. Avatar Report, p. 3-66.
9. Avatar Report, p. 3-62.
10. Cellular Telecommunications & Internet Association and National Association of Broadcasters. 2003. Comments of the Cellular Telecommunications & Internet Association and National Association of Broadcasters in the matter of effects of communications towers on migratory birds, WT Docket No. 03-187 ("CTIA/NAB Comments"), p. 11.
11. Avatar Report, p. 3-67.
12. See CTIA/NAB Comments and Woodlot Report.
13. CTIA/NAB Comments and Woodlot Report.

tower kill constitutes only 0.5% of the human-caused mortality of birds. This approach is inappropriate to any discussion of "biological significance" because it refers to mortality for all birds, not for any particular bird species or population of birds. The different human-induced causes of mortality do not affect all birds equally; any given type of mortality is more important for some species and less important for others. Generally speaking, as an example, birds that are subjected to oil spills are not also vulnerable to predation by house cats. Expressing tower kill mortality as a percentage of total human-induced mortality therefore does not make sense. Even if it were a rational approach, it is interesting to note that consultants for the wind industry undertook a similar analysis and concluded that communications towers result in 1–2% of human-caused mortality (not 0.5%).[14]

The estimates of total human-caused bird mortality are not relevant to determine whether kills at communications towers meet the NEPA standard for a significant impact. The FCC checklist for environmental impacts requires disclosure of placement of towers in wilderness or designated wildlife refuges, and disclosure of any potential impacts to species that are candidate species or listed under the Endangered Species Act. These FCC guidelines omit elements of NEPA analysis that are routine in other circumstances, including violation of the Migratory Bird Treaty Act, which prohibits the killing of any migratory bird, even unintentionally, without a permit. It is also customary to consider the impacts of a project to be significant if those impacts: 1) reduce populations of species of local conservation significance, such as those listed under state endangered species acts, 2) interrupt the movement of wildlife across the landscape, or 3) result in declines in species that will lead to their endangerment.

The available data are sufficient to allow an estimation of the number of individuals killed at towers on a species-by-species basis, which is a necessary approach to assess impacts to biological resources in any situation. Such an analysis is essential because whatever threshold of significance is applied, it will be applied to species, not to "birds" as a whole.

2.1. Estimate of Numbers of Birds Killed at Tower by Species

To estimate the number of individuals of each species killed at towers, we used species lists of birds killed at towers to determine the percentage representation of each species, which we multiplied by estimates of total birds killed per year at towers. The number of individuals of each species killed was collated by the American Bird Conservancy from 47 studies with complete lists of birds killed at communications towers.[15] The 47 studies were from 31 states and two Canadian provinces east of the Rocky Mountains, and report deaths of 184,797 birds at communications towers. We assume that the proportion of

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14. Erickson, W.P., G.D. Johnson, M.D. Strickland, D.P. Young, Jr., K.J. Sernka, and R.E. Good. 2001. *Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the United States.* National Wind Coordinating Committee (NWCC) Resource Document, p. 16.

15. Shire, G.G., K. Brown, and G. Winegrad. 2000. *Communication towers: a deadly hazard to birds.* American Bird Conservancy, Washington, D.C.

each species in this dataset equals the proportion of individuals of the species killed each year at towers. We multiplied the percentage of each bird species in the dataset by a low (4 million) and high (40 million) estimate of total bird mortality at communications towers to obtain a range of the number of each species killed each year. Because the range of total number of birds killed per year is large, even at the lower end of estimates, it does not matter substantially if the actual percentage of each bird species killed per year is slightly different from our assumption. For example, whether Ovenbirds represent 10% or 12% of all kills is not particularly consequential; even the lower percentage represents a large number of individuals killed per year. This methodology provides a range of magnitude estimate for each species killed at towers.

The results show that for the ten avian species killed most frequently at towers, total annual mortality is estimated to be from 490,000 to 4.9 million **for each species**.

Table 1. Estimates of total number of birds killed per species by communications towers each year. Includes top ten bird species killed and all birds of conservation concern (BCC) identified by the U.S. Fish and Wildlife Service.[16]

Species	Total Killed	Percentage Killed	Number killed per year (low)	Number killed per year (high)
Top Ten Birds Killed				
Ovenbird	22,619	12.240%	489,597	4,895,967
Red-eyed Vireo	19,707	10.644%	426,565	4,265,654
Tennessee Warbler	17,689	9.572%	382,885	3,828,850
Common Yellowthroat[17]	10,397	5.626%	225,047	2,250,469
Bay-breasted Warbler (BCC)	10,396	5.626%	225,025	2,250,253
American Redstart	8,392	4.541%	181,648	1,816,480
Blackpoll Warbler (BCC)	6,304	3.411%	136,452	1,364,524
Black-and-white Warbler	6,099	3.300%	132,015	1,320,151
Philadelphia Vireo	4,317	2.336%	93,443	934,431
Swainson's Thrush	3,943	2.134%	85,348	853,477
Birds of Conservation Concern Below Top Ten				
Northern Waterthrush	3,148	1.703%	68,140	681,396
Northern Parula	2,662	1.440%	57,620	576,200
Connecticut Warbler	2,624	1.420%	56,797	567,975
Cape May Warbler	2,119	1.190%	47,598	475,982
Black-throated Blue Warbler	2,061	1.115%	44,611	446,111
Chestnut-sided Warbler	1,426	0.772%	30,866	308,663

16. U.S. Fish and Wildlife Service. 2002. Birds of conservation concern 2002. Division of Migratory Bird Management, Arlington, Virginia. The U.S. Fish and Wildlife Service's Birds of Management Concern List is a statutorily required listing of avian species that may become candidates for listing under the Endangered Species Act without additional conservation action and for which special attention is warranted to prevent declines. Congress dictated such a list be prepared at least every five years as an early warning system to try to prevent birds from becoming listed under the Endangered Species Act.

17. Subspecies *sinuosa* is of conservation concern.

Species	Total Killed	Percentage Killed	Number killed per year (low)	Number killed per year (high)
Black-throated Green Warbler	1,330	0.720%	28,788	287,883
Bobolink	1,201	0.650%	25,996	259,961
Prairie Warbler	1,018	0.551%	22,035	220,350
Marsh Wren	888	0.481%	19,221	192,211
Canada Warbler	689	0.373%	14,914	149,137
Wood Thrush	684	0.370%	14,805	148,054
Grasshopper Sparrow	582	0.315%	12,598	125,976
Yellow-billed Cuckoo	568	0.307%	12,295	122,946
Kentucky Warbler	568	0.307%	12,295	122,946
Golden-winged Warbler	542	0.293%	11,732	117,318
Prothonotary Warbler	476	0.258%	10,303	103,032
Yellow Warbler[18]	419	0.227%	9,069	90,694
Yellow-throated Warbler	339	0.183%	7,338	73,378
Swainson's Warbler	336	0.182%	7,273	72,728
Worm-eating Warbler	255	0.138%	5,520	55,196
Yellow-bellied Sapsucker	228	0.123%	4,935	49,351
Dickcissel	171	0.093%	3,701	37,014
Cerulean Warbler	164	0.089%	3,550	35,498
Field Sparrow	147	0.080%	3,182	31,819
Acadian Flycatcher	134	0.073%	2,900	29,005
Sedge Wren	107	0.058%	2,316	23,161
Louisiana Waterthrush	103	0.056%	2,229	22,295
Blue-winged Warbler	83	0.045%	1,797	17,966
Orchard Oriole	79	0.043%	1,710	17,100
Bachman's Sparrow	74	0.040%	1,602	16,018
Yellow Rail	67	0.036%	1,450	14,502
Sharp-tailed Sparrow spp.	51	0.028%	1,104	11,039
Henslow's Sparrow	49	0.027%	1,061	10,606
Le Conte's Sparrow	36	0.019%	779	7,792
Red-headed Woodpecker	33	0.018%	714	7,143
American Bittern	32	0.017%	693	6,927
Alder Flycatcher	25	0.014%	541	5,411
Rusty Blackbird	12	0.006%	260	2,597
Seaside Sparrow	12	0.006%	260	2,597
Black Rail	8	0.004%	173	1,732
Common Ground Dove	8	0.004%	173	1,732
Harris's Sparrow	8	0.004%	173	1,732
Whip-poor-will	7	0.004%	152	1,515
Chuck-will's Widow	6	0.003%	130	1,299

18. Only resident subspecies *gundlachi* is of conservation concern.

Species	Total Killed	Percentage Killed	Number killed per year (low)	Number killed per year (high)
Painted Bunting	6	0.003%	130	1,299
Bell's Vireo	4	0.002%	87	866
Little Blue Heron	4	0.002%	87	866
Olive-sided Flycatcher	4	0.002%	87	866
Solitary Sandpiper	4	0.002%	87	866
Bewick's Wren	3	0.002%	65	649
Loggerhead Shrike	2	0.001%	43	433
Red-cockaded Woodpecker[19]	2	0.001%	43	433
Upland Sandpiper	2	0.001%	43	433
Baird's Sparrow	1	0.001%	22	216
Black-capped Petrel	1	0.001%	22	216
Common Tern	1	0.001%	22	216
Franklin's Gull	1	0.001%	22	216
McCown's Longspur	1	0.001%	22	216
Northern Harrier	1	0.001%	22	216
Semipalmated Sandpiper	1	0.001%	22	216
Smith's Longspur	1	0.001%	22	216
White Ibis	1	0.001%	22	216
Willet	1	0.001%	22	216

The results of this analysis show the range of mortality per year experienced by bird populations from communications towers alone, assuming that overall mortality at towers is between 4 and 40 million individuals per year. But even if total mortality at towers is 2 million individuals per year, the most frequently killed bird species will lose 250,000 individuals per year, and a single record of a death at a tower in any of the 47 studies with complete lists can be extrapolated to approximately 10 birds per year for that species. With the worst-case scenarios (40 million birds per year killed), the top ten most commonly killed birds would suffer losses of ~1 million to ~4 million individuals per year, including two species of conservation concern (Bay-breasted Warbler and Blackpoll Warbler).[20] Even without going further, we note that the killing of 1 million to 2 million or even 100,000- 200,000 individuals of a bird species of regulatory concern annually typically would be considered a significant impact in environmental impact analysis. To further illustrate the potential significance of these levels of mortality, we consider the population dynamics of neotropical migrants, which are most affected by collisions with communications towers.

19 Listed under Endangered Species Act.

20 U.S. Fish and Wildlife Service. 2002. Birds of conservation concern 2002. Division of Migratory Bird Management, Arlington, Virginia

2.2. Highest Mortality for Neotropical Migrants Currently Occurs During Migration

The migratory period has been suspected to be the "critical period contributing to long-term declines in some species."[21] To address this question, Sillett and Holmes presented a long-term study of Black-throated Blue Warbler, which is documented as being killed at communications towers (1.15% of all records) and is a federal species of conservation concern, based on observations at breeding grounds in New Hampshire and wintering grounds in Jamaica.[22] They found that survival of individuals was high during the summer (0.99 ± 0.01) and winter (0.93 ± 0.05), while survival during both spring and fall migration ranged only 0.67–0.73. This was the first quantification of migration mortality for a neotropical migrant, and the results reinforced concern about the migratory period as playing an important role in species declines. These survival estimates mean that apparent mortality rates during migration were 15 times greater than during breeding and wintering seasons, and that over 85% of total mortality occurred during migration. Sillett and Holmes conclude that both habitat conditions before migration and conditions during migration affect mortality.

> Consequently, migrant populations could be especially susceptible to processes that further reduce survival of individuals during migration, such as destruction of high-quality winter habitats and stopover sites, and increases in the number of communications towers along migration routes.[23]

While it is premature to conclude that the majority of mortality for all neotropical migrants occurs during migration, it is the case for at least one species. Extra mortality, such as the 45,000–450,000 individuals per year of Black-throated Blue Warbler killed at towers, during a period that is already stressful likely contributes to recorded regional population declines or even overall population declines for the federal species of conservation concern.

2.3. Tower Kills Could Contribute to Population Declines in Neotropical Migrants

Additional mortality during migration could affect population trends for songbirds. It is unlikely that tower kill is compensatory. If birds that would die anyway were the only ones killed at towers (i.e., compensatory mortality), then they should show common characteristics that distinguish them from others, such as being young, old, below average weight, or disproportionately of one sex. Studies of Ovenbirds killed at towers do not

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21. Hutto, R.K. 2000. On the importance of *en route* periods to the conservation of migratory landbirds. *Studies in Avian Biology* 20:109–114.
22. Sillett, T.S., and R.T. Holmes. 2002. Variation in survivorship of a migratory songbird throughout its annual cycle. *Journal of Animal Ecology* 71:296–308.
23. Sillett, T.S., and R.T. Holmes. 2002. Variation in survivorship of a migratory songbird throughout its annual cycle. *Journal of Animal Ecology* 71:296–308, p. 305.

reveal a consistent pattern of a particular age, sex, or weight of bird being killed,[24] which we take to be evidence against tower kills being compensatory mortality. If this is true, then birds killed at towers represent a chronic, additive drain on populations and will affect population size. To assess whether this effect is "biologically significant," we compared the estimated mortality for selected species with the Partners In Flight conservation targets for various regions in the eastern United States (Table 2). Partners In Flight is a collaborative effort for bird conservation that includes many government and non-profit stakeholders, and its scientific assessment of threats to birds is used as part of the U.S. Fish and Wildlife Service's determination of "birds of conservation concern." These goals are expressed by Bird Conservation Region (BCR).

Table 2. Comparison of selected bird conservation goals by Bird Conservation Region (BCR) from Partners In Flight with estimated annual tower kill *per year*. Conservation goals converted from pairs to individuals by doubling number of pairs.

BCR	Species	Regional Conservation Goal	Estimated Tower Kill Per Year
Adirondacks	Canada Warbler	30,000–40,000	15,000–150,000
Adirondacks	Black-throated Blue Warbler	100,000–110,000	44,000–440,000
Adirondacks	Golden-winged Warbler	2,000	12,000–120,000
Mid-Atlantic Piedmont	Grasshopper Sparrow	70,000	13,000–130,000
Mid-Atlantic Ridge and Valley	Wood Thrush	700,000	15,000–150,000
Lower Great Lakes Plain	Upland Sandpiper	1,200	40–400
Ohio Hills	Cerulean Warbler	300,000	3,500–35,000
Northern Ridge and Valley	Worm-eating Warbler	36,000	5,500–55,000
Northern Ridge and Valley	Louisiana Waterthrush	18,000	2,000–20,000
Northern Ridge and Valley	Bobolink	24,000	26,000–260,000
Mid-Atlantic Coastal Plain	Prothonotary Warbler	32,000	10,000–100,000

Even with the most conservative estimates of bird mortality at communications towers, it is evident that the number of birds of certain species killed each year can be as great as

24. Taylor, W.K. 1972. Analysis of Ovenbirds killed in central Florida. *Bird-Banding* 43:15–19. Brewer, R., and J.A. Ellis. 1958. An analysis of migrating birds killed at a television tower in east-central Illinois, September 1955–May 1957. *Auk* 75:400–414. Eaton, S.W. 1967. Recent tower kills in upstate New York. *Kingbird* 17:142–146. Goodpasture, K.A. 1963. Age and sex determinations of tower casualties, Nashville, 1963. *Migrant* 34:67–70. Johnston, D.W., and T.P. Haines. 1957. Analysis of mass bird mortality in October, 1954. *Auk* 74:447–458. Tordoff, H.B., and R.M. Mengel. 1956. Studies of birds killed in nocturnal migration. *University of Kansas Publications, Museum of Natural History* 10:1–44.

the conservation goal for those species for whole regions. By any rational standard of environmental impact analysis, this constitutes a significant impact to biological resources. Even if bird mortality at communications towers is half of the lowest estimate (i.e., 2 million per year), the effects would still be significant.

Discovery of any one specimen of an endangered species at a communications tower would be an indicator of a significant impact on the population of the species. If just one Kirtland's Warbler had been part of the dataset that we analyzed in Table 1, then the interpretation would be that between approximately 20 and 200 individuals of this species are killed at communications towers each year. The total population size of Kirtland's Warbler is only ~2,000 breeding individuals each year. Each breeding pair produces on average 2.2 fledglings,[25] meaning that approximately 4,200 birds migrate each year. If our extrapolation is close, then communications towers would kill between 0.5% and 5% of the migrants of this species each year. That Kirtland's Warblers are not regularly found at communications towers is evidence only of the rarity of the species and the low total effort put into searching for birds around the thousands of towers in its migratory pathway, not that Kirtland's Warblers are avoiding communications towers.

Although not a neotropical migrant, population effects from tower mortality could affect viability of Red-cockaded Woodpecker. Based on two recovered carcasses, the extrapolated mortality rate of ~40–400 Red-cockaded Woodpeckers annually would represent 0.4–4% of the total population of ~11,000 birds.[26]

The Avatar Report acknowledges that tower kills may have significant impacts on threatened or endangered species, but the authors of the report did not conduct any analysis.[27] Our analysis illustrates that not only are impacts possible, they are foreseeable and likely and therefore require analysis under NEPA.

Our analysis does, however, carry a caveat. These examples illustrate only that it is likely and foreseeable that bird mortality at towers has a significant impact on populations of birds, they are not meant to be precise predications of mortality from communications towers. These results will change as estimates of the total bird mortality at towers are refined. They do show, based on current knowledge, the range of magnitude that tower mortality has on individual species, rather than lumping all bird mortality into one number, as is done in the Avatar Report.

We conclude that the magnitude of mortality of individual species of birds at communications towers constitutes a significant impact, alone and cumulatively, within the under-

25. Mayfield, H.F. 1992. Kirtland's Warbler (*Dendroica kirtlandii*). Pp. 1–16 *in* A. Poole, P. Stettenheim, and F. Gill (eds.), *The Birds of North America*, Vol. 19. The Academy of Natural Sciences, Philadelphia; The American Ornithologist's Union, Washington, D.C.
26. Jackson, J.A. 1994. Red-cockaded Woodpecker (*Picoides borealis*). Pp. 1–20 *in* A. Poole and F. Gill (eds.), *The Birds of North America*, Vol. 85. The Academy of Natural Sciences, Philadelphia; The American Ornithologist's Union, Washington, D.C.
27. Avatar Report, p. 5-2.

standing of NEPA. Beside the biological impact, this is a profound loss for the roughly 46 million Americans who watch and enjoy birds in their local environments.[28] Declines of migratory birds, from backyard species, to less common migrants, to rare and endangered species, diminish the human environment, and this should be recognized within the NEPA process as well.

3. Tower Height Affects Bird Mortality Rate

The Avatar Report reaches the conclusion that, "All other things being equal, taller towers with lights tend to represent more of a hazard to birds than shorter, unlit towers."[29] While true, this statement is too general to be useful, and no recommendation is made to regulate the height of new towers. Rather, the Avatar Report simply reviews the comments submitted. Perhaps this was the intention of the FCC, but it would seem that this would be the opportunity to analyze statistically the relationship between tower height and bird kills. The comments submitted by industry representatives to the FCC contain only a general description of the relationship between the size of bird kills, annual rate of bird kills, and tower height. Woodlot Alternatives, representing the communications industry, concludes, "There is little evidence of a threshold of tower height that is more dangerous to birds."[30] This statement is not consistent with the available evidence as we document below.

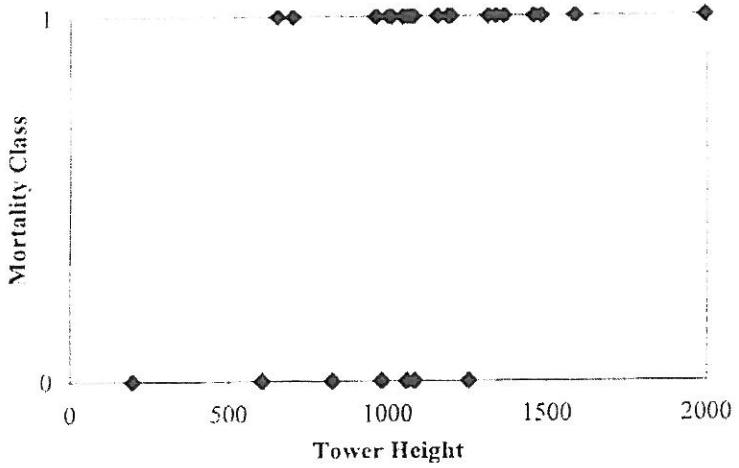

Figure 1. Annual mortality class by tower height for tower kill studies that provide or allow estimates of annual mortality. The mortality classes are below 250 birds per year (0) and above 250 birds per year (1). See Appendix for raw data.

28. U.S. Fish and Wildlife Service. 2002. 2001 national survey of fishing, hunting, and wildlife-associated recreation: national overview. U.S. Fish and Wildlife Service, Washington D.C. U.S. Fish and Wildlife Service. 2001. Birding in the United States: a demographic and economic analysis, report 2001-1. U.S. Fish and Wildlife Service, Washington D.C.
29. Avatar Report, p. 5-1.
30. Woodlot Report, p. 25.

3.1. Meta-analysis of Tower Kill Studies Shows Significant Effect of Tower Height on Bird Mortality

To investigate the relationship between tower height and bird mortality, we conducted a meta-analysis of studies of bird kills at towers that provide or allow estimates of annual mortality and include the height of the tower studied. Many of these studies are summarized in existing reports, such as the Woodlot Report. The mean annual mortality was reported for each study from the underlying article, or calculated by others. We classified each tower as causing mean annual mortality either less than 250 birds per year or more than 250 birds per year as an indicator of the magnitude of the annual kill (Figure 1). This threshold represents the bottom quartile of the number of annual kills. This conversion of a continuous variable (mean annual mortality) to a nominal variable reduces the effect of different study methodologies, search efficiencies, and scavenger removal. We then completed a logistic regression on mortality class with tower height as the independent variable (Figure 2). The data used in this analysis are included at the end of this report.

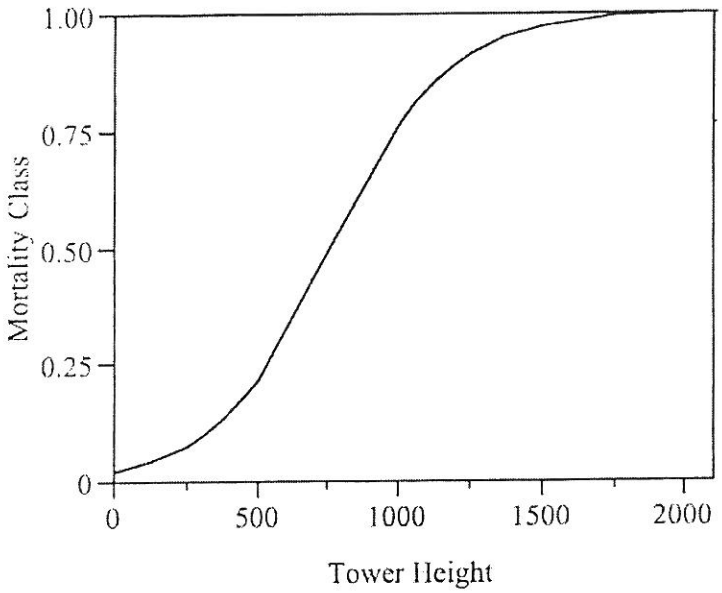

Figure 2. Logistic regression of birds killed per year by mortality class over or under 250 birds (lowest quartile or upper three quartiles) by tower height ($r^2 = 0.27$, $P < 0.01$). Line indicates probability of annual mortality falling over 250 birds per year. See Section 10 for source data.

The 26 towers that make up the data points for this regression are located in 14 states, with one to seven per state. When multiple studies were conducted on a given tower, only a single study was used to avoid double-counting. The regression is significant ($r^2 = 0.27$, $P < 0.01$).

The logistic regression provides a model that relates tower height with annual bird mortality. Because the data used to develop this model are all from towers that have recorded bird kills, the results cannot be extrapolated to all towers. For towers that cause bird kills, tower height is a strong predictor of whether the annual number of deaths is in the lowest quartile. In addition to providing a statistically significant description of the effect of tower height on bird mortality, the model can be used to predict the tower height necessary for bird kills to be below 250 per year a given percentage of the time. This model predicts that only 5% of the time would towers less than 160 feet tall cause more than 250 casualties per year, and only 25% of the time would towers less than 536 feet cause more than 250 casualties per year.

The effects of height are amplified by lighting at towers, so the lower mortality at shorter towers that do not require lighting, such as the one 197-foot tower in the analysis, is likely to be partly attributable to the lack of lighting. It is impossible, however, to investigate the effects of height completely independent of lighting, because all towers over 200 feet require some form of FAA-approved obstruction lighting. To ensure that our results were not biased by the inclusion of the one unlighted tower, we performed a logistic regression without this data point and still obtained a significant relationship between tower height and mortality class ($r^2 = 0.18$; $P < 0.05$) with all of the lighted towers.

More long-term studies of towers shorter than 500 feet would improve this model, but the model is certainly adequate to begin to make policy recommendations. Following this model, it would drastically reduce bird mortality to keep as many towers as possible below 199 feet, which both avoids FAA-required lighting (see below) and, according to our analysis, would avoid large yearly kills 90–95% of the time.

3.2. Statewide Study in Michigan With Random Sampling Design Shows Significant Effect of Tower Height on Bird Mortality

The results of our re-analysis of existing records of annual mortality rates at towers can only be extrapolated to towers that are known to kill birds (the towers analyzed were studied because they killed birds and not selected randomly) and share other characteristics (all towers were guyed and all but one was lighted). The results of our meta-analysis are consistent with an ongoing study with a random sampling design that compares mortality at different tower types. This research, led by Dr. J. Gehring of Central Michigan University, compares bird mortality rates at short unguyed towers, short guyed towers, and tall guyed towers (Figure 3). Differences between guyed and unguyed towers are discussed below. Bird mortality at 380–480 foot towers was significantly less than mortality at taller (1,000 foot) towers. On average, the taller towers killed over four times more birds during 20-day spring and fall survey seasons than did 380–480 foot towers. These towers were not known to be susceptible to bird collisions prior to the study. Adjustments were made for search efficiency and scavenger removal, but these did not change the character of the raw results. Because of the randomized study design, the re-

sults from the Gehring study are powerful new evidence of the role of height in bird mortality.[31]

The Gehring study has not yet detected any mass kill of birds, which is to be expected because the size of kills is inversely proportional to their frequency. The study provides evidence of the effects of height on chronic bird collisions with lighted, guyed towers. Lighting type may have influenced these results somewhat; the towers were lighted with solid red and flashing red lights but the flashing lights were of the strobe type on the 380–480 foot towers, and incandescent on the taller towers. Strobe-type lights extinguish completely between flashes while incandescent lights dim slowly. Darkness between flashes is thought to be important in reducing bird attraction. But both tower heights had solid red lights, which are more attractive to birds than either flashing light type.

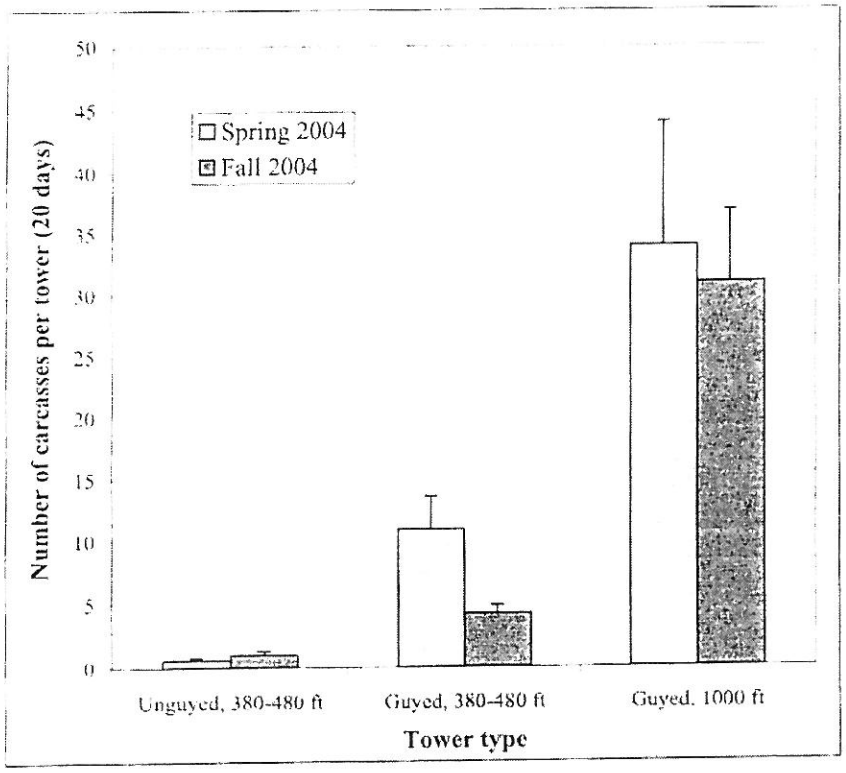

Figure 3. Bird carcasses found at towers in Michigan.[32] All towers were lit with combinations of solid red (L-810) and flashing red lights (L-864; strobe type on shorter towers, incandescent on taller towers). Error bars indicate standard error.

31. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS): Spring 2004 summary. Central Michigan University, Mount Pleasant. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS): Fall 2004 summary. Central Michigan University, Mount Pleasant.

With these results being consistent with the analysis of annual mortality presented above, it is possible to identify thresholds for the effects of tower height on bird mortality. From the logistic model above, that threshold for guyed towers is approximately 160 feet to keep mean annual mortality below 250 birds per year 95% of the time. There is no single tower height threshold that will eliminate bird collisions entirely, except zero feet. But the number of birds killed can be minimized by reducing tower heights and this reduction appears from the data to be quite drastic between 1,000 feet and 500 feet. There are certainly examples of towers of the same height killing different numbers of birds[33] and of shorter towers, even as short as 100 feet, killing birds under certain circumstances, but this variation in the data does not disprove the relationship.

The results of our analysis are consistent with the Gehring study with random sampling design and with surveys of bird kills after taller towers have been replaced with shorter towers. Crawford and Engstrom report decreased mortality following the reduction of a 1,008-foot tower to 284 feet.[34] Furthermore, in instances where a taller tower has been erected next to a shorter tower, more birds are killed at the shorter tower than before,[35] presumably because of the attracting effect of lights on the taller tower. Finally, the statistically significant relationship between tower height and bird mortality is consistent with studies of the vertical distribution of nocturnal migrants measured with radar. Most migrants fly at ~1,500 feet,[36] with a small proportion (2–15% in one study[37]) below 300 feet during clear weather. Greater proportions of total migrants (26–46%, depending on the season and location) are found in the strata up to ~1,300 feet, although the strength of radar used in that study[38] may underestimate the number of birds at higher altitude. All other things being equal, substantially more birds will encounter taller towers (greater than 300 feet) and their guy wires than shorter towers (less than 300 feet).

The logistic regression analysis of annual mortality and the Gehring study fully substantiate the U.S. Fish and Wildlife Service tower siting guidelines to better protect birds:

1. Any company/applicant/licensee proposing to construct a new communica-

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32. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS). Spring 2004 summary. Central Michigan University, Mount Pleasant. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS): Fall 2004 summary. Central Michigan University, Mount Pleasant.
33. Woodlot Report, p. 26.
34. Crawford, R.L., and R.T. Engstrom. 2001. Characteristics of avian mortality at a north Florida television tower: a 29-year study. *Journal of Field Ornithology* 72:380–388.
35. Stoddard, H.L., Sr., and R.A. Norris. 1967. Bird casualties at a Leon County, Florida TV tower: an eleven-year study. *Bulletin of Tall Timbers Research Station* 8:1–104. Wiseman, J. 1975. TV tower kills – Barrie (Ontario). *Blue Heron* 19:5. Hoskin, J. casualties at the CKVR-TV tower, Barrie. *Nature Canada* 4:39–40.
36. Able, K.P. 1970. A radar study of the attitude of nocturnal passerine migration. *Bird-Banding* 41(4):282–290. Bellrose, F.C. 1971. The distribution of nocturnal migrants in the air space. *Auk* 88:387–424.
37. Mabee, T.J., and B.A. Cooper. 2004. Nocturnal bird migration in northeastern Oregon and southeastern Washington. *Northwestern Naturalist* 85:39–47.
38. *Id.*

> tions 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.[39] [Emphasis added.]

The existing data would support the FCC adopting these recommendations as standards to better protect birds. Such standards for tower construction do not mean that towers exceeding 199 feet or any other height should not be constructed, only that the FCC would strongly encourage co-location and the construction of shorter towers to accomplish telecommunication goals while minimizing avian impacts.

4. Guyed Towers Kill More Birds Than Guyless Towers

Most towers from which large bird kills have been reported have had guy wires. Observational studies of birds in the vicinity of towers show that birds are much more likely to collide with the guy wires than with the tower itself.[40] Dr. Gehring's study in Michigan provides evidence of increased mortality caused by guyed towers compared to guyless towers of the same height and lighting regime. The Gehring study includes 12 guyed and 9 guyless communications towers 380–480 feet tall. During spring and fall 20-day survey periods in 2004, **guyed towers killed close to ten times more birds than guyless towers.**[41] This same ratio was found even after adjusting for scavenger removal and search efficiency.

It would be difficult to imagine more compelling results. Higher mortality from guyed towers would be expected because of the circling behavior exhibited by migrants under the influence of lights on towers. Furthermore, a study of bird mortality at transmission towers in Wisconsin found a high correlation between the locations of dead birds and guy wires, implicating collisions with guy wires as the cause of death.[42]

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39. Clark, J.R. 14 September 2000. Service guidance on the siting, construction, operation and decommissioning of communications towers. U.S. Fish and Wildlife Service, Washington, D.C.
40. Brewer, R., and J.A. Ellis. 1958. An analysis of migrating birds killed at a television tower in east-central Illinois, September 1955–May 1957. *Auk* 75:400–414. Avery, M., P.F. Springer, and J.F. Cassel. 1976. The effects of a tall tower on nocturnal bird migration – a portable ceilometer study. *Auk* 93 281–291. Fisher, H.I. 1966. Midway's deadly antennae. *Audubon Magazine* 68(4):220–223.
41. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS). Spring 2004 summary. Central Michigan University, Mount Pleasant. Gehring, J. 2004. Avian collision study plan for the Michigan Public Safety Communications System (MPSCS). Fall 2004 summary. Central Michigan University, Mount Pleasant.
42. Kruse, K. 1996. A study of the effects of transmission towers on migrating birds. M.S. thesis (Environmental Science and Policy), University of Wisconsin, Green Bay.

The hazard of guy wires to migrating birds has also been investigated by those working with wind power producers. Research on wind turbines, which are unguyed, and nearby guyed structures confirms the increased risk of guyed structures. For example, in one study, the average number of birds killed at a guyed meteorological tower was approximately three times higher than the nearby per turbine mortality. The turbines, of a similar height, are unguyed.[43]

This evidence, and the lack of records of mass bird kills at guyless towers in the reviewed literature, is sufficient for reasonable scientific minds to conclude that guy wires greatly increase mortality at towers. The evidence cited above documents the scientific merit of the U.S. Fish and Wildlife Service tower siting guidelines on the use of guy wires:

> 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.
>
> 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.**[44] [Emphasis added.]

The FCC could significantly reduce avian mortality at communications towers by allowing construction only of guyless towers unless applicants document that such construction is not feasible.

5. Tower Lighting Influences Bird Mortality

The lighting scheme of communications towers is probably the most important factor contributing to bird kills at towers that can be controlled by humans.[45] The current Federal Aviation Administration Advisory Circular (AC) 70/7460-1, Obstruction Marking and Lighting, dictates the use of lighting for nighttime conspicuity for aviation safety for all obstructions over 199 feet and for structures within three nautical miles of an airport. This is the only purpose in placing lights (Table 3) on communications towers and other

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43. Young, D.P., Jr., W.P. Erickson, R.E. Good, M.D. Strickland, and G.D. Johnson. 2003. Foote Creek Rim final bird and bat mortality report: avian and bat mortality associated with the initial phase of the Foote Creek Rim Wind Power Project, Carbon County, Wyoming. November 1998-June 2002. Final Report. Western EcoSystems Technology, Inc., Cheyenne, Wyoming.

44. Clark, J.R. 14 September 2000. Service guidance on the siting, construction, operation and decommissioning of communications towers. U.S. Fish and Wildlife Service, Washington, D.C.

45. Cochran, W.W., and R.R. Graber. 1958. Attraction of nocturnal migrants by lights on a television tower. *Wilson Bulletin* 70:378-380. Avery, M., P.F. Springer, and J.F. Cassel. 1976. The effects of a tall tower on nocturnal bird migration — a portable ceilometer study. *Auk* 93:281-291.

structures — to provide for aviation safety by making sure pilots can see human-made obstructions.

Table 3. FAA-approved light types for obstruction lighting.

Type	Description
L-810	Steady-burning Red Obstruction Light
L-856	High Intensity Flashing White Obstruction Light (40 FPM)
L-857	High Intensity Flashing White Obstruction Light (60 FPM)
L-864	Flashing Red Obstruction Light (20-40 FPM)
L-865	Medium Intensity Flashing White Obstruction Light (40 FPM)
L-866	Medium Intensity Flashing White Obstruction Light (60 FPM)
L-864/L-865	Dual: Flashing Red Obstruction Light (20–40 FPM) and Medium Intensity Flashing White Obstruction Light (40 FPM)
L-885 Red Catenary	60 FPM

FPM = Flashes Per Minute

Nocturnal migrants can be attracted to lights and they are disoriented or "trapped" by the lights once within their zone of influence. This zone of influence is extended when fog is in the air reflecting the light and inclement weather or topographic factors have forced migrating birds to lower altitudes. These mechanisms have been observed not only with reference to communications towers, but also for attraction to lightships,[46] lighthouses,[47] fires,[48] oil flares,[49] ceilometers,[50] and city lights and buildings.[51]

46. Barrington, R.M. 1900. *The migration of birds as observed at Irish lighthouses and lightships*. R.H Porter, London and Edward Ponsonby, Dublin. Bagg, A.M., and R.P. Emery. 1960. Fall migration: Northeastern maritime region. *Audubon Field Notes* 14:10–17. Dutcher, W. 1884. Bird notes from Long Island, N.Y. *Auk* 1:174–179.

47. Allen, J.A. 1880. Destruction of birds by light-houses. *Bulletin of the Nuttall Ornithological Club* 5:131–138. Brewster, W. 1886. Bird migration. Part I. Observations on nocturnal bird flights at the light-house at Point Lepreaux, Bay of Fundy, New Brunswick. *Memoirs of the Nuttall Ornithological Club* 1:5–10. Hansen, L. 1954. Birds killed at lights in Denmark 1886–1939. *Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening* 116:269–368. Lewis, H.F. 1927. Destruction of birds by lighthouses in the provinces of Ontario and Quebec. *Canadian Field-Naturalist* 41:55–58, 75–77. Miller, G.S., Jr. 1897. Winge on birds at the Danish lighthouses. *Auk* 14:415–417. Munro, J.A. 1924. A preliminary report on the destruction of birds at lighthouses on the coast of British Columbia. *Canadian Field-Naturalist* 38:141–145, 171–175. Squires, W.A., and H.E. Hanson. 1918. The destruction of birds at the lighthouses on the coast of California. *Condor* 20:6–10. Tufts, R.W. 1928. A report concerning destruction of bird life at lighthouses on the Atlantic coast. *Canadian Field-Naturalist* 42:167–172.

48. Stone, W. 1906. Some light on night migration. *Auk* 23:249–252.

49. Tornielli, A. 1951. Comportamento di migratori nei riguardi di un pozzo metanifero in fiamme [Behavior of migrants under the influence of a burning natural gas well]. *Rivista Italiana di Ornitologia* II-21:151–162. Wiese, F.K., W.A. Montevecchi, G.K. Davoren, F. Huettmann, A.W. Diamond, and J. Linke. 2001. Seabirds at risk around offshore oil platforms in the North-west Atlantic. *Marine Pollution Bulletin* 42:1285–1290.

50. Ferren, R.L. 1959. Mortality at the Dow Air Base ceilometer. *Maine Field Naturalist* 15:113–114. Forbes, C.B. 1956. Bird destruction at ceilometer light beam. *Maine Field Naturalist* 12:93–95. Howell,

Historical accounts suggest that, at least for birds attracted to lighthouses, solid white lights are more attractive to birds than colored or flashing lights. Barrington analyzed birds that were killed at 58 lighthouses and concluded that solid lights were more attractive to migrants than blinking lights and that white lights were more attractive than red lights.[52] Others concluded that, "fixed white lights were more deadly than revolving or coloured lights"[53] and that, "coloured lights do not attract the birds as white ones so fatally do."[54] Although colored (red) lights at lighthouses may have attracted fewer birds, flashing red and solid red lights in combination on communications towers are well documented to attract birds, especially night-flying migrants.[55] Conclusive evidence is not available that the color of light affects bird attraction, and Verheijen concludes that lesser attraction at colored lights is a function of their generally lower intensity.[56] Nevertheless, birds are attracted to red obstruction lighting, even if the lighting may be classified as low intensity. The role of color is confounded with the duration of the light — evidence indicates that white and probably red strobe-type lights are less attractive to birds than solid light of either color, as discussed below.

It should be noted that attraction of birds to white light does not mean that white strobes will also be attractive for birds as suggested by comments from the communications industry.[57] The unpublished research cited by the communications industry is described by Kerlinger[58] as documenting attraction of birds to solid white light over colored light, constant light over flashing light, and light over darkness in a captive, experimental setting. The report of this study does not indicate that strobe lights were tested and other details of the study are not available, and therefore it should not be assumed that it provides evidence that white strobes would be attractive to migrating birds.

Observation of bird behavior at towers lighted with solid red (L-810) and flashing red (incandescent L-864) lights confirms that light is the stimulus that keeps birds circling the tower and thereby substantially increasing risk of mortality. Cochran and Graber ob-

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J.C., A.R. Laskey, and J.T. Tanner. 1954. Bird mortality at airport ceilometers. *Wilson Bulletin* 66:207–215.

51. Gastman, E.A. 1886. Birds killed by electric light towers at Decatur, Ill. *American Naturalist* 20:981. Overing, R. 1938. High mortality at the Washington Monument. *Auk* 55:679. Lord, W.G. 1951. Bird fatalities at Bluff's Lodge on the Blue Ridge Parkway, Wilkes County, N.C. *Chat* 15:15–16.
52. Barrington, R.M. 1900. *The migration of birds as observed at Irish lighthouses and lightships*. R.H. Porter, London and Edward Ponsonby, Dublin.
53. Dixon, C. 1897. *The migration of birds: an attempt to reduce avine season-flight to law*. Windsor House, London.
54. Thomson, A.L. 1926. *Problems of bird-migration*. H.F. & G. Witherby, London.
55. Weir, R.D. 1976. *Annotated bibliography of bird kills at man-made obstacles: a review of the state of the art and solutions*. Department of Fisheries and the Environment, Environmental Management Service, Canadian Wildlife Service, Ontario Region, Ottawa.
56. Verheijen, F.J. 1985. Photopollution: artificial light optic spatial control systems fail to cope with. Incidents, causations, remedies. *Experimental Biology* 44:1–18.
57. Avatar Report, p. 3-49.
58. Unpublished research described in Kerlinger, P. 2002. *Avian mortality at communication towers: a review of recent literature, research, and methodology*. Report to U.S. Fish and Wildlife Service, Office of Migratory Bird Management.

served birds flying around incandescent red lights on a tower. When the lights were switched off, the birds dispersed. Birds congregated anew when the lights were switched back on.[59] Avery et al. repeated this experiment, and birds dispersed when the lights were extinguished.[60] As others have noted, "Avery's data suggest that the tower's obstruction lights were the sole factor in the congregation of birds."[61] Larkin and Frase also documented the circular flight paths of birds around a broadcast tower lighted with solid red and flashing red lights.[62] The Avatar Report does not adequately convey the certainty of this information or the central importance of lights in causing birds to collide with towers. The combination of solid red and flashing red lights (L-810 with incandescent L-864) attracts and disorients birds, which accumulate around towers, collide with each other, the tower, guy wires, and the ground, die of exhaustion, or deplete their fat reserves.

5.1. Disorientation by Red Lights Has Physiological Basis

The accumulation of birds near red lights may result from the same mechanism that attracts birds to white lights, from disruption of magnetic orientation under red wavelengths, or from a combination of both mechanisms. Nocturnal migrants are attracted to both red and white lights, become "trapped" in the lighted area, and do not return to the darkness of their migratory path. This has been shown in experiments where birds, varying by species and individual, move into lighted areas but not back into dark ones.[63]

Species	UV	violet	blue		green		yellow		red		IR	
	400		450	500		550		600		650		700 nm
Silver eyes *Zosterops lateralis*			+				+	⊖	⊖			
European Robin *Erithacus rubecula*		+	+		+		+	⊖	⊖	⊖		
Garden Warbler *Sylvia borin*			+				+	⊖	⊖			
Carrier Pigeon *Columba livia*							+		⊖	⊖		

Figure 4. Orientation (+) and disorientation (–) responses of birds under different wavelengths.[64]

59. Cochran, W.W., and R.R. Graber. 1958. Attraction of nocturnal migrants by lights on a television tower. *Wilson Bulletin* 70:378–380.
60. Avery, M., P.F. Springer, and J.F. Cassel. 1976. The effects of a tall tower on nocturnal bird migration — a portable ceilometer study. *Auk* 93:281–291.
61. Weir, R.D. 1976. *Annotated bibliography of bird kills at man-made obstacles: a review of the state of the art and solutions*. Department of Fisheries and the Environment, Environmental Management Service, Canadian Wildlife Service, Ontario Region, Ottawa, p. 18.
62. Larkin, R.P. and B.A. Frase. 1988. Circular paths of birds flying near a broadcasting tower in cloud. *Journal of Comparative Psychology* 102:90–93.
63. Verheijen, F.J. 1958. The mechanisms of the trapping effect of artificial light sources upon animals. *Archives Néerlandaises de Zoologie* 13:1–107.
64. Wiltschko, W., and R. Wiltschko. 2002. Magnetic compass orientation in birds and its physiological basis. *Naturwissenschaften* 89:445–452.

The evidence for disruption of magnetic orientation by red light is strong. Birds, when denied celestial cues, use magnetic orientation to guide migration direction.[65] It has been demonstrated in birds of several families that this magnetic orientation depends on the presence of light less than 590 nm (yellow; Figure 4). This magnetic orientation is disrupted under yellow and red light, as shown for European Robin (Figure 5). Birds within the visual sphere of influence of a red light would be denied use of celestial cues by the glare of the lights, and often by inclement weather that extends the influence of the lights. In this situation, the birds would also be denied use of magnetic orientation because of the absence of shorter wavelengths necessary for magnetic orientation to function, which may lead to disorientation and circular flight in the vicinity of the lights.[66]

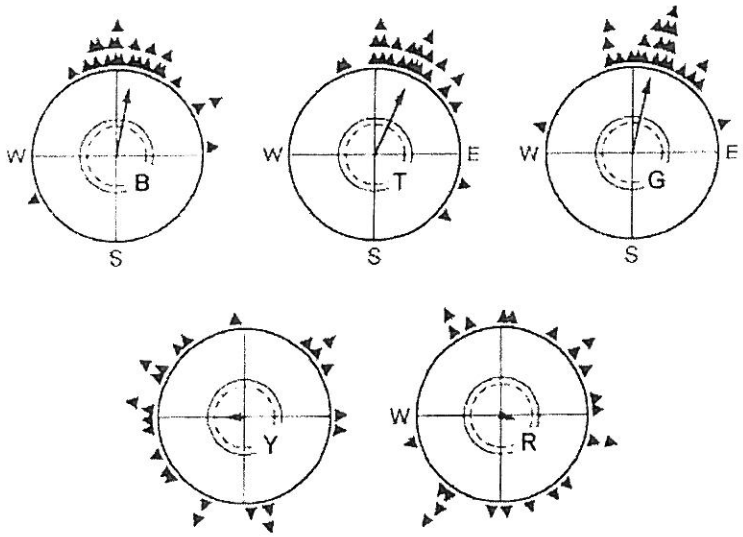

Figure 5. Orientation of European Robins under low-intensity light of different wavelengths in the spring. Birds under blue (B, 424 nm), turquoise (T, 510 nm), and green light (G, 565 nm) oriented properly, as indicated by the arrow in the circle. Individuals under yellow (Y, 590 nm) and red (R, 635 nm) light did not orient correctly.[67]

65. Deutschlander, M.E., J.B. Phillips, and S.C. Borland. 1999. The case for light-dependent magnetic orientation in animals. *Journal of Experimental Biology* 202:891–908. The evidence for magnetic orientation in birds is derived from studies of birds before flight, choosing a migratory direction. Definitive evidence of use of the magnetic compass during flight has not been obtained.
66. Gauthreaux, S.A., Jr., and C. Belser. 2005. Effects of artificial night lighting on migrating birds. *In* C. Rich and T. Longcore (eds.). *Ecological consequences of artificial night lighting*. Island Press, Covelo, California.
67. Wiltschko, W., and R. Wiltschko. 2002. Magnetic compass orientation in birds and its physiological basis. *Naturwissenschaften* 89:445–452.

5.2. White Strobe Lighting Does Not Attract, or Negligibly Attracts, Migratory Birds

Duration of lighting is critical to whether birds are or are not attracted to lights. The Avatar Report states that, "Although some studies and several anecdotal reports suggest that white strobe lights may be less attractive to birds, this has not been proven to date."[68] This conclusion improperly downplays the strength of the evidence that white strobe lights do not attract migrating birds, perhaps because the Avatar Report does not include studies from other lighted structures such as lighthouses.

The Dungeness Lighthouse in Kent, England was well known for chronic bird kills. In 1961, its revolving beam was replaced with a bluish-white lamp that flashed one second in every ten seconds. The Warden of the Dungeness Bird Observatory noted:

> An intermittent, flashing light (i.e. as the new Dungeness light) proves of no attraction to birds and casualties have never been found.... So we see that a lighthouse long known to kill large numbers of night migrants in a manner familiar to any who have witnessed kills, has *ceased* to kill any simply by changing its old 10-beam revolving light for a flashing light sending the same signal.[69]

Observations during the transition week between lights, under similar weather conditions, showed bird attraction with the constant revolving light, but none with the intermittent light.[70]

The historical record of bird mortality at lighthouses with incandescent flashing (**not** strobe) lights is mixed. Some lighthouse keepers reported hundreds of mortalities annually, while others reported none.[71] This record is difficult to interpret because the literature does not describe the lights well. None of the lighthouses described in these early studies was equipped with strobe lights, which had not yet been invented.[72]

All reports indicate that replacement of solid lights with white strobe lights (and no other lights) reduces bird kills. When stacks and towers at a power plant in Canada were equipped with strobe lights, bird kills were "virtually eliminated."[73] Some U.S. television towers were equipped with white strobe lights (e.g., L-865) instead of solid red (L-810) and flashing red (L-864) for the first time in 1973.[74] Although 11 of the one-night kills

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68. Avatar Report, p. 3-43.
69. T.E. Scott, quoted in Baldwin, D.H. 1965. Enquiry into the mass mortality of nocturnal migrants in Ontario: final report. *Ontario Naturalist* 3:3–11.
70. Baldwin, D.H. 1965. Enquiry into the mass mortality of nocturnal migrants in Ontario: final report. *Ontario Naturalist* 3:3–11, p. 10.
71. Lewis, H.F. 1927. Destruction of birds by lighthouses in the provinces of Ontario and Quebec. *Canadian Field-Naturalist* 41:55–58, 75–77.
72. Strobe lights were invented in the 1930s.
73. Evans Ogden, L.J. 1996. *Collision course: the hazards of lighted structures and windows to migrating birds*. World Wildlife Fund Canada and the Fatal Light Awareness Program, Toronto, Canada, p. 29.
74. Avery, M., P.F. Springer, and J.F. Cassel. 1976. The effects of a tall tower on nocturnal bird migration – a portable ceilometer study. *Auk* 93:281–291, p. 289.

reported in the literature occurred since 1973, none was at a tower with only strobe lights.[75]

Gauthreaux and Belser investigated the influence of light type on bird behavior around towers. The complete details of the Gauthreaux and Belser study were not available to Avatar Environmental for its review. This study has been peer-reviewed as part of a chapter to be published in a forthcoming edited book.[76] It provides additional scientific evidence that white strobe lights do not attract birds to towers and that strobe lights affect bird behavior less than solid red and flashing incandescent red lights when birds are in the vicinity of a tower.

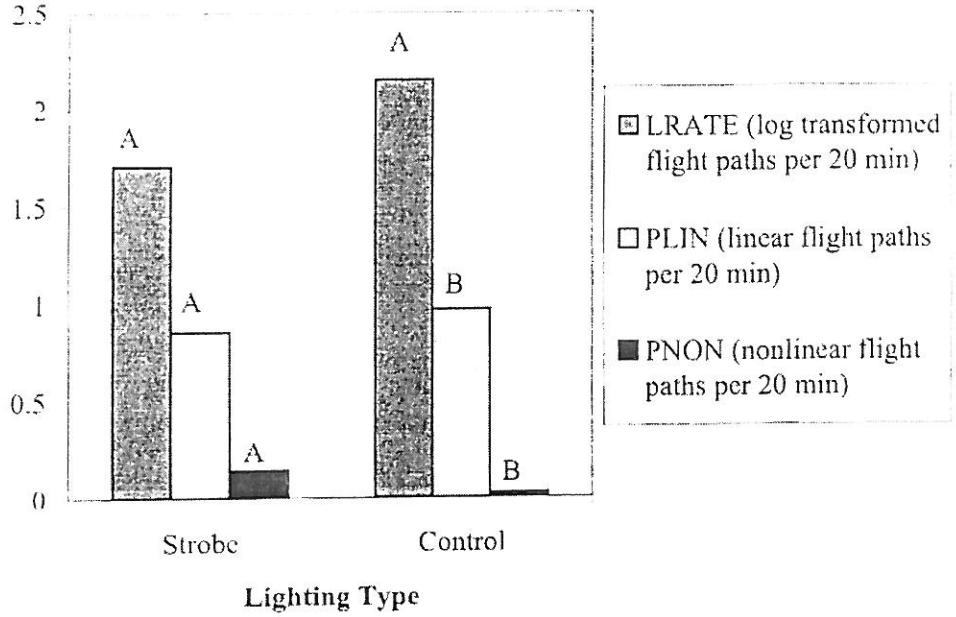

Figure 6. Rate, linear, and nonlinear migratory bird flights around control and strobe-lit tower sites at Neese, Georgia. Rate of linear and nonlinear paths are significantly different, with more nonlinear flights around the strobe-lit tower. The average rate of birds flying at each location was not significantly different.

Gauthreaux and Belser recorded bird behavior at towers at two study sites. At a site near Neese, Georgia, they compared bird flights at a 1,200-foot television tower with white

75. See reports reviewed in Woodlot Report. We consider the mass kill of Lapland Longspurs at a strobe-lighted tower to be a special event, likely explained by attraction to lighted facilities near the tower, an opinion that is shared by many experts. See Eaton, J. 2003. Tower kill. *Earth Island Journal* 17(4):32–35.

76. Gauthreaux, S.A., Jr., and C. Belser. 2005. Effects of artificial night lighting on migrating birds. *In* C. Rich and T. Longcore (eds.), *Ecological consequences of artificial night lighting*. Island Press, Covelo, California.

strobe lights (40–46 pulses per minute; L-856 or L-865) and a control site. Linear, nonlinear, and total paths were recorded and analyzed using general linear models with date and tower type (location) as explanatory variables. Results (Figure 6) show statistically significant higher rates of nonlinear flight around the strobe-lit tower compared to the control (no towers with red lights were studied in Georgia), but not significantly more total birds at the tower with white strobe lights compared with the control. The Avatar Report characterization that "white strobe lights attracted birds as compared to unlit control sites that attracted none"[77] is not accurate for the study as accepted for publication — there was **no significant difference between the number of bird flight paths at the control site and at the tower with white strobes.**

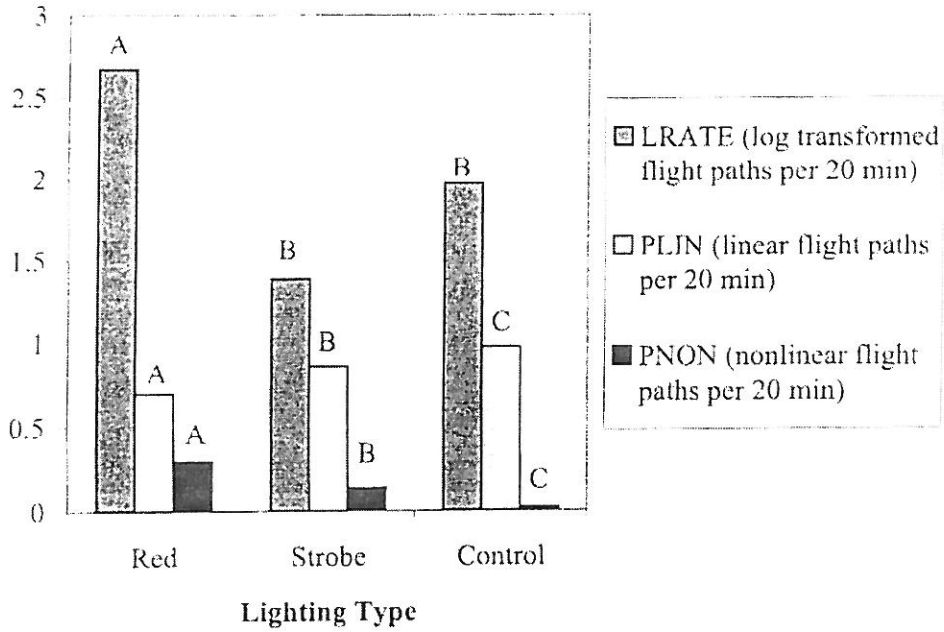

Figure 7. Rate, linear, and nonlinear migratory bird flights around towers with 1) a combination of solid red and flashing incandescent red lights, 2) white strobe lights, and 3) a control site without a tower near Moores Landing, South Carolina. Letters indicate statistically significant differences.

The second part of the study was conducted near Moores Landing, South Carolina during the fall migration. Gauthreaux and Belser monitor bird flights on 14 nights at two towers, one tower (1,667 feet) with incandescent flashing red and solid red lights (L-810) and one tower (2,016 feet) with white strobe lights, and a nearby control site. General linear models revealed that the number of flights was influenced by the day of observation and tower type. Significantly more birds were observed at the tower with the combination of

77. Avatar Report, p. 3-48

red lights than at the tower with white strobe lights or the control site. Furthermore, lighting type was significantly associated with number of nonlinear flight paths, with twice as many nonlinear flight paths at the tower with red lights than at the tower with white strobe lights on average, and nearly **14 times more nonlinear flight paths at the red lighted tower than at the control site**.

The results suggest that although white strobe lights cause birds to take more nonlinear flight paths, they do not result in birds accumulating around the tower. Gauthreaux and Belser conclude that the significantly greater number of paths per 20 minutes around the tower with red lights resulted from the attraction of the lights, added to the influence of the lights on orientation, leading to accumulations of individuals near the towers with solid red and flashing red lights.[78]

Contrary to the characterization in the Avatar Report, the scientific evidence, including a study at two locations, indicates that white strobe lights on towers result in less bird attraction than red (solid and flashing incandescent) lights and, by extension, lower bird mortality. Indeed, the use of strobe lights has been recommended by a series of researchers investigating this topic. Verheijen, who wrote the classic review on the attraction of animals to light,[79] concludes that, "Success has been achieved in the protection of nocturnal migrant birds through interrupting the trapping stimulus situation by ... replacing the stationary warning lights on tall obstacles by lights of strobe or flashing type."[80] Jones et al. similarly conclude that strobe lights with a complete break between flashes would reduce bird mortality at tall structures.[81]

Dr. W. Taylor, Professor Emeritus of Biology at Central Florida University, reports drastic reduction of bird mortality when lighting of a tower in Orlando, Florida was changed from solid red and flashing red lights to white strobe lights (pers. comm.). The tower was the site of large bird kills, and Professor Taylor and colleagues had collected more than 10,000 birds over the years and reported these kills in the literature.[82] In 1974, the ~1,000-foot guyed tower blew down, and was replaced with a taller guyed tower with white strobe lights. Following the replacement, bird mortality was reduced drastically and no mass kills (i.e., >100 birds) were ever again reported at the site.

78. See also Graber, R.R., and W.W. Cochran. 1960. Evaluation of an aural record of nocturnal migration. *Wilson Bulletin* 72:253–273. Avery, M., P.F. Springer, and J.F. Cassel. 1976. The effects of a tall tower on nocturnal bird migration — a portable ceilometer study. *Auk* 93:281–291.
79. Verheijen, F.J. 1958. The mechanisms of the trapping effect of artificial light sources upon animals. *Archives Neerlandaises de Zoologie* 13:1–107.
80. Verheijen, F.J. 1985. Photopollution: artificial light optic spatial control systems fail to cope with. Incidents, causations, remedies. *Experimental Biology* 44:1–18.
81. Jones, J., and C.M. Francis. 2003. The effects of light characteristics on avian mortality at lighthouses. *Journal of Avian Biology* 34:328–333.
82. Taylor, W.K., and B.H. Anderson. 1973. Nocturnal migrants killed at a south central Florida TV tower, autumn 1969-1971. *Wilson Bulletin* 85:42–51. Taylor, W.K., and B.H. Anderson. 1974. Nocturnal migrants killed at a south central Florida TV tower, autumn 1972. *Florida Field Naturalist* 2:40–43.

Two television towers near Awendaw, South Carolina had substantial bird kills during the 1980s when they had red incandescent lighting. The towers were changed to white strobe lights in about 1990 and few dead birds have been found around them since.[83]

An average of 2,300 birds per year were killed over a 10-year period at lighted smokestacks near Kingston, Ontario. After the lights were changed to white strobes, the bird kills ended.[84]

The observation that strobe-type lights (L-864 red strobes) do not attract night migrating birds has been made by those analyzing bird kills at wind turbines as well.[85] No comparison of attraction of birds to red strobes versus white strobes on communications towers is available because solid red lights (L-810) are always on towers along with red strobe lights. Many researchers believe that it is unlikely that red or white strobes attract birds at night.

Reports such as those from Florida, South Carolina, and Ontario are likely to be characterized as anecdotal and afforded less weight than peer-reviewed studies. But to ignore the many accounts of bird kills being virtually eliminated by changing to white strobe lights would be scientifically unsound. Anecdotal observations are data. Although they may not be accompanied by precise quantification, precision is not necessary when effects are large. For example, the dataset for the Orlando tower described by Dr. Taylor was well over 100 birds per year before the change to strobe lighting, then well under 100 birds per year following the change to strobe lighting. Even without knowing the exact number of years of observation before or after the change in light type, or the exact number of birds beyond those classes (i.e., over 100 birds/under 100 birds per year), one can conclude with a high degree of statistical certainty that the magnitude of mortality was significantly different. Absent another rational explanation for this difference (e.g., removal of guy wires, decrease in height, drastic change in weather), the only defensible scientific conclusion is that the changed lighting scheme was responsible for the difference. Furthermore, this same observation has been made on multiple occasions at different locations. It is possible, logical, and scientific to draw conclusions from multiple observations of the same phenomenon, even if those observations are not part of a prearranged scientific design. Multiple, consistent observations of the same response can be adequate to draw a statistically valid conclusion, so long as the effect size is sufficiently large.

To disprove the conclusion that bird kills are lower at strobe-lighted towers, large bird mortality events would have to have occurred at towers equipped with strobe lights without being noticed or reported by anyone. The one reported instance of mass mortality at

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83. Dr. W. Post, Curator of Birds, The Charleston Museum, pers. comm. to G. Winegrad.
84. Broderick, B. 1995. Light waves: why be concerned about light pollution? *Royal Astronomical Society of Canada Bulletin* 5(3):6.
85. See Kerlinger, P. 2004. Attraction of night migrating birds to FAA and other types of lights. Curry & Kerlinger, LLC, Cape May, New Jersey.

a strobe-lighted tower was an "abnormality"[86] confounded by the presence of other lighting at the site.

The Avatar Report concludes that the existing research is insufficient to make recommendations about lighting at communications towers. This conclusion is not accurate after considering the weight of the evidence, including the details of the Gauthreaux and Belser study that were not available to Avatar Environmental. Every known instance of changing to strobe lights at towers has reduced bird mortality and this solution has been known and recommended for 40 years. Reducing the attraction of birds to towers is a critical factor in minimizing bird deaths at towers. Without attraction, birds may still encounter and be killed in collisions with towers that are sited in migratory pathways, but the sum of the available scientific evidence indicates that mortality would be greatly reduced by using only strobe lights at towers.

The evidence above supports the U.S. Fish and Wildlife Service tower siting guidelines, which provide:

> 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**....
>
> 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.**[87] [Emphasis added.]

The research and studies cited and discussed above supports the U.S. Fish and Wildlife Service Guidelines for keeping towers unlit or lit exclusively with white or red strobes to minimize avian mortality. The FAA apparently concurs and has recommended the use of white strobes.

To reduce avian mortality, it is also important that accessory structures at towers, especially shorter unlit towers, not have constant exterior lighting. Studies from bird kills at

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86. Woodlot Report, p. 22.
87. Clark, J.R. 14 September 2000. Service guidance on the siting, construction, operation and decommissioning of communications towers. U.S. Fish and Wildlife Service, Washington, D.C.

wind turbines reveal greater kills at turbines near lighted structures.[88] Avoidance of lights on accessory structures for towers in natural areas would also reduce adverse effects on other taxa.[89]

6. Topography Influences Bird Mortality at Towers

Topography is known to concentrate migrants in certain locations such as coastlines, mountain ridges, rivers, and hills. Considerable evidence of this effect has been gathered in Europe,[90] with somewhat fewer studies in North America. A recent multi-modal research study in New Hampshire revealed the effect of the topography of the Appalachian Mountains on migratory birds, including neotropical migrants traversing southeast over the chain toward wintering grounds in Central and South America. At two ridgeline sites, the researchers observed "exceptional numbers of migrants at 2 to 30 m AGL [Above Ground Level]."[91] They conclude, consistent with the European studies, that it should not be assumed that birds migrate in a broad front across mountains. They continue:

> [This] is important for evaluation of structures such as wind-powered electrical generators or communication towers on ridge lines. Although our studies were not designed to observe concentrations of migrants at topographical features, reaction of migrants to topography that we did observe suggested such concentrations during both favorable and unfavorable conditions. Concentrations could result either as birds moved along a corridor, such as a pass or ridge line, or they could result from birds moving up and over a ridge meeting migrants already at that altitude and thus producing large numbers of birds a few tens of meters above the ridge summit. Our ceilometer observations of large numbers of birds near crests of ridges are particularly relevant in that regard.[92]

This study, which is plainly relevant but not cited in the Avatar Report, provides convincing peer-reviewed evidence that the placement of communications towers along ridgelines is likely to result in increased bird mortality than placement elsewhere. It pro-

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88. See Kerlinger, P. 2004. Attraction of night migrating birds to FAA and other types of lights. Curry & Kerlinger, LLC, Cape May, New Jersey.

89. Longcore, T., and C. Rich. 2004. Ecological light pollution. *Frontiers in Ecology and the Environment* 2:191–198.

90. Williams, T.C., J.M. Williams, P.G. Williams, and P. Stokstad. 2001. Bird migration through a mountain pass studied with high resolution radar, ceilometers, and census. *Auk* 118:389–403, citing Bruderer, B. 1978. Effects of alpine topography and winds on migrating birds. Pp. 252–265 *in* K. Schmidt-Koenig and W. Keeton (eds.), *Animal migration, navigation, and homing*. Springer-Verlag, Berlin. Bruderer, B. 1999. Three decades of tracking radar studies on bird migration in Europe and the Middle East. Pp. 107–141 *in* Y. Leshem, Y. Mandelik, and J. Shamoun-Baranes (eds.), *Proceedings international seminar on birds and flight safety in the Middle East*. Tel-Aviv, Israel. Bruderer, B., and L. Jenni. 1988. Strategies of bird migration in the area of the Alps. Pp. 2150–2161 *in* H. Ouellet (ed.), *Acta XIX Congressus Internationalis Ornitologici*. National Museum of Natural Science, Ottawa, Ontario. Eastwood, E. 1967. *Radar ornithology*. Methuen, London.

91. Williams, T.C., J.M. Williams, P.G. Williams, and P. Stokstad. 2001. Bird migration through a mountain pass studied with high resolution radar, ceilometers, and census. *Auk* 118:389–403, p. 394.

92. Williams, T.C., J.M. Williams, P.G. Williams, and P. Stokstad. 2001. Bird migration through a mountain pass studied with high resolution radar, ceilometers, and census. *Auk* 118:389–403, p. 401.

vides a rational explanation for why some short towers cause high bird mortality (e.g., a kill at a 100-foot unlighted tower on a ridgeline). Birds will be killed at a tower whenever large numbers are flying near it at the same elevation as the tower. This can occur because the tower is tall or because it is placed topographically where birds are concentrated close to the ground. At ridgeline locations, inclement weather is not required for concentrations of birds to be found at low elevation. Radar studies can be conducted prior to siting a tower in an area that might concentrate night migrants so that the tower can be located to avoid such sites.

7. Data Quality Act

The communications industry appears eager to use the Data Quality Act and its implementation by the FCC as a way to discount the available information about bird mortality at communications towers. The National Association of Broadcasters et al. asserts, "As described in more detail in the attached Technical Comments, most reports, observations and studies on the supposed effects of communications towers on migratory birds have not been peer-reviewed and would not qualify as 'quality information' under the Commission's own DQA Information Quality Guidelines."[93] In their commissioned report, Woodlot Alternatives writes:

> Most of the literature cited, particularly those involving observations and incidental reports, was found to be of limited scientific value. Referring to some aspects of the FCC's Data Quality guidelines (transparency and reproducibility), we used these criteria to assess the 27 peer-reviewed studies used in this review. In accordance with these guidelines, published papers were required to 1) have a research protocol with a clearly described methods section; 2) maintain sufficient metrics for statistical analyses; 3) have clearly stated results; and 4) have reproducible results. The studies that appeared to meet these criteria were published in peer-reviewed scientific journals. We found that 19 studies met the above criteria as discussed in the guidelines and 8 studies were doubtful in this regard (Table 4). None of the 173 incidental reports of avian mortality met the FCC Data Quality guidelines for transparency and reproducibility.

The eagerness to characterize incidental reports of bird mortality at particular towers as "of limited scientific value" misses the point. Incidental observations are neither useless nor ideal for scientific inquiry. Their appropriateness for use depends upon the purpose to which they are put. As long as assumptions are made explicit, incidental observations can be used to develop a description of reality using the scientific method.

While the communications industry concentrates on the elements of "reproducibility" and "transparency," it does not discuss the need for analysis to be objective. In the FCC's implementing guidelines, this means that if alternative explanations for patterns in data exist, they should be included in any discussion of results.[94] Both the Woodlot Report

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93 CTIA/NAB Comments, p. 28 (footnote omitted).

94 The Information Quality Guidelines (FCC 02-277) read, in part: "Objectivity will be demonstrated by including in the information dissemination product's methodology section or appendix a discussion of

and the Avatar Report fail to do this. Many of the conclusions presented above are alternative, and we believe more accurate, interpretations of the material presented in the Avatar Report. The Avatar Report avoids drawing obvious inferences from the available data to such a degree that it could be interpreted as lacking objectivity. For example, it claims that little research on bird mortalities at towers has been completed in the past twenty years,[95] despite many recent studies available to Avatar.[96]

8. Conclusion

Our review of the scientific literature, combined with our analysis conducted in the preparation of this report, and the unpublished and in-press research described above, leads us to the conclusion that sufficient reliable information is available to implement communications tower guidelines that would reduce existing and future significant adverse impacts on bird populations. Many research needs are apparent — evaluating the attractiveness of strobe-type flashing red lights without the confounding effect of solid red lights and testing the hypothesis that red light disorients birds while in flight by disrupting their magnetic compass are only two. We conclude, however, that the U.S. Fish and Wildlife Service tower siting guidelines have a strong scientific basis, and their applicability has been demonstrated by research available at the time they were issued in 2000, or completed since then.

In view of the significant adverse effects on bird populations if nothing is done, an adaptive management approach would be advisable.[97] Adaptive management allows for a management action to be taken, such as requiring only strobe-type lights on new towers, while continuing to increase scientific knowledge by studying the effects of such actions (e.g., monitoring and comparing bird mortality at towers with all white strobe lights, all red strobe lights, and mixed solid red and red strobe lights on towers). Future recommendations can be modified to incorporate the findings of such studies. Many alternative

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other scientifically, financially, or statistically responsible and reliable alternative views and perspectives, if these alternative views or perspectives are not already noted in other sections of the information dissemination product."

95. Avatar Report, p. 3-1.

96. Morris, S.R., A.R. Clark, L.H. Bhatti, and J.L. Glasgow. 2003. Television tower mortality of migrant birds in western New York and Youngstown, Ohio. *Northeastern Naturalist* 10:67–76. Nehring, J., and S. Bivens. 1999. A study of bird mortality at Nashville's WSMV television tower. *Migrant* 70:1–8. Kemper, C.A. 1996. A study of bird mortality at a central Wisconsin TV tower from 1957–1995. *Passenger Pigeon* 58:219–235. Crawford, R.L., and R.T. Engstrom. 2001. Characteristics of avian mortality at a north Florida television tower: a 29-year study. *Journal of Field Ornithology* 72:380–388. Kruse, K. 1996. A study of the effects of transmission towers on migrating birds. M.S. thesis (Environmental Science and Policy), University of Wisconsin, Green Bay. Ball, L.G., K. Zyskowski, and G. Escalona-Segura. 1995. Recent bird mortality at a Topeka television tower. *Kansas Ornithological Bulletin* 46(4):33–36. Larkin, R.P., and B.A. Frase. 1988. Circular paths of birds flying near a broadcasting tower in cloud. *Journal of Comparative Psychology* 102:90–93.

97. Holling, C.S. 1978. *Adaptive environmental assessment and management*. John Wiley & Sons, New York. Walters, C.J. 1986. *Adaptive management of renewable resources*. MacMillan Press, New York. Haney, A., and R.L. Power. 1996. Adaptive management for sound ecosystem management. *Environmental Management* 20:879–886.

mitigation strategies could be investigated and eventually adopted under an adaptive management approach (e.g, different lighting colors, different flash rates), but progress in reducing current adverse impacts and minimizing future impacts from communications towers requires immediate action based on the substantial existing research.

9. About the Authors

Dr. Travis Longcore and Catherine Rich are co-editors of the forthcoming book *Ecological Consequences of Artificial Night Lighting* (Island Press). They provide expert comments on environmental impact analysis documents, concentrating on presenting a thorough review of the scientific literature. Dr. Longcore is Research Assistant Professor of Geography at the University of Southern California Center for Sustainable Cities and Lecturer for the UCLA Department of Ecology and Evolutionary Biology and the UCLA Institute of the Environment. He was graduated *summa cum laude* from the University of Delaware with an Honors B.A. in Geography, and holds an M.A. and a Ph.D. in Geography from UCLA. Ms. Rich holds an A.B. with honors from the University of California at Berkeley, a J.D. from the UCLA School of Law, and an M.A. in Geography from UCLA. She is a licensed attorney in California (currently on inactive status), and is Executive Officer of The Urban Wildlands Group, a conservation non-profit that she co-founded with Dr Longcore. Dr. Sidney A. Gauthreaux, Jr. has studied behavioral and physiological aspects of bird migration since the late 1950s. He is currently Professor of Biological Sciences at Clemson University and Director of the Clemson University Radar Ornithology Laboratory.

Dr. C. Zonneveld (Free University, Amsterdam) provided useful criticism of the statistical analysis. All errors and omissions remain the responsibility of the authors.

10. Appendix: Data Used in Analysis of Tower Height

To allow transparency and reproducibility of the analysis of tower height presented in Section 3, the dataset is provided here. These data were obtained from, and full citations are found in, the Woodlot Report and a report from the National Wind Coordinating Committee.[98]

Table 4. Studies of birds killed at towers providing estimates of mean annual mortality.

Source	State	Tower Height (feet)	Duration of Study (years)	Mean/Estimated Annual Mortality
C. Nicholson, pers. comm.[99]	TN	197	3	8
Seets and Bohlen 1977	IL	605	1	~206
Young et al. 1994	KS	653	0.5	~1,272
Young et al. 1994	KS	700	0.5	~1,080
Bierly 1968, 1969, 1972, Remy 1974, 1975, Cooley 1977	AL	825	4	82
Morris et al. 2003	NY	961	30	267
Seets and Bohlen 1977	IL	981	0.5	~130
Kemper 1996	WI	1,000	38	3,200
Crawford and Engstrom 2001	FL	1,010	24	~1,370
Seets and Bohlen 1977	IL	1,047	0.5	~1,176
Morris et al. 2003	NY	1,059	30	35
Seets and Bohlen 1977	IL	1,063	0.5	~969
Morris et al. 2003	NY	1,076	30	370
Young et al. 1994	KS	1,079	0.5	~912
Morris et al. 2003	OH	1,084	19	227
Young et al. 1994	KS	1,154	0.5	~672
Carter and Parnell 1976	NC	1,188	2	767
Avery et al 1976	ND	1,197	3	1,075
Young et al. 1994	KS	1,253	0.5	~408
Stmad 1975	MN	1,314	5	701
Seets and Bohlen 1977	IL	1,338	0.5	~942
Nehring and Bivens 1999	TN	1,364	38	523
Seets and Bohlen 1977	IL	1,458	0.5	~1,680
Taylor and Anderson 1973	FL	1,481	3	2,594
Seets and Bohlen 1977	IL	1,587	0.5	~326
Carter and Parnell 1976	NC	1,994	2	767

98 Erickson, W.P., G.D. Johnson, M.D. Strickland, D.P. Young, Jr., K.J. Sernka, and R.E. Good. 2001. *Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the United States.* National Wind Coordinating Committee (NWCC) Resource Document.

99 C.P. Nicholson, Ph.D., Tennessee Valley Authority, pers. comm. to G. Winegrad, March 26, 2004

Table 5. Results of logistic regression of annual mortality class by tower height.

Whole Model Test

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	3.723222	1	7.446445	0.0064
Full	10.322085			
Reduced	14.045308			

RSquare (U)	0.2651
Observations (or Sum Wgts)	26

Converged by Gradient

Parameter Estimates

Term	Estimate	Std Error	ChiSquare	Prob>ChiSq
Intercept	-3.7233453	2.3306353	2.55	0.1101
Tower Height	0.00489571	0.0023436	4.36	0.0367

For log odds of over 250/under 250

Table 6. Results of logistic regression of annual mortality class by tower height omitting the only short, unlit tower.

Whole Model Test

Model	-LogLikelihood	DF	ChiSquare	Prob>ChiSq
Difference	2.257167	1	4.514335	0.0336
Full	10.252893			
Reduced	12.510061			

RSquare (U)	0.1804
Observations (or Sum Wgts)	25

Converged by Gradient

Parameter Estimates

Term	Estimate	Std Error	ChiSquare	Prob>ChiSq
Intercept	-3.4047111	2.5411879	1.80	0.1803
Tower Height	0.00458966	0.0025254	3.30	0.0692

For log odds of over 250/under 250

FINAL MANUSCRIPT

8/31/00

Note: This is a manuscript, currently in press, of a speech presented by Al Manville at the Avian Interactions Workshop held December 2, 1999, in Charleston, SC, and sponsored by the Electric Power Research Institute. The paper provides a detailed overview of the communication tower/bird strike problem. The manuscript is being published in the Proceedings of the Avian Interactions Workshop. For purposes of copyright protection, should the document be cited, please use the following reference:

Manville, A. M. II. 2000. The ABCs of avoiding bird collisions at communication towers: the next steps. Proceedings of the Avian Interactions Workshop, December 2, 1999, Charleston, SC. Electric Power Research Institute (in press).

THE ABCs OF AVOIDING BIRD COLLISIONS AT COMMUNICATION TOWERS: THE NEXT STEPS.

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Abstract: Published accounts of avian collisions with tall, lit structures date back in North America to at least 1880. Long-term studies of the impacts of communication towers on birds are more recent, the first having begun in 1955. This paper will review the known and suspected causes of bird collisions with communication towers (e.g., lighting color, light duration, and electromagnetic radiation), assess gaps in our information base, discuss what is being done to fill those gaps, and review the role of the U.S. Fish and Wildlife Service (FWS or Service) in dealing with this important problem. This paper will also review avian vulnerability to collisions with tall structures, currently affecting nearly 350 species of neotropical migratory songbirds that breed in North America in the spring and summer and migrate to the southern United States, the Caribbean, or Latin America during the fall and winter. These species generally migrate at night and appear to be most susceptible to collisions with lit towers when foggy, misty, low-cloud-ceiling conditions occur during their spring and fall migrations. Thrushes, Vireos, and Warblers are the species that seem the most vulnerable. Lit towers, those exceeding 199 feet (61 m) above the ground, currently number about 46,000 in the United States (not including lit "poles"), with the total number of towers registered in the Federal Communications Commission database listed at some 75,000. Also included in this paper are preliminary voluntary recommendations designed to help minimize bird collisions with towers, as well as a review of activities that prompted recent FWS action in dealing with this issue. This paper will further review two partnerships with the electric utility and electric wind generation industries -- the Avian Power Line Interaction Committee and the National Wind Coordinating Committee's Avian Subcommittee, respectively -- as possible models for a future partnership with the communication industry (*i.e.*, radio, television, cellular, and microwave).

Key words: Avian mortality, bird watching, bird strikes, collisions, communication towers, guy wires, habitat management, lights, mitigation, neotropical migratory songbirds, night migrations, radio frequency waves, partnerships, tower siting.

INTRODUCTION

Published accounts of birds striking tall, lit structures such as lighthouses -- although often anecdotal --

have appeared in the scientific literature since at least 1880 (Crawford and Engstrom 1999). The earliest known published report of a bird-tower kill in the United States took place in September 1948 at a 450-foot (137-m) radio tower in Baltimore, Maryland, although no details about the incident were made available (Aronoff 1949). The first long-term study of the impact of a television tower on birds was begun in 1955 by the Tall Timbers Research Station in northern Florida. With the ground conditions and the number of scavengers controlled as much as possible, daily searches for dead birds were made under this tower. Kills were plotted on maps, weather records were maintained, and dead birds were speciated. After the first 25 years, 42,384 birds representing 189 species were tallied (Crawford and Engstrom 1999). The longest study yet conducted was by physician Charles Kemper over a 38-year period, beginning in 1957 (Kemper 1964, 1996). He collected 121,560 birds representing 123 species. On one night in 1963, he collected and speciated over 12,000 birds, the largest single-night kill yet documented, not accounting for the almost certain scavenging by wild and domestic predators such as crows (*Corvus brachyrhynchos*), owls (Strigidae), foxes (*Vulpes vulpes*), dogs (*Canis familiaris*), cats (*Felis domesticus*), and others then present. Other studies also have been conducted on the effects of tall towers on nocturnal bird migrations, most notably by Avery *et al.* (1976) at a U.S. Coast Guard Omega Navigation Station in North Dakota using a portable ceilometer.

In fact, since the 1970s there has been much information published about bird strikes with communication towers. A good deal of this information has been maintained by Division of Migratory Bird Management (DMBM) web sites at http://www.fws.gov/ r9mbmo/homepg.html and http://migratorybirds.fws.gov/issues/towers/agenda.html.

Unfortunately, most of the research that has been done regarding bird strikes with these structures only reviews carcass counts and species variability, not the presumed or suspected causes of bird collisions. Research into this arena is sorely lacking. Published accounts do, however, answer one question. Birds vulnerable to communication towers comprise some 350 species of so-called neotropical migratory songbirds. Of these, Thrushes (Muscicapidae), Vireos (Vireonidae), and Warblers (Parulidae) are the species that seem the most vulnerable. These migratory songbirds are species that breed in North America in the spring and summer and migrate to the southern United States, the Caribbean, or Latin America during the fall and winter. These species also generally migrate at night and appear to be most susceptible to collisions with lit towers on foggy, misty, low-cloud-ceiling nights during their migrations. Lights seem to be key.

Federal Trust Responsibility

Migratory birds are a trust resource for the U.S. Fish and Wildlife Service. The Service is currently responsible for the conservation and management of 836 species of migratory birds protected by the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. Sections 703 and 712; Sections 704-712 authorizing the Secretary of Interior to issue implementing regulations). Of these, 778 are categorized as so-called nongame species (*e.g.*, the Eastern Bluebird [*Sialia sialis*]), while 58 species are legally hunted as game (*e.g.*, the Wood Duck [*Aix sponsa*]). The Service is currently faced with a dichotomous challenge: while the populations of some species are doing very well -- some too well (*e.g.*, the mid-continent lesser Snow Goose [*Anser caerulescens caerulescens*], the urban Canada Goose [*Branta canadensis*], the Brown-headed Cowbird [*Molothrus ater*], and the Double-crested Cormorant [*Phalacrocorax auritus*]) -- many other species are not (Schmidt and Petit 1998). We currently are seeing the continuing declines of over 200 species. Of these, 90 are listed under the Federal Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.): 75 species are listed as Endangered, such as the Whooping Crane (*Grus americana*); while 15 species are listed as Threatened, such as the San Clemente Sage Sparrow (*Amphispiza belli clementeae*). Another 124 are on the Service's list of Nongame Species of Management Concern (*e.g.*, Cerulean Warbler [*Dendroica cerulea*]; Trapp 1995). These include birds whose populations are declining, some precipitously. If trends are not reversed, the

next likely step is listing under ESA -- a train wreck we would prefer to avoid. Add to the known declines our lack of population data on many of the bird species. Fully one-third of the 836 species (some 279) have essentially no population data.

Before attempting to assess the impacts of communication towers (including -- but not necessarily limited to -- radio, television, cellular, microwave, paging, messaging, open video, public safety, wireless data, government dispatch, and emergency broadcast) on birds, first look at the other non-tower factors that kill birds. Mortality occurs from collisions with wind generators, electric transmission and distribution lines, glass windows, aircraft, and automobiles; electrocutions; oil and contaminant spills; pesticide poisonings; predation by cats; introductions of exotic species; habitat loss and/or degradation; and other causes. Although their estimates are conservative to very conservative, some of these impacts illustrate the relative magnitude of these threats to avian survivorship. For example, building window collisions are estimated to take from 97 to 970 million birds per year, or from 1 to 10 birds per building annually in North America (Klem 1989, 1990; O'Connell 1998). In one study, pesticide ingestion was estimated to kill 65 million birds per year (Pimentel *et al.* 1992). Kill figures alone from birds retrieved from Alaska's *Exxon Valdez* oil spill were huge. As of September 1989, over 36,470 dead birds were retrieved for evidence by the FWS, representing 90 different species (Manville 1991). Estimates for oil-caused avian mortality from the *Exxon* spill ranged from 350,000-500,000. Another source of bird mortality is free-ranging domestic cats. Nationwide, these felids are estimated to kill hundreds of millions of birds - an astounding impact. In one four-year study in Wisconsin alone, domestic cats were estimated to kill roughly 39 million birds each year (range 8-217 million) in just the rural areas of that State (Coleman *et al.* 1997).

Add to this the growing impacts of communication towers whose construction is occurring at an exponential rate -- conservatively estimated at 4-5 million birds killed per year due to collisions with communication towers (Manville 1999) -- and the cumulative impacts of all these mortality factors is of grave concern. While, for example, it may be difficult to seriously reduce window strike and automobile mortalities, many feel we can take substantive steps to reverse trends in bird-tower collisions. It is incumbent upon us to do whatever possible to reverse these trends.

Birds are big business in North America. In 1996, for example, some 63 million Americans 16 years old and older enjoyed activities such as feeding, photographing, and watching birds. These wildlife watchers spent an estimated $28.9 billion pursing these activities (USFWS 1997; Fenwick 1997). With perhaps the exception of gardening, birdwatching has become America's fastest growing hobby, increasing 150% over the past decade. More Americans reportedly go on vacations to watch birds today than to play golf. In the 1994-95 National Recreation Survey, for example, birdwatching had increased 155% over the previous decade compared to a 29% increase for golf (Stangel and Fenwick 1997).

From a utilitarian standpoint, birds pollinate flowers and remove insect pests from many important commercial food crop and forest species, making possible a multi-billion-dollar industry extremely dependent upon birds for its success. One pair of Warblers, for example, will remove the defoliating caterpillars from more than 1 million leaves within the 2-3 week period that they are feeding their nestlings. In the Pacific Northwest, 24 species of neotropical songbirds feed on the western spruce budworm (*Choristoneura occidentalis*) and the Douglas fir tussock moth (*Orgyia pseudotsugata*), two of the most destructive defoliating insects found in the region. Birds remove countless weed seeds -- including exotic species -- that compete for food crop and forest production. Birds also distribute seeds of important forest tree and shrub species whose survival would not exist without bird seed dispersal. The global reduction of pollinators -- including birds -- raises alarm. Fully two-thirds of our flowering plants are pollinated by birds, insects, and bats, producing a global economic benefit estimated at $117 billion per year (Smithsonian Migratory Bird Center 1994; Ornithological Council 1997). In short, birds are extremely important to us all.

DISCUSSION

Fish and Wildlife Service Involvement

The Service has played other and more historic roles than those dealing with bird strikes in the siting and placement of communication towers. Through the Service's Division of Habitat Conservation, Fisheries and Habitat Conservation, and our Ecological Service field offices, we review siting requests and potential problems created by towers as mandated by the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), and Section 7 of the ESA. It was only more recently that DMBM became actively involved in the tower-collision issue. On January 22, 1998, a large kill of an estimated 5,000-10,000 Lapland Longspurs (*Calcarius lapponicus*) -- a migratory songbird -- occurred at and in the vicinity of three communication towers and a natural gas pumping facility in western Kansas on a snowy, foggy night. Almost immediately, the issue was brought to DMBM's attention by various representatives of the environmental community, most notably the National Audubon Society, the American Bird Conservancy (ABC), and the Ornithological Council (OC). In April 1998, I was asked on behalf of DMBM to brief the Policy Council of ABC on, among other things, bird mortality from communication tower strikes. At the time, a partial but certainly not complete list of reviewed and abstracted literature was provided to the Council. Following this briefing, informal discussions continued between representatives of the Federal Communications Commission (FCC), the Service's Division of Habitat Conservation, and DMBM.

On November 17, 1998, representatives of the Service's regional, field, and Washington, DC, offices met in Panama City, Florida, to discuss, "Migratory Bird Conservation and Communication Towers: Avoiding and Minimizing Conflicts." That document was subsequently made available to the public (Lang 1999). In December 1998, I and another FWS staff member met with representatives of the environmental dispute resolution group, RESOLVE, to discuss the need for a facilitated meeting with stakeholders to review and discuss research needs and gaps, put concerns over bird kills on the table, and begin a dialogue with the various players. That facilitated meeting, attended by 42 stakeholders, took place on June 29, 1999, at RESOLVE in Washington, DC. Those agencies represented included the FCC, the Federal Aviation Administration (FAA), the Federal Highway Administration, the U.S. Department of Agriculture's National Wildlife Research Center, the Service, and the Wisconsin Department of Natural Resources. Those from the research community included the Illinois Natural History Survey, the Buffalo Museum of Science, Geo-Marine, the State University of New York at Geneseo, Cornell University, Clemson University, and Curry & Kerlinger. Industry representatives included the Cellular Telecommunications Industry Association, Environmental Resources Management, Motorola, the Personal Communications Industry Association, SBC Wireless, and Southwestern Bell Wireless. Environmentalists were represented by ABC, the National Audubon Society, the OC, and the Piedmont Environmental Council. The most substantive result of the meeting was the creation of the Communication Tower Working Group with 15 individuals agreeing to participate. The Working Group's purpose is to develop and implement a research protocol that will determine what about towers kills birds. DMBM was asked to chair the Working Group.

On August 11, 1999, the very first public workshop on "Avian Mortality at Communication Towers" was held at Cornell University in conjunction with the 117th meeting of the American Ornithologists' Union. The workshop was co-sponsored by the Service, ABC, and the OC. Bill Evans, an independent ornithological researcher from Ithaca, New York, and I - representing the Service - co-chaired the meeting which included presentations by 17 speakers, and a discussion on research and funding needs, information gaps, and next steps by a panel of 23 experts. Complete transcripts of the meeting are available on <http://migratorybirds.fws.gov/issues/towers/agenda.html> and on <www.towerkill.com>. Much information, some of which has previously been summarized in this paper, was presented in the

workshop. The representative from the FAA, for example, pointed out that all towers more than 199 feet (61 m) above ground level (AGL) must contain a pilot warning light(s). Based on the July 2000 FCC *Antenna Structure Registry* database, there were some 46,000 lit towers more than 199 feet AGL (not including towers classified as "poles") in the United States. Approximately 75,000 towers (including some 23,000 which are not lighted) are now listed in the FCC's database. Some groups have argued that the database understates the true number of lit towers, suggesting that upwards of 80,000 towers are currently lighted. Whatever the correct figure, we do know that tower siting and construction have increased exponentially within at least the last 3 years and that growth continues at 6-8% per year.

Known and Suspected Problems

What is it specifically about towers that seems to attract birds? Lighting, again, is critical. As bird attractants, lights on tall structures have been cited in the literature well back into the early 1900s and before (Crawford and Engstrom 1999). Cochran and Graber (1958) were among the first to document lighting impacts on birds. They noted that when tower lights were turned off, the number of migrant flight calls decreased significantly, but within minutes after the tower was relighted, flight calls "increased dramatically." Inclement weather conditions are usually necessary, as reported by Laskey (1954), and mass bird kills seem to be related to either white or red lighting as reported by Avery *et al.* (1976). Large bird kills, however, do not always occur during inclement weather, as evidenced by a kill of some 450 songbirds (30 species involved, most notably 145 Yellow-rumped Warblers [*Dendroica coronata*], 114 Orange-crowned Warblers [*Vermivora celata*], and 37 Nashville Warblers [*V. ruficapilla*] at a red blinking television tower near Topeka, Kansas, in early October 1999. The skies were clear until approximately 3:00 am the night of the tower kill (Stephanie Jones, FWS, 1999 pers. comm.). How many birds died during the clear weather conditions before 3:00 am is unknown.

The retina of the bird's eye is far more sensitive to the red and infrared spectra than is the human eye. Color perception in birds is far more complex than in humans, as birds eyes contain 4-6 types of cones (color receptors) while human eyes contain only 3 types. Light can affect birds' behavior both visually and magnetically. All bird species thus far examined have been shown to have a narrowly tuned receptor in the red region of the electromagnetic spectrum (Beason 1999). Although research in this area is lacking, birds may be attracted to red lights or become disoriented by having red lights disrupt their magnetic compasses. Color (*i.e.*, white, white with ultraviolet, and specific colors such as red) and flash duration (*i.e.*, strobed, slow flash, or steady) are two aspects of lighting that can change its attraction for birds (Beason 1999). A few reports indicate that white strobe lights, whose ultraviolet content is unknown, are less attractive to birds than steady or flashing red lights (Gauthreaux and Belser 1999).

Is the bird's navigation system disrupted by the red lighting or is the bird's ability to monitor the geomagnetic field disrupted by the radio frequency signal itself? Long wavelength illumination, such as that in the red-orange spectrum, has been shown to interfere with the avian magnetic compass (Beason 1999). However, current thinking seems to indicate that light flash duration, rather than color, is far more critical. The longer the "off" phase between the blink or flash phases of the light pulses, the less likely birds are to be attracted to the lighting (Michael Avery, USDA, 1999 pers. comm.). For example, solid or blinking red lights seem to attract birds on foggy, misty nights far more often than do white strobes, which may flash once every 2-3 seconds (3 seconds currently the maximum allowable "off" duration). Again, the "off" phase of the light seems critical, the longer that phase the less likely the attraction during foggy, misty, rainy, overcast, low-cloud-ceiling nights. While some preliminary research by Michael Avery, Robert Beason, and Sidney Gauthreaux supports this hypothesis, it will need further testing in a more systematic and statistically significant way.

While Avery *et al.* (1976) reported no noticeable effect of a Coast Guard navigation tower's signal on birds, they concluded that the tower's possible signal effect on birds could not be completely dismissed.

Beason (1999) indicated that most radio frequency (RF) signals have no effect on avian orientation, with the exception of tracking radars. Pulsed microwave signals resulted in changes in the rate of spontaneous activity of neurons in the avian brain. Whether these changes resulted in behavioral effects (*e.g.*, disorientation) is unknown (Semm and Beason, unpublished data *in* Beason 1999). While some have suggested the need for further RF research on birds, the literature does not support this suggestion (Bruderer and Boldt 1994; Bruderer *et al.* 1999).

The taller the tower, the more likely it will kill birds. As tower height increases, so often does the number of guyed, supporting wires. Guy wires are critical in their effects on birds. The greater the number of guys (which often are tiered in bands of 3-4 wires per level), the more risk of bird strikes. Here's how the problem seems to arise. On nights of inclement and overcast weather when songbirds are active in broad-front migrations, lights seem to draw birds into the towers. This has been reported by many observers (*e.g.*, Avery *et al.* 1976) when celestial cues are not available to birds flying below the cloud ceiling. Perhaps the birds mistake the light(s) for stars or the sun. Graber (1968) reported that birds entering an illuminated area on cloudy nights were reluctant to leave the lit area, just as birds in a lighted room will not fly out an open window into the darkness. Approaching the edge of the illuminated area, migrants are hesitant to fly into the darkness beyond the tower, and instead fly back toward the tower (Avery *et al.* 1976). Once attracted to the lights, they fly around the tower in a "tornado" of birds, striking the guy wires directly in the path of flight, the tower, themselves, or the ground, and often die.

A worst-case tower scenario might look like the following. The structure in question would be a 1,000-plus-foot (304-plus-m), multiple-guyed, multiple solid-lighted tower situated next to a wetland, within a known songbird migration corridor, with the presence of several Federally listed endangered songbirds documented in and around the area, in a location with a history of fog, especially during the spring and fall. This scenario, unfortunately, is by no means impossible. The Telecommunications Act of 1996 (Public Law 104-104), in fact, mandates that all television stations be digitized by no later than 2003. By some estimates, this mandate could result in the addition of 1,000 new, 1,000-plus-foot "mega-towers" across the landscape in the United States. However, the MBTA of 1918, as amended -- our "marching orders" for DMBM -- is a strict liability law. The Act does not allow the killing or taking of migratory birds, except by permit, and the Service does not issue incidental take permits. Thus, the incidental killing of even one bird is legally considered a taking under MBTA and is technically a violation of the law. Concerning their mandates, the Telecommunications Act and MBTA may, thus, be directly at odds. Taking these issues into consideration, the Service recommends that communication companies do whatever they can to prevent needless bird deaths.

Interim Guidelines

While the Service recognizes that research into the actual causes of bird collisions with communication towers is scant, some preliminary but promising findings -- previously mentioned -- provide insight into ways of minimizing or even avoiding bird collisions with towers. In an effort to provide significant protection for migratory birds, and until research efforts uncover significant new mitigation measures, the Service has been suggesting to industry voluntary interim guidance in the siting and placement of towers. While these recommendations are discretionary and non-binding to both Service personnel and to the public, they have been approved by the Director. Here is what the Service suggests. For companies planning to site, construct, and operate new towers, we encourage the following:

1. Any license applicant proposing to site a new communication tower is strongly encouraged to collocate the proposed communication equipment on an existing communication tower or related existing structure (*e.g.*, a church steeple, billboard mount, water tower, electric transmission tower, monopole, or building). With Crown Castle International, for example, 9 tenants on average collocate on towers they own around Pittsburgh, Pennsylvania; and as many as 120 tenants can collocate on a tower

(Powers 2000).

2. If collocation is not practical, license applicants are strongly encouraged to construct towers less than 200 feet (61 m) AGL, using construction techniques that do not require guy wires (*e.g.*, lattice or monopole structures). Such towers do not require lighting under FAA regulations unless located within 3.8 miles (6.1 km) of airports and near major travel corridors, and so should not be lighted unless required. If at all possible, new towers should be located within existing "antenna farms," preferably in areas not used by migratory birds or species Federally or state-listed as endangered or threatened, or listed as Nongame Species of Management Concern (Trapp 1995). Avoid siting towers in or near wetlands, near other known bird concentration areas (*e.g.*, National Wildlife Refuges), or in habitat of threatened or endangered species known to be impacted by towers. Local meteorological conditions should be reviewed, and areas with an especially high incidence of fog, mist, and low cloud ceilings should be avoided, especially during spring and fall migrations.

3. If taller towers (more than 199 feet [61 m] AGL) requiring lighting to warn pilots must be constructed, the minimum amount of warning and obstruction lighting required by the FAA should be used. Where permissible by FAA and local zoning regulations, only white strobe lights should be used at night. These should be up-shielded to minimize disruption to local residents, and should be the minimum number, with minimum intensity and number of flashes per minute (*i.e.*, the longest duration between flashes, currently three seconds) allowed by the FAA. The use of solid red or pulsating red warning lights should be avoided at night. Construction techniques which do not require the use of guy wires should be employed whenever possible.

4. Guyed towers constructed in known raptor or waterbird concentration areas should use daytime visual markers (*e.g.*, bird diverter devices) on the guy wires to prevent collisions by these diurnally active species. Suggested bird avoidance guidelines are available from the electric utility industry (APLIC 1994, 1996), and research and experimental design recommendations are available from the wind generation industry (NREL 1995, Anderson *et al.* 1999).

5. Towers should be constructed in a way that limits or minimizes habitat loss within the tower "footprint." Road access and fencing should be minimized to reduce or prevent habitat fragmentation and disturbance, and to reduce above-ground obstacles that might impact birds in flight. A larger tower footprint, however, is preferable to construction of a guy-supported tower.

6. If significant populations of breeding birds are known to occur within the proposed tower footprint, construction should be limited to those months when birds are not nesting (*i.e.*, times other than spring and summer).

7. New towers should be designed structurally and electrically to accommodate the applicant's antenna (s), and comparable antennas for at least two additional users, to reduce the number of future towers -- unless this design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower.

8. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site and minimize its potential attraction for birds.

9. If a tower is constructed or proposed for construction, FWS personnel and/or researchers from the Communication Tower Working Group or their designees should be allowed access to the site after construction is complete to conduct both large (*e.g.*, crane [Gruidae], swan, and goose [Anatidae]) and small dead-bird searches; to place net catchments below the tower but above the ground; to position

radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird migrations and habitat use; and to gain information on the impacts of various tower sizes, configurations, and lighting regimes.

10. If constructing multiple towers, providers should consider the cumulative impacts of all of those towers on migratory birds, including impacts on birds listed as threatened and endangered and nongame species of management concern. The impacts of each individual tower should also be considered.

11. If significant numbers of breeding, feeding, or roosting birds are known to habitually use a proposed tower construction site, relocation to an alternate site is 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.

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

Next Steps

The Communication Tower Working Group (CTWG) was created at the June 29, 1999, meeting of RESOLVE, then consisting of 15 members. The task of the Working Group is to develop and implement a nationwide research protocol intended to determine what causes birds to collide with towers, and what can be done to avoid these collisions. The Working Group held its first meeting on November 2, 1999, with representatives from 7 Federal and 2 state agencies, 9 research organizations and universities, 8 industry representatives, and 6 non-governmental organizations (NGOs). The meeting was chaired by DMBM (A. Manville). Subcommittees were created to deal with research, funding and partnerships, and legal issues. All three subcommittees have met and subcommittee chairs reported back to the full Working Group on June 16, 2000.

The Research Subcommittee has been tasked specifically to address the following issues through the development and implementation of a research protocol. Thirty stakeholders attended an all-day meeting of the Subcommittee on April 17, 2000, approving a draft nationwide research protocol. The protocol calls for the following research:

1. The protocol should quantify, with statistical certainty, the cause(s) and effects of lighting color, lighting duration, and the correlation between bird kills and weather.

2. Research should attempt to determine critical tower height and if there is a height threshold above which bird kills increase significantly.

3. Research should attempt to assess and quantify the most dangerous situations for birds.

4. The protocol should assess radar, acoustic, and ground survey techniques that could be used to determine major migratory corridors or routes (not necessarily flyway-oriented) to avoid siting towers in these areas.

5. The initiative must develop an effective dead-bird monitoring protocol, which will borrow heavily from the wind generation (Anderson *et al.* 1999) and power line industries (APLIC 1994, 1996).

6. The protocol should attempt to assess the cumulative impacts of all towers on bird populations in North America. For example, in 1979, Dick Banks published a special scientific report for the Service

(Banks 1979) estimating annual bird mortality from tower strikes. Based on 50% of the 1,010 television transmitting towers then existing in the United States, Banks estimated annual mortality at nearly 1.3 million birds. He made no accounting for radio transmitting towers and airport ceilometers, or for the other half of the existing television towers. Today -- based on Banks' estimate, models from the Tall Timbers Research Station, extrapolations from Bill Evans and others, and the current known number of lit towers -- the Service estimates annual mortality at 4-5 million birds. This is a conservative estimate and could conceivably be off by an order of magnitude. Only systematic monitoring will provide us a better estimate.

A systematic research study may take 3-5 years to complete, with further testing, ground-truthing, and verification of mitigation measures that are anticipated to be discovered. Following approval of the detailed draft nationwide research protocol in April 2000, 36 attending members of the Communication Tower Working Group on June 16, 2000, approved the framework for the nationwide research initiative. Specifically, Southwestern Bell Wireless, Inc., solicited mini-research proposals from the Research Subcommittee for possible funding, of which some of the pilot studies could begin as early as Fall 2000. The pilot studies will likely compare lighting, assess radars, refine dead bird searches, develop a Geographic Information System study plot, assess the most dangerous towers, examine birds' retinal photoreceptors, and test bird behavioral responses to light. Applicable findings discovered during pilot study investigations will be applied to the nationwide monitoring effort.

To initiate a nationwide bird-strike monitoring study that could begin as early as Fall 2001, and to assess the cumulative impacts of towers on migratory birds, the Cellular Telecommunications Industry Association (CTIA) also solicited a detailed, fully budgeted research proposal from the Working Group at the June 16th meeting. The 3-5 year monitoring effort could cost in excess of $15 million. At this writing, the Research Subcommittee is beginning work on this proposal for CTIA.

Once the research is completed and the results analyzed, recommendations will be presented both to the FCC and to industry. During the research effort, where pertinent, statistically significant findings are discovered, that information and possible recommendations will be provided to the industry as quickly as possible.

To develop and implement the research, the Service will work in partnership with the communication industry, other government agencies, the research community, NGOs, and the public to solve this problem. We will work in partnership with the communication industry to voluntarily solve bird-kill problems at communication towers, rather than solving the problem through regulatory or enforcement means. To date, two partnerships have worked well and we will use these as models for future work with the communication industry. In 1972, for example, representatives from the electric utility industry, Federal agencies (including the FWS), and NGOs first met to address the problem of bird collisions and electrocutions at electric power lines. In 1988, the Avian Power Line Interaction Committee (APLIC) was officially created, the Service a founding member with several electric utilities. In 1975, the first edition of *Suggested Practices for Raptor Protection* was published, with an update of *Mitigating Bird Collisions with Power Lines* (APLIC 1994) more recently published. The electrocution avoidance document, *Suggested Practices for Raptor Protection on Power Lines* (APLIC 1996) was just reprinted in the Spring 2000. These publications speak to voluntary suggested practices to avoid bird collisions and electrocutions; the guidance in these publications is voluntary.

In like fashion, the Avian Subcommittee of the National Wind Coordinating Committee was created in 1994, with the Service again a founding member. This partnership is in an embryonic stage compared to APLIC, with the wind generation industry recently publishing a guidance document for conducting research on avian/wind interactions (Anderson *et al.* 1999). Following necessary research, the intent also

is to develop voluntary suggested practices for wind generators, similar to what has been done for power lines.

To review and assess the current literature, research, and methodologies for studying communication towers, independent consultant Paul Kerlinger was contracted by DMBM to conduct a review dating back to 1995. The review analyzed work in the United States, Canada, Europe, Australia, and New Zealand. The document is publicly available on the Service's new web site, http://migratorybirds.fws.gov/issues/towers/review.pdf.

The issue before us today is unprecedented. The research about to be jointly conducted provides an opportunity to determine what about a man-made structure attracts and not infrequently kills migratory songbirds, and hopefully what we can do to reduce or ideally eliminate the problem. Research discoveries may also be applicable to other construction, including tall buildings, smokestacks, tall monuments, wind turbine generators, utility towers, and other tall structures. Research learned about bird behavior and movements will likely fill many gaps in our current information database. We'll better be able to determine the status of some bird populations and determine the cumulative impacts of communication towers on migratory songbirds. The benefits of the collaborative approach between industry, academia, agencies, and the conservation community are many. Most importantly, this can be a win:win situation for all parties and the resources concerned.

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USDA

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Environmental Assessment

Wildwood Land Exchange

Front Country and Mountain Top Ranger Districts
San Bernardino National Forest
San Bernardino County, California

PAL No. 12079

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EXHIBIT C

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SUMMARY

The San Bernardino National Forest (Forest) is proposing a land exchange with The Wildlands Conservancy, a 501(c)(3) California non-profit public benefit corporation. This exchange would be under the provisions of the General Exchange Act of March 20, 1922 and Wilderness Act of September 3, 1964. The proposal is to acquire five non-federal (private) parcels totaling 2,890 acres for six federal (National Forest System land) parcels totaling 1,191.51 acres. The project area is located north and east of Yucaipa, California and is within the Front Country and Mountain Top Ranger Districts, San Bernardino National Forest, California. All of the parcels are in San Bernardino County, California.

This land exchange proposal was developed through collaboration between The Wildlands Conservancy, the Yucaipa Valley Conservancy, and the Forest. The land exchange involves isolated federal lands outside the general Forest boundary and non-federal lands that are isolated in-holdings within the Forest boundary. The Wildlands Conservancy intends to transfer the federal lands to the State of California for a State Park; the Forest would manage the non-federal lands with the same intent as the surrounding forest land.

A formal appraisal of the federal and non-federal lands involved with this proposal will be completed and their values will be equal or equalized by cash, up to a maximum of 25 percent of the value of the lands transferred out of federal ownership. Final values for this proposed exchange will be disclosed in the Decision Notice.

Beneficial and adverse affects were taken into consideration. The benefits of acquiring the non-Federal land exceeded the impacts of conveying the Federal land. The analysis focused on the effects of proposed future use and management of the lands to be acquired and conveyed and the lands adjoining them. All the parcels would continue to be managed with a conservation emphasis. As stated earlier, The Wildlands Conservancy intends to transfer the federal lands to the State of California for a State Park.

In addition to the proposed action, the Forest also evaluated the No Action Alternative: Take no action on the land exchange proposal. Under this alternative, parcels would continue in the present ownership.

Based upon the analysis documented in this report, the responsible official will decide whether to approve or take no action on the land exchange proposal.

1. INTRODUCTION

This environmental assessment (EA) was prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws, regulations and policies. The EA discloses the potential environmental effects caused by approving this land exchange on the San Bernardino National Forest (Forest). It also provides the supporting information for a determination on whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact.

The purpose of the National Environmental Policy Act (NEPA) process is to help public officials make decisions that are based on an understanding of environmental consequences, and take actions that protect, restore, and enhance the environment (40 CFR 1500.1(c)).

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the San Bernardino National Forest Supervisor's Office at 602 South. Tippecanoe, San Bernardino, CA 92408.

1.1. Background

The San Bernardino National Forest and The Wildlands Conservancy, a 501(c)(3) California non-profit public benefit corporation founded in 1995, have worked together on numerous issues over the years. The Wildlands Conservancy mission is to preserve the beauty and biodiversity of the earth (and to fund programs so that every child may know the wonder and joy of nature)[1]. The Wildlands Conservancy acquired privately owned lands within the San Bernardino National Forest to protect these lands from urbanization, allow public access through these lands, and protect wildland values. They are also working with Yucaipa Valley Conservancy to establish a 3,500-acre California State Park (known as Wildwood Canyon State Park) in the area within and adjacent to the federal lands involved with this proposal.

1.2. Purpose of and Need for Action

The purpose of this proposed land exchange is to respond to a proposal developed by The Wildlands Conservancy in collaboration with the Yucaipa Valley Conservancy and Forest. The San Bernardino National Forest's objectives for the land exchange are to:

- acquire lands within and adjacent to the San Gorgonio Wilderness (San Bernardino National Forest Land Management Plan (Forest Plan) 2005, Part 2, page 87; and, Part 3, page 77);
- acquire habitat for several special status plant species, including 5 federally listed threatened and endangered (T&E) plant species (Forest Plan, Part 3, page 77);
- acquire habitat for several special status wildlife species, including 3 federally listed T&E wildlife species (Forest Plan, Part 3, page 77);
- provide more efficient management by consolidating Federal land ownership patterns (Forest Service Manual 5403.1.1; Forest Plan, Part 2, page 149) ;
- dispose of National Forest land that does not support Forest Service programs due to the isolation of these lands from the rest of the Forest land (Forest Plan, Part 3, page 78); and,
- reduce administrative costs of property boundary maintenance, trespass cases, administration of special uses, and possible land use conflicts (Forest Plan, Part 3, page 77 and 78).

[1] http://www.wildlandsconservancy.org/

The Wildlands Conservancy's purposes for this project are to assist in the eventual establishment of a State Park in the Yucaipa area and to transfer title of the non-federal lands to the Forest Service to continue conservation management of these in-holdings.

The Forest has the opportunity to complete a realty transaction that would help fulfill desired conditions noted in the San Bernardino National Forest Land Management Plan (Forest Plan 2005) and the San Bernardino National Forest Land Adjustment Guide. The exchange also provides The Wildlands Conservancy with an opportunity to facilitate the long-term goal of expanding California State Park lands in and adjacent to Yucaipa. The Wildlands Conservancy intends to manage the lands acquired in the exchange as a preserve until the State of California is prepared to receive these lands as additions to the Wildwood Canyon State Park.

Figure 1 shows the general location of the project in relationship to the adjacent communities. A more detailed map of the proposal is shown as Figure 2.

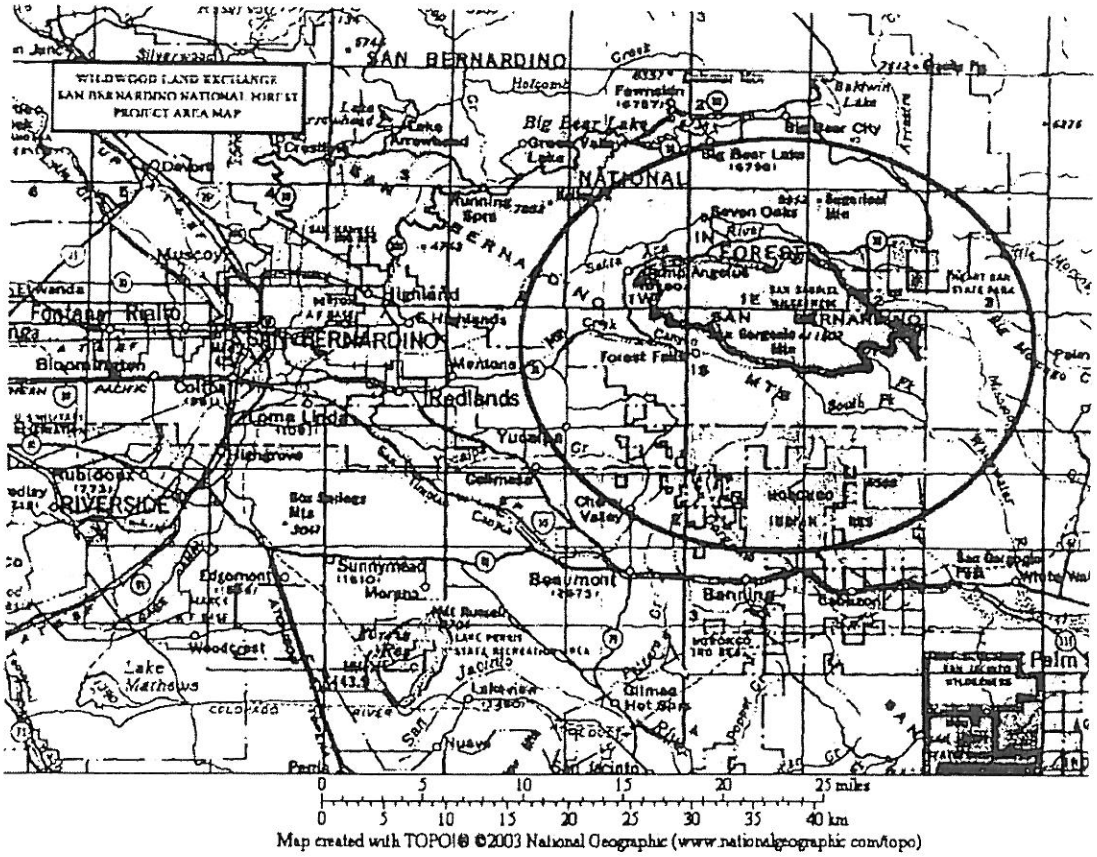

Figure 1. General Vicinity of the Project In Relationship to the Local Communities.

1.3. Relationship to the Forest Plan and National Direction

This proposed action responds to the Forest strategy and design criteria noted in the Forest Plan (2005), and helps move the project area towards desired conditions described in the Forest Plan. The federal lands are zoned Back Country Motorized Use Restricted in the Forest Land Use Zones Map (Forest Plan, Part 2). Table 2.4.1. in the Forest Plan (Part 2, page 2), indicates disposal of National Forest System lands in this zone is suitable by exception (appropriate under certain circumstances).

The Forest Plan strategy for land ownership is to consolidate National Forest System land base to support resource management objectives, improve management effectiveness, enhance public benefits, and improve habitat conditions (Forest Plan, Part 2, p. 149).

Design Criteria in the Forest Plan set priorities for acquisition and disposal. Applicable acquisition priorities for this project proposal are to acquire:

1) critical habitat lands needed for the protection of federally listed endangered or threatened fish, wildlife, or plant species (Forest Plan, Part 3, page 77, priority 1);
2) land needed for the protection and management of administrative and Congressionally designated areas (Forest Plan, Part 3, page 77, priority 1);
3) Key tracts of an ecosystem that are not urgently needed, but will promote more effective management of the ecosystem and will meet specific needs for vegetative management, valuable watershed management, research, public recreation, or other defined management objectives (Forest Plan, Part 3, page 77, priority 2);
4) Land needed to reduce administration and utilization expenses to the Forest Service and the public (Forest Plan, Part 3, page 77, priority 2); and,
5) All other land desirable for inclusion in the National Forest System (i.e., consolidation of in-holdings) ((Forest Plan, Part 3, page 77, priority 3).

Applicable disposal priorities for this project proposal are to dispose of:

1) land inside or adjacent to communities or intensively developed private land and chiefly valuable for non-National Forest System purposes;
2) Parcels that will serve a greater public need in state, county, city, or other federal agency ownership;
3) inaccessible parcels isolated form other National Forest System land; and
4) Parcels within major blocks of private land, the use of which is substantially for non-National Forest System purposes (Forest Plan, Part 3, page 78).

The federal parcels considered in this exchange are physically isolated parcels from the majority of forest land (see Figure 2). Three of the federal parcels (known in this proposal as Pisgah Peak, Water Canyon, and Wildwood Canyon) are adjacent to development and/or multi-parceled lands. All of the non-federal parcels are isolated in-holdings, surrounded by National Forest System lands. One parcel is within the San Gorgonio Wilderness and the remaining four parcels are adjacent to National Forest

System lands recommended for wilderness (Forest Plan, Part 2, Land Use Zones Map). All parcels are candidates for disposal (federal) and acquisition (non-federal) in the Forest's Land Adjustment Guide which implements direction in the Forest Plan.

Non-federal parcels known as Heartbreak Ridge and Onyx are within the Big Bear Back Country Place where a program emphasis is to acquire land for habitat or to provide recreation access (Forest Plan, Part 2, page 57). Non-federal parcels known as Galena Peak and Little San Gorgonio and all six federal parcels are within the San Bernardino Front Country Place where a program emphasis is to consolidate ownership through land acquisition (Forest Plan, Part 2, page 83). South Fork Whitewater (non-federal) parcel is within San Bernardino Front Country Place where a program emphasis is to acquire land to provide a continuous land base in the wilderness (Forest Plan, Part 2, page 83). The northern portion of this parcel (South Fork Whitewater) is also within the Whitewater River Wild and Scenic River Study Area (Forest Plan, Part 2, Land-use Zones Map).

This proposed action also complies with 36 Code of Federal Regulations (CFR) 254, Subpart A, Forest Service Manual 5430 and Forest Service Handbook 5409.13, Chapter 30.

1.4. Proposed Action

The Forest and The Wildlands Conservancy have tentatively agreed to exchange five non-federal (The Wildlands Conservancy) parcels totaling 2,890 acres for six federal (National Forest System land) parcels totaling 1,191.51 acres through an assembled land exchange. This exchange would include all right, title, and interest held by the United States for the federal parcels, reserving to the United States a right-of-way for ditches or canals, in exchange for all right, title, and interest held by the Wildlands Conservancy for the non-federal parcels. The Wildlands Conservancy has agreed to pursue acquisition of several outstanding interests on the non-federal parcels prior to the United States acquisition of the land.

The non-federal parcels are scattered in-holdings located on both the Mountain Top and Front Country Ranger Districts on the San Bernardino National Forest. Heartbreak Ridge and Onyx parcels are located within the Big Bear Back Country Place where management emphases are community protection from wildland fire, forest health, balancing recreation use with protection of heritage resource properties, conservation and protection of ground and surface water resources, and maintenance of habitat for threatened, endangered, proposed, candidate, and sensitive species (Forest Plan, Part 2, page 57). Galena Peak and Little San Gorgonio parcels are within the San Bernardino Front Country Place where management emphases are community protection from wild land fire, forest health, threatened, endangered, and sensitive habitat conservation, and focus on scenic and recreation values while protecting important natural resources from adjacent urbanization and special uses (Forest Plan, Part 2, page 82) All four parcels are within areas recommended for wilderness and should they be acquired, would be managed in the same manner as existing wilderness. Non-conforming uses would be removed over time to improve wilderness character. The South Fork Whitewater parcel is within the San Gorgonio Place and within the wilderness boundary. As with the other two Places, management emphases include community protection from wildland fire, forest

health, enhancement of plant and wildlife habitat and linkage corridors (Forest Plan, Part 2, page 88).

The federal parcels have been managed as Forest reserved lands since 1893 (Pisgah Peak) and 1908 (five other parcels). These parcels (located on the Front Country Ranger District) are isolated, completely surrounded by non-federal lands. Should the land exchange be approved, The Wildlands Conservancy has indicated the long-term plan for these parcels is to manage them as part of the adjacent Oak Glen Preserve until the State of California is prepared to receive these parcels as additions to the Wildwood Canyon State Park. While owned by The Wildlands Conservancy, these lands would be managed in a fashion that is intended to protect the biological diversity, ecological integrity, and open-space values currently present on these parcels.

A more detailed description of this proposal can be found in Section 2.1.1. Alternative 1, Proposed Action, in this document.

1.5. Decision Framework

The San Bernardino Forest Supervisor is the Deciding Official on this proposal. The Forest Supervisor will decide whether to approve the land exchange as proposed or take no action on the land exchange proposal.

Along with the objectives noted for the purpose of this project, other decision criteria include:

- The lands and interests exchanged must be of equal value, or if not, values could be equalized by payment of cash, not to exceed 25 percent of the federal value.
- The exchange is in the public interest and conforms to the Forest Plan (e.g., consolidate National forest and private, state, or local government patterns, result in more efficient management of the Forest).
- The non-federal parcels must be within the Congressionally-designated boundary of the Forest and in the same state where the federal parcels are located.

1.6. Public Involvement

Scoping and public notification were conducted to inform the public of the proposal and provide them an opportunity to raise any issues associated with the land exchange proposal. The Forest provided a 45-day comment period. Ninety-two letters were mailed out December 8, 2004 to public officials, local agencies, all adjoining landowners, and those people and groups that may be interested in this proposal. A public notice, through a Notice of Land for Land Exchange Proposal, ran in the legal section of the *San Bernardino Sun* on December 7, 14, 21, and 28, 2004. Thirteen letters were sent September 20, 2004 to local Native American groups to complete consultation in accordance with Section 106 of the National Historic Preservation Act. Eleven follow-up letters were mailed on January 1, 2005 to local Native American groups that had not responded to the initial inquiry.

Consultation also occurred with the National Historic Preservation Officer on potential effects on cultural resources and the United States Fish and Wildlife Service on potential effects on federally listed threatened and endangered plants and animals.

1.7. Issues

The Forest Service received and reviewed nine comments (orally and in writing) during public scoping and consultation with Native American groups and regulatory agencies. The Forest analyzed these comments to determine what the issues were related to this project proposal. Issues were separated into two groups: significant and non-significant issues. Significant issues were defined as a potential effect that shows conflicts or a problem between the proposal and some consequences where the length of time would likely last, the extent of the effect would cover a large geographic area, and/or the intensity of impact would be high. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or, 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation. Sec. 1501.7 states, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." Appendix 1 of this document includes the summary of comments received. Several non-significant issues were brought up by the public. No significant issues, as defined, were brought forward in this analysis.

2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Wildwood Land Exchange project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between the two alternatives and providing a clear basis for choice among options by the decision maker and the public.

2.1. Alternatives Studied in Detail

2.1.1. Alternative 1, Proposed Action

If parcel values are equal or can be equalized, the proposed action alternative would exchange six federal parcels totaling 1,191.51 acres for five non-federal parcels totaling 2,890 acres. Tables 1 and 2 provide the legal descriptions, county assessor parcel numbers and acreage for each parcel. Figure 2 is a map showing the locations of each parcel by name. This exchange would include all right, title, and interest held by the United States (Forest) for the federal parcels, reserving to the United States a right-of-way for ditches or canals, in exchange for all right, title, and interest held by the Wildlands Conservancy for the non-federal parcels. The Wildlands Conservancy has agreed to pursue acquisition of several outstanding interests on the non-federal lands

prior to the United States (Forest) acquisition of the parcels. If The Wildlands Conservancy cannot acquire the outstanding interest(s) on a non-federal parcel, (1) the Forest will determine the outstanding right(s) do not interfere with the management of the land, or (2) the parcel will be eliminated from the exchange. All eleven parcels are in San Bernardino County.

Table 1. Federal (National Forest) parcels proposed for transfer to The Wildlands Conservancy.

Parcel Name	Township, Range, Section[2]	Subdivision	Assessor's Parcel Number	Acreage
Wallace Creek	T2S, R1W, Sec 2	S½ lot 15, lot 16	0325-071-01-0000, 0325-071-03-0000	57.47
Water Canyon	T2S, R1W, Sec 4	Lots 1-4, 6	0321-281-04-0000	105.39
East Water Canyon	T2S, R1W, Sec 4	Lots 15-17	0321-281-10-0000, 0321-281-15-0000, 0321-281-16-0000	137.89
Wildwood Canyon	T2S, R1W, Sec 10	W½NE¼, NW¼NE¼SW¼, Lots 1-4, N½ lot 6,	0325-101-04-0000, 0325-101-05-0000, 0325-111-01-0000, 0325-111-02-0000	272.83
Mile High	T2S, R1W, Sec 12	Lots 4, 5	0325-141-02-0000	77.93
Pisgah Peak	T1S, R1W, Sec 34	N½, N½SW¼, SW¼SW¼, W½SE¼SW¼, N½SE¼	0324-101-03-0000	540.00

Table 2. Non-federal (private) parcels proposed for transfer to the United States (Forest).

Parcel Name	Township, Range, Section[2]	Subdivision	Assessor's Parcel Number	Acreage
Onyx	T1N, R3E, Sec 9	All	0305-301-58-0000, 0305-301-59-0000, 0305-301-60-0000,	640.00
Heartbreak Ridge	T2N, R3E, Sec 31	E½SW¼, SE¼, Lots 3, 4	0447-301-07-0000	330.00
Galena Peak	T1S, R1E, Sec 23	All	0324-241-01-0000	640.00
Little San Gorgonio	T1S, R1E, Sec 27	All	0324-261-05-0000	640.00
South Fork Whitewater	T1S, R2E, Sec 35	All	0580-021-05-0000	640.00

[2] San Bernardino Base and Meridian

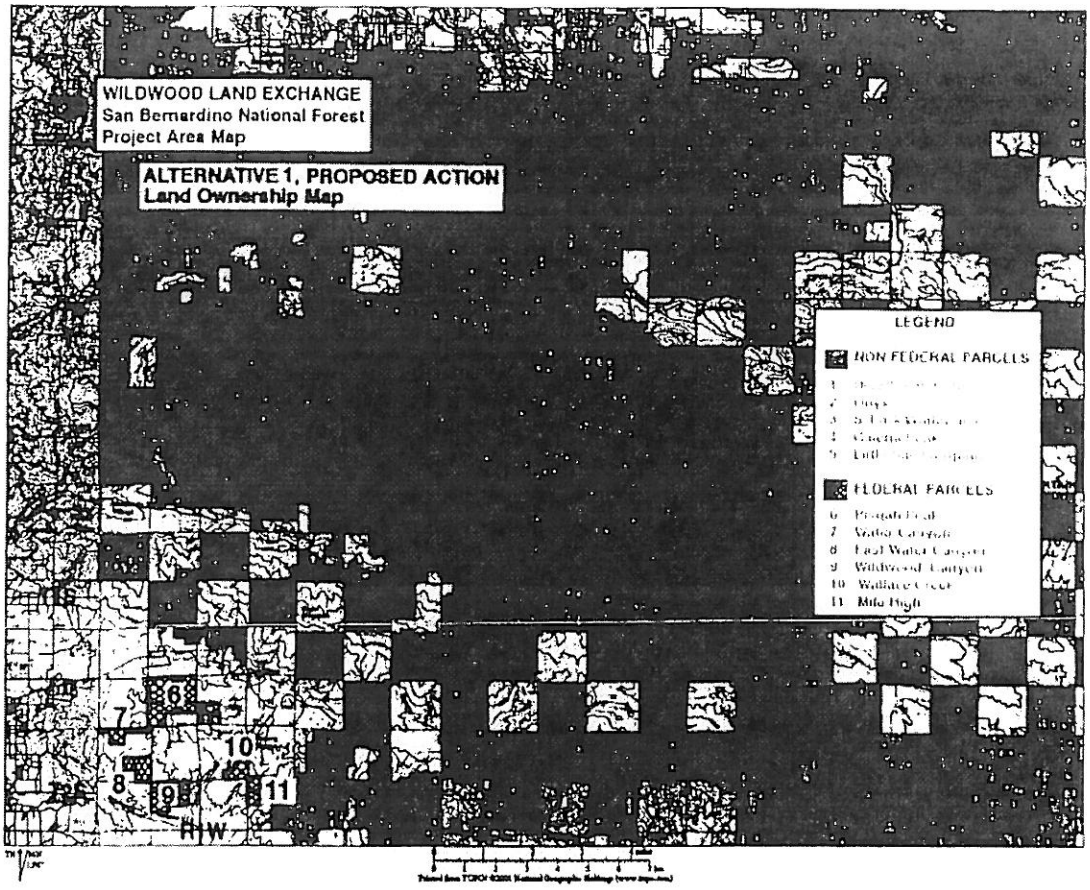

Figure 2. Project Area Map for Alternative 1, Proposed Action.

A formal appraisal of the federal and non-federal parcels involved in the exchange will be completed. This proposed action is an assembled exchange. An assembled exchange requires the non-federal parcels be appraised as though each parcel is an individual transaction and the sum of the individual values of these parcels will be the non-federal value. Similarly, the value of the federal parcels is the sum of the value of the individual parcels with each individual parcel value as though in a separate transaction. The appraisal would be completed prior to the decision of this land exchange proposal.

Any or all of the above described parcels may be exchanged if values are equal. If values are not equal, either party may equalize the values by payment of cash not to exceed 25 percent of the federal value. Correspondingly, if values are not equal, this alternative may be modified to remove federal and non-federal parcels or portions thereof to equalize values. If the federal parcels value exceeds the non-federal parcels value, this alternative would remove all or portions of the federal parcels to equalize value. The federal parcels known as Mile High and Wallace Creek would be considered first for removal. These parcels are the farthest away from the lands owned by the State of California and the core of the proposed Wildwood State Park.

This alternative would not result in any change in Forest Service road maintenance costs because the roads that exist within the federal and non-federal parcels do not receive

regular maintenance by the Forest. There is one road (1S07) that traverses through the Pisgah Peak and Wildwood Canyon (federal) parcels that would be removed as a Forest System road. There is an easement to the United States (Forest Service) for a Forest System road (1N01) that crosses the Onyx (non-federal) parcel and a trail easement for a Forest System trail, known as Banning Canyon to Little San Gorgonio Peak Trail (1E11), that crosses the Little San Gorgonio (non-federal) parcel. This trail extends approximately five miles south to Banning Canyon. These easements would merge with title to the United States (Forest) once the lands are acquired. Figure 3 shows the location of these roads and trail.

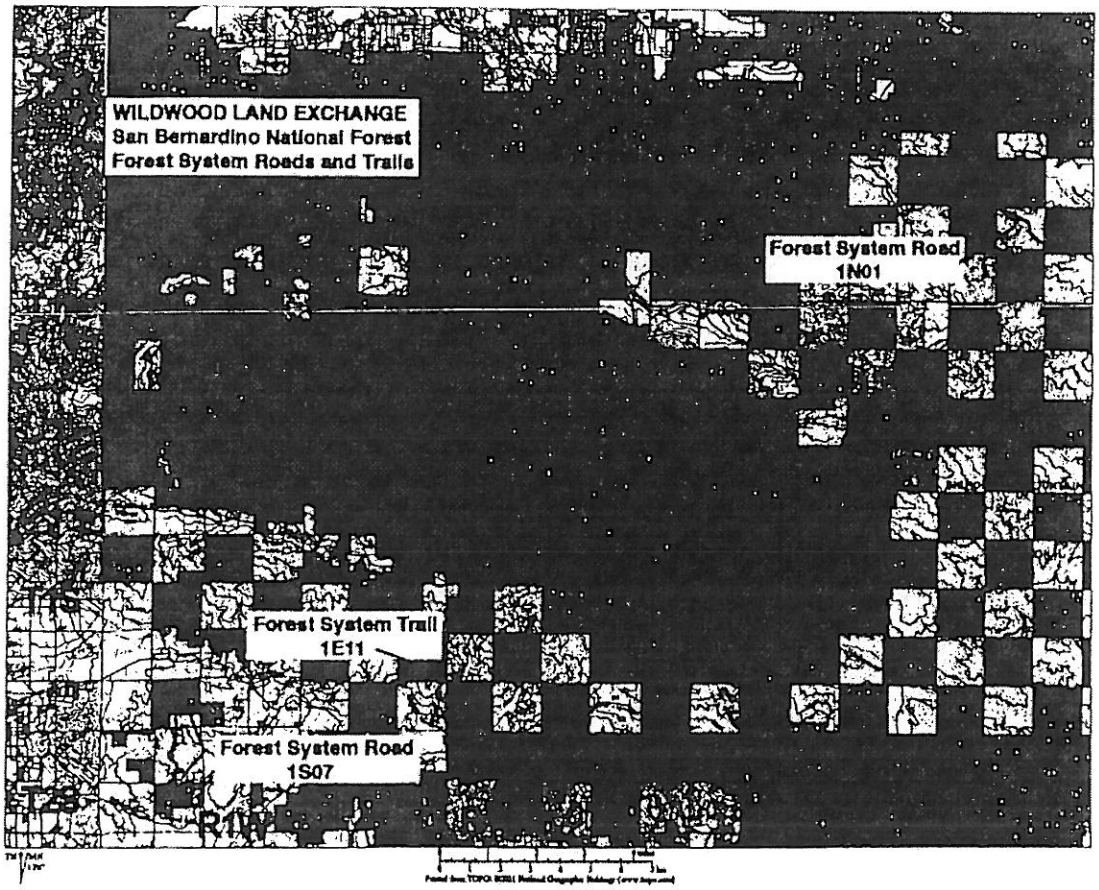

Figure 3. Forest System Roads and Trail within the project area.

Three dilapidated structures, with considerable miscellaneous debris scattered in the area, are located on the Onyx (non-federal) parcel. One structure and building material debris from the remnants of another structure are located on the Heartbreak Ridge (non-federal) parcel. The Forest has committed to accept the non-Federal parcels with dilapidated structures and debris. It is the intent of The Wildlands Conservancy and the Forest to work together to remove these structures and debris from the identified sites no later than twenty-four months after the land exchange is finalized.

Several safety concerns were found on the Onyx and Heartbreak Ridge parcels. This alternative addresses these concerns by proposing the removal of the asbestos containing material from the larger abandoned structure on the Onyx parcel, removing the asbestos pipe located on the Heartbreak Ridge parcel, filling in a shallow and abandoned well, removing abandoned mining cable, and removing discarded tires and wrecked vehicles from the Onyx parcel. This work will be completed in accordance with Federal, State, and local laws.

Two special use permits have been issued by the Forest Service, San Bernardino National Forest to California Department of Forestry and Fire Protection (CDF) for improvements on various federal lands involved in the exchange. One permit authorizes a helispot, catchment basin, access road with parking and turn-around, two water tanks, waterline, and water hydrant box on the Wildwood Canyon and Pisgah Peak (federal) parcels. The second permit authorizes maintenance of an access way and fuelbreak on Pisgah Peak, Water Canyon, East Water Canyon, and Wildwood Canyon parcels. The Wildlands Conservancy and CDF will work together to assure replacement authorizations are granted to allow continued use. Replacement authorizations would be granted, in escrow, immediately following the conveyance of the federal parcels to The Wildlands Conservancy.

There are also several unauthorized improvements on the federal parcels. The Forest has informed The Wildlands Conservancy of these encroachments (unauthorized improvements) and The Wildlands Conservancy has agreed to be the sole entity responsible for the disposition of these unauthorized improvements upon acquiring title to these federal parcels. The Forest will not participate in these negotiations.

This alternative's intent is for The Wildlands Conservancy to acquire several outstanding rights on the non-federal parcels prior to the United States (Forest) acquiring these parcels. The Wildlands Conservancy would attempt to acquire the water rights and a strip of land 200 feet in width on the Onyx parcel, and mineral estates on the Galena Peak, Little San Gorgonio, and South Fork Whitewater parcels. If The Wildlands Conservancy cannot acquire the outstanding interest(s) on a non-federal parcel, (1) the Forest would determine the outstanding right(s) do not interfere with the management of the land, or (2) the parcel would be eliminated from the exchange. Appendix 2 summarizes the authorized and unauthorized improvements and rights found on both the federal and non-federal parcels and what actions (if any) could be taken if this alternative is chosen.

The federal parcels are zoned Rural Living-20 acres by the County of San Bernardino. Once these lands are transferred into private ownership they are subject to this zoning, along with other local, State, and Federal regulations. As stated, The Wildlands Conservancy intends to manage the acquired federal parcels as part of the adjacent Oak Glen Preserve until the State of California is prepared to receive these lands as additions to the Wildwood Canyon State Park. While owned by The Wildlands Conservancy, these parcels would be managed in a fashion that is intended to protect the biological diversity, ecological integrity, and open-space values currently present on these lands.

The Forest intends to manage the acquired non-federal parcels similar to the way the adjacent federal lands are managed, in accordance with the Forest Plan. This would result in a portion of the Heartbreak Ridge parcel being managed as Back Country and a portion

as Recommended Wilderness. The Onyx Peak parcel would become a mixed zoning of Back Country, Back Country Non-Motorized and Recommended Wilderness. The Little San Gorgonio Peak parcel would be managed as Recommended Wilderness and the South Fork Whitwater parcel as existing Wilderness.

This alternative meets the purpose (objectives) and need for the project.

2.1.2. Alternative 2, No Action

Under the No Action Alternative, current management plans would continue to guide management of the project area. The federal parcels would be managed in accordance with the Forest Plan and the non-federal parcels would be managed in accordance with San Bernardino County zoning. Figure 4 shows the present landownership pattern within this area.

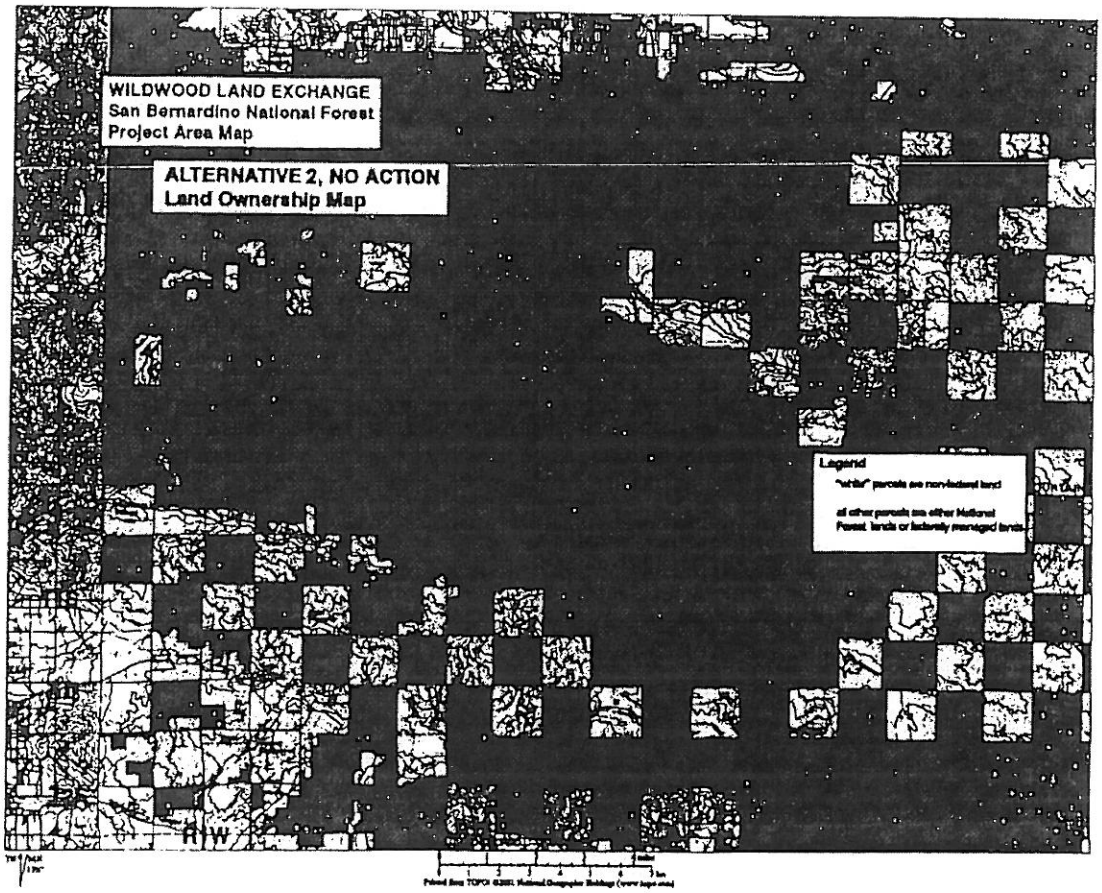

Figure 4. Project Area Map for Alternative 2, No Action

The federal parcels are within the San Bernardino Front Country Place in the Forest Plan where a program emphasis is to consolidate ownership. Other emphases are: community protection from wildland fire, forest health, threatened, endangered, and sensitive habitat conservation, and focus on scenic and recreation values while protecting important natural resources from adjacent urbanization and special uses (Forest Plan, Part 2, page

82). Figure 3 shows the transportation system within these parcels. Presently there are several authorized and unauthorized improvements and rights on the parcels. As noted in Alternative 1, Appendix 2 lists the improvements and rights by parcel name. The Forest would need to address the unauthorized improvements either through issuance of special use permits or having the improvements removed from the lands.

The Wildlands Conservancy purchased the non-federal parcels to protect these lands from urbanization, allow public access through these lands, and protect wildland values. The potential for development occurring is low and it is unlikely The Wildlands Conservancy would resell these lands for development. The County of San Bernardino zoning in this area is for Resource Conservation. The zoning has permitted land uses, including: a single dwelling unit, cultivation of crops, animal raising, and social care facility with six or fewer clients.

This alternative does not accomplish project objectives (purpose) or need.

2.2. Alternatives Considered but Eliminated from Detailed Study

Direction in Forest Service Handbook 5409.13, Chapter 33.41a. requires all land exchange evaluations consider a purchase alternative in the analysis. Purchasing the non-federal parcels could occur from funds acquired through the Land and Water Conservation Act of September 3, 1964 (78 Stat. 897) or funds through the Receipts Act of June 15, 1938 (52 Stat. 699), as amended by Act of May 26, 1944 (58 Stat. 227) as amended by the Act of November 6, 2000 (114 Stat. 1913). The Wildlands Conservancy worked in collaboration with the Yucaipa Valley Conservancy and Forest in developing the proposed action that would meet the public needs on both the federal and non-federal parcels. The purchase of the non-federal parcels by the United States (through the Forest Service) would not meet several objectives for the project. The following objectives would not be met:

- provide more efficient management by consolidating federal ownership patterns;
- dispose of National Forest System land that does not support Forest Service programs due to the isolation of these lands from the rest of the Forest land; and
- reduce administrative costs of property boundary maintenance, trespass cases, administration of special uses, and land use conflicts on the federal parcels.

This land purchase alternative was eliminated from detail analysis because The Wildlands Conservancy is not proposing to sell these lands to the Forest. The land purchase alternative would only partially meet the purpose for the project,

Two modified alternatives to the proposed action were considered: 1) developing a Memorandum of Understanding (MOU) between The Wildlands Conservancy and the Forest Service and 2) adding a deed restriction prior to transferring the federal lands. These modified alternatives were considered based on a request from the Western Land Exchange Project out of Seattle, Washington during the scoping process.

The purpose of the MOU alternative would be to acknowledge that the federal parcels, once transferred to The Wildlands Conservancy, would be protected from development

and retain the existing forest management emphasis of conservation. None of the Conservancy's past actions would indicate there is potential that they would not follow through with their intent of continuing conservation management on the federal parcels. The Wildlands Conservancy is a California nonprofit public benefit corporation founded in 1995. It is highly regarded with a mission of preserving the beauty and biodiversity of the earth. Because there is no factual evidence to support this concern, the MOU alternative was considered, but eliminated from detail analysis.

The deed restriction modified alternative would be a more formal approach to preventing development of these lands. United States (Forest) reservations or restrictions on federal lands are imposed when there is a need to protect the public interest or satisfy a requirement of law (36 CFR 254.3(h)). A deed restriction would result in one or more of the following:

- The government would be responsible for administration and enforcement of the restrictions in perpetuity;
- The value of the federally owned estate will be reduced during the appraisal by restricting highest and best use values; and/or,
- The Forest Service would assume what should be the responsibility of local government: regulating use and development of private land.

It was determined the deed restriction would not be in the public interest, has no evidence to support this concern, and was therefore not considered in detail.

2.3. Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in Table 3 is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 3. Comparison of Alternatives.

	Alternative 1, Proposed Action	Alternative 2. No Action
Acres transferred to federal ownership	2,890	0
Acres transfered to non-federal ownerhsip	1,191.51	0
Acres acquired within the wilderness area (S.Fork Whitewater)	640	0
Acres acquired adjacent to recommended wilderness areas in the Forest Plan	2250	0
Number of special status plant species habitat potentially lost/acquired for Forest management	Lost: 3 sens; Acquired: 5 listed, 23 sens	0
Number of special status wildlife species habitat potentially lost/acquired for Forest management	Lost: 30 sens Acquired: 3 listed, 30 sens	0
Reduced length (in miles) of property boundary	Approx. 33	0
Reduced number of boundary corners to manage and maintain	56	0

Number of unauthorized improvements eliminated on federal lands	9	0
Number of special use permits eliminated	2	0
Acres of wetland	0	0
Total acre gain in floodplains to NFS lands	39.4	0
County Tax Base	No change	No change

3. AFFECTED ENVIRONMENT

The proposed land exchange is located in the San Bernardino Mountains within the Transverse Range. The climate for this area is warm to hot and dry from spring through early fall, and cool and cold during the late fall and winter. The area receives about 12 inches of annual precipitation, primarily in the form of rain, but snow falls in the higher elevations during winter storms.

3.1. Federal Parcels (i.e., Pisgah Peak, Water Canyon, East Water Canyon, Wildwood Canyon, Wallace Creek, Mile High).

Overall the federal parcels are low elevation (varying from 3,400 to 5,300 feet) foothill parcels made up of arid chaparral, mesic chaparral, oak shrublands, along with small patches of coast live oak riparian forest along drainage-ways and canyon live oak forests on the higher north facing slopes on the Pisgah Peak parcel. No locatable (e.g., gold, lead-silver-zinc, tungsten, asbestos, graphite, limestone) or leasable (e.g., oil, geothermal) minerals were located on the parcels and the likelihood of finding these minerals was determined to be low to no potential (Carlson 1996). No cultural resources, including Native American religious or cultural sites or archaeological sites, were found on the federal parcels (Sapp 2005). No wetlands or meadows were identified or mapped and 4.9 acres of floodplain were noted within the federal parcels. There are approximately 2.2 miles of stream channels with channel slopes varying from 5 to 20 percent (McCorison 2004). There are no congressionally designated areas (e.g., wilderness, National Recreation Areas), inventoried roadless areas, or Research Natural Areas. Based on field and existing records review on the parcels, there are no indications of hazardous materials or petroleum product use or disposal, caves, or grazing permit rights.

The federal parcels are surrounded by non-federal land with no boundary signs posted. It would be difficult for an average forest user to determine where these boundaries lie on the ground. There are roads to and through several of the federal parcels, though none of these parcels have recorded easements. East Water Canyon and Water Canyon parcels are adjacent to land now owned by the State and the Wildwood parcel shares its southern border with land owned by the Yucaipa Valley Conservancy that are intended to become State lands. Other landowners adjoining the federal lands include working farms, local water districts land, residents, and undeveloped residential lots.

There are no known occurrences of federally listed threatened and endangered plant or animal species located on any of the six federal parcels (Loe 2005; Lardner 2005). One sensitive plant species, Plummer's Mariposa Lily (*Calochortus plummerae*) is known to

occur on three of the federal parcels and Parry's spineflower (*Chorizanthe parryi* var. *parryi*) and Hall's monardella (*Monardella macrantha* ssp. *Hallii*) have a moderate to high likelihood of occurring (Lardner 2005). As many as 30 sensitive animal species have a moderate likelihood of occurring on these parcels (Myers, McGaugh, Wilcox 2005).

The federal parcels around Pisgah Peak and Wildwood Canyon area are within a biologically unique section of the San Bernardino Mountains. Several species occur here but nowhere else within the range (e.g., box elder, nettle-leave horsemint and possibly Yucaipa onion). The occurrence of coast live oak riparian forest is also unusual for the San Bernardino Mountains. These species and plant communities are not rare, but their occurrence in this area indicates a unique bio-geographic region (White & Leatherman Bioservices 2004).

The federal parcels in the Oak Glen/Yucaipa area are biologically connected, even though the Forest boundaries show them as isolated fragments of the Forest. All the parcels are wildlands within a large area dominated by chaparral and are connected by a network of ridges, drainages and infrequently used native surface roads (Myers, McGaugh, Wilcox 2005). The oak woodland habitat on the federal parcels is very important habitat in Southern California. Development over time has removed much of this habitat. This region may serve as a plant and animal dispersal corridor between the southern San Bernardino Mountains to extensive open space areas in San Timoteo Canyon and the Badlands of western Riverside County (White & Leatherman Bioservices 2004).

The parcels are zoned Rural Living-20 Acres by the County of San Bernardino. The federal parcels do not contain prime farmlands, rangelands, or timberlands and are not used for farming, range, or timber purposes. There are no known outstanding water rights on the federal parcels. Appendix 2 lists the existing improvements on the parcels.

3.2. Non-Federal Parcels (i.e., Onyx, Heartbreak Ridge, South Fork White Water, Galena Peak, Little San Gorgonio)

Overall the non-federal parcels are higher elevation (varying from 4,120 to 9,320 feet), steep mountain slopes made up of varied vegetation, including, pebble plains, conifer stands (e.g., mixed conifer, big cone Douglas-fir, east-side pine, pinyon woodlands, subalpine conifers), canyon live oak, shrub oak, semi-desert chaparral and riparian vegetation along the drainage-ways. A review of these parcels determined there is no past or present mining related activity and the parcels have a low probability of future mining activities occurring (Teixeira 2004).

Though the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) do not require cultural surveys of the non-federal parcels, portions of the non-federal parcels were surveyed. Archaeologists reviewed the historical remnants/structures located on the Onyx and Heartbreak Ridge parcels. All but one of the structures were determined to not satisfy the criteria for listing in the National Register and therefore were not recommended for treatment as historic properties (Eckhardt and Jordan 2002; Puckett and Spinney 2004). The one structure (and other mining remnants) involved with the Onyx Mine found on the Onyx parcel would require a reassessment

following a formal evaluation for listing in the National Register of the Onyx Mine (Puckett and Spinney 2004). The Onyx Mine is located southwest of these cultural properties on National Forest land.

No wetlands or meadows were identified or mapped and 44.4 acres of floodplain were noted within the non-federal parcels. There are approximately 9 miles of stream channels with channel slopes varying from 10 to 60 percent (McCorison 2004).

There are approximately 640 acres of non-federal land within the San Gorgonio Wilderness Area (South Fork Whitewater parcel). The remaining three non-federal parcels (2250 acres) are adjacent to National Forest System lands recommended for wilderness (Forest Plan, Part 2, Land Use Zone Map). There are no caves, or grazing rights on these lands. A Phase 1 Environmental Site Assessment (hazmat) was preformed by Tetra Tech, Inc. on the Onyx parcel. The assessment disclosed the presence of non-fibrous and non-friable asbestos in the green wall board and floor tiles from building material found at the site (Knowlton 2005). A site inspection found an asbestos pipe located on the Heartbreak Ridge parcel. The buildings and remnants of buildings likely have lead paint on the walls because they were constructed prior to 1978. The Forest Service has determined there is no indication of hazardous materials or petroleum products use or disposal on any of the non-federal parcels.

Two federally listed threatened/endangered plant species, Bear Valley sandwort (*Arenaria ursina*) and ash-gray Indian paintbrush (*Castilleja cinerea*)), occur on one of the non-federal parcels. Three additional threatened/endangered plant species may occur (though no species were found during field surveys) on the non-federal parcels with modeled habitat. These species are San Bernardino bluegrass (*Poa atrorpupurea*), bird's foot checkerbloom (*Sidalcea pedata*), and California dandelion (*Taraxacum californicum*) (Lardner 2005). The arroyo toad (*Bufo californicus*) has a low likelihood to occur in the South Fork Whitewater parcel while mountain yellow-legged frog (*Rana muscosa*) and southwestern willow flycatcher (*Empidonax traillii extimus*) have a moderate likelihood to occur on the same parcel (Loe 2005; Myers, McGaugh, Wilcox 2005). There are 23 sensitive plant and 30 sensitive animal species that occur or have a moderate to high likelihood of occurring on these non-federal parcels (Lardner 2005; Myers, McGaugh, Wilcox 2005)

Three of the parcels (South Fork Whitewater, Galena Peak, and Little San Gorgonio) are relatively isolated with no road access. The Onyx parcel has a recorded road easement in favor of San Bernardino County. The United States (Forest Service) has an easement for Forest System Road 1N01. A poorly maintained Forest System jeep trail accesses Heartbreak Ridge, but no recorded or authorized access exists for this parcel. As noted earlier, the United States (Forest Service) has a trail easement that goes through Little San Gorgonio (1E11).

The lands are zoned Resource Conservation by the County of San Bernardino. The non-federal lands do not contain prime farmlands, rangelands, or timberlands and are not used for farming, range, or timber purposes. Of the five non-federal parcels, Onyx is the only parcel with a known outstanding water right. Appendix 2 lists the known improvements and outstanding rights on each parcel.

4. ENVIRONMENTAL CONSEQUENCES

An environmental assessment (EA) is a concise public document that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI) (40CFR 1508.9). To determine whether there may be significant impacts, NEPA requires consideration of predicted impacts in terms of both context and intensity (40 CFR 1508.27). "Context" simply means that the impacts must be considered in the appropriate setting or scale. For example, the impacts of the proposed land exchange are most appropriately evaluated in the context of the locale rather than the world as a whole. "Intensity" refers to the severity of impact and requires consideration of 10 factors. These 10 factors can be found in 40 CFR 1508.27 (and are incorporated by reference) and are addressed in this EA.

This environmental analysis focuses on the effects of proposed future use and management of the lands to be acquired and conveyed and the lands adjoining them.

4.1. Effects Common to Both Alternatives

Other than a change of ownership, anticipated direct environmental effects are similar for both alternatives. The Wildlands Conservancy intends to manage these federal parcels with conservation values until the State is prepared to receive these parcels as additions to the Wildwood Canyon State Park. Management of these parcels would be similar to the Forest strategy to protect the biological diversity, ecological integrity, and open-space values. The same holds true for the non-federal parcels; they are presently managed as open-space with minimal human use on the land. The Forest intends to continue conservation management of these lands once acquired.

Because of similar management strategies for both alternatives, no direct adverse effects are anticipated for threatened, endangered, or sensitive animal or plant species (Loe 2005; Lardner 2005) and no Native American religious or historic properties will be affected (concurrence from SHPO dated June 22, 2005). Because no hazardous substances, petroleum products or other contaminants were identified and according to the mineral reports, there is a low probability of minerals, geothermal, or oil and gas available on any of the parcels, there would be no effect from hazmat or impacts to the minerals program on these lands.

Due to the existing vegetation type, topography, and current uses on the federal parcels, there would be no effect on prime farmlands, rangelands, or timberlands with either alternative. All the parcels are located in areas that would not have a disproportionate impact to consumers, civil rights, minority groups or women. None of the parcels were found to have wetlands (McCorison 2004); therefore, there would be no effect on wetlands for either alternative.

Neither alternative violates Federal, State, or local laws or requirements imposed for the protection of the environment or conflicts with other Land Use Plans. With each alternative, long-term productivity of the resources would not be sacrificed.

As proposed, both alternatives will have no effect on San Bernardino's tax base. The Wildlands Conservancy is not tax exempt; however, The Wildlands Conservancy status allows them to apply to the County for a refund of property taxes. When looking at the property taxes, both alternatives will have the same effect (i.e., no gain or loss in property taxes).

4.2. Alternative 1, Proposed Action

4.2.1. Effects on Federal Parcels (i.e., Pisgah Peak, Water Canyon, East Water Canyon, Wildwood Canyon, Wallace Creek, Mile High)

The effects from transferring ownership of the federal parcels to The Wildlands Conservancy are not unique with unknown risks. The Wildlands Conservancy's mission is to preserve the beauty and biodiversity of the earth. Their intended use of the lands is to continue with the conservation values. There is no reason to anticipate anything other than what is proposed.

The Water Canyon and East Water Canyon parcels adjoin the existing Wildwood Canyon State Park. The intent of the Wildlands Conservancy is to eventually transfer title of the federal parcels to the State expanding the size of this State Park for public enjoyment. Several of these federal parcels adjoin working farms, local water districts lands, and residents. Because the proposed use of these parcels would not change from the present conservation management, the transfer of title of these lands should have little direct or indirect effect on the adjacent landowners. There are several unauthorized improvements on the federal parcels that are likely owned by adjacent landowners. These landowners could be indirectly impacted by this alternative, should The Wildlands Conservancy decide the improvements will be removed. The Forest would not be involved with this decision.

The Proposed Action Alternative would remove Road 1S07 from the Forest Service Road System. With the transfer of these isolated federal parcels, there would be no purpose for the Forest Service to access a Forest System road in this area.

In considering cumulative effects, consideration must be given to the incremental effects of past, present, and reasonably foreseeable related future actions in the area. Should the community build-out (develop) portions of the private lands surrounding the federal parcels, there could be a potential increase of encumbrances on the land from the adjacent development and a change towards urbanization. The Wildlands Conservancy and/or State Park management of these lands would be more conducive than the Forest to the future surrounding development over time.

Irreversible commitment is a term that describes the loss of future options, primarily with regard to nonrenewable resources. With the removal of the six federal parcels from Forest Service management, there will be an irreversible commitment by the Forest to the resources on these lands. Because The Wildlands Conservancy intends to manage these lands similarly as the Forest, the resources would most likely be minimally impacted.

Because The Wildlands Conservancy intends to manage these federal parcels for conservation it is very unlikely there will be an irretrievable loss of production, harvest or use of natural resources to the six federal parcels.

4.2.2. Effects on Non-Federal Parcels (i.e., Onyx, Heartbreak Ridge, South Fork White Water, Galena Peak, Little San Gorgonio)

Several reports for this land exchange proposed removal of unsafe items, including: removing the asbestos from the abandoned structures on the Onyx and Heartbreak Ridge parcels, filling in a shallow and abandoned well, removing abandoned mining cable, and removing discarded tires and wrecked vehicles from the Onyx parcel in compliance with state and local regulations (Phase 1 report and Puckett and Spinney, 2004). These recommendations were incorporated into the proposed action. This alternative would remove the noted safety concerns on the lands proposed for exchange prior to and after the exchange is finalized.

The Forest would gain an additional 640 acres in the San Gorgonio Wilderness and another 2250 acres adjoining and within areas recommended for wilderness. The Forest would also gain federally listed endangered animal species habitat in the South Fork Whitewater parcel (Loe 2005). With this alternative, the government would acquire 23 acres of Pebble plains which is habitat for two federally listed threatened plant species and land where four sensitive plant species have documented occurrences.

4.2.3. Additional Effects from Alternative 1

The Forest would loose 2.2 miles of stream channel on the federal parcels but gain 9.0 miles from the non-federal parcels. In addition, the Forest would loose five acres of floodplain on the federal parcels but gain 44.4 acres of floodplain on the non-federal parcels with this alternative.

This alternative would lower administrative costs for the Forest. The lands acquired are more isolated and all but some corners of parcels are surrounded by National Forest System lands. Approximately 33 miles of boundary line and 56 boundary corners would no longer need management and maintenance with this alternative. In addition, two special use authorizations and 9 unauthorized improvements would be eliminated from backlog administration.

No controversy has been voiced during scoping of this project proposal from the public, groups or local, state and federal agencies.

The land exchange alternative is not setting precedence for future actions that could cause significant environmental effects. The future management of these lands will be similar to what presently exists, with a conservation emphasis.

4.3. Alternative 2, No Action

4.3.1. Effects on Federal Parcels (i.e., Pisgah Peak, Water Canyon, East Water Canyon, Wildwood Canyon, Wallace Creek, Mile High)

The Forest would need to eventually resolve issues tied to the unauthorized improvements located on the federal parcels and update the two special use permits issued to California Department of Forestry (CDF).

Cumulatively, should the community build-out on the private lands surrounding the federal parcels, management of these lands could become more difficult and more costly to administer. There would be a potential increase of encumbrances on the land with adjacent development, a greater need for property boundary and boundary corner maintenance for these isolated federal parcels, and greater potential for land use conflicts. Over time, these parcels would be more difficult to support Forest Service programs due to the isolation of these lands from the rest of the National Forest land and no recorded access to these parcels.

Because these parcels are noted for disposal in the Forest's Land Adjustment Guide, it is likely, these lands could eventually be exchanged out of federal ownership should the decision be to not continue with this land exchange. A new land exchange proposal would be valid if the proposal is in compliance with the Forest Plan and National laws, regulations and policy. The management emphasis for a possible future exchange could be other than conservation so long as it meets the present and future needs of the American people.

4.3.2. Effects on Non-Federal Parcels (i.e., Onyx, Heartbreak Ridge, South Fork White Water, Galena Peak, Little San Gorgonio)

Though it is unlikely, should the Wildlands Conservancy decide to manage these parcels for one or more of the County Zoned land uses (e.g. a single dwelling unit, cultivation of crops, animal raising, and social care facility with six or fewer clients) the use could affect the National Forest lands adjacent to the non-federal parcels. At a minimum, effects to the National Forest lands could include requests for access to the non-federal lands through special use authorization(s). Other potential ancillary uses on the National Forest land could include water systems, power and phone poles and lines to serve uses on the non-federal parcels.

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6. LIST OF AGENCIES AND PERSONS CONSULTED

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

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INDIVIUDALS, ORGANIZATIONS, AND AGENCIES CONSULTED:

Desert Cahuilla Indians
Cabazon Band of Mission Indians
Los Coyotes Band of Mission Indians
Ramona Band of Cahuilla
Morongo Band of Mission Indians
San Manuel Band of Mission Indians
Santa Rosa Band of Mission Indians
Soboba Band of Mission Indians
Cahuilla Band of Mission Indians
Agua Caliente Band of Cahuilla Indians
Augustine Band of Mission Indinas
Twenty-Nine Palms Band of Mission Indians
Ish Pahnesh United Band of Indians
National Historic Preservation Officer
US Fish and Wildlife Service
Governor's Office of Planning and Research, Department of State Clearinghouse

Appendix 1 – Summary Of Public Comments

Comment	Determination as an issue	Explanation	Letter and date of comment
Wants to ensure there are no cultural sites on the federal lands being exchanged. Feels non-federal lands should be treated in the same manner	Non-significant	During a field survey no cultural sites were found on the federal parcels and SHPO concurred there would be no effect.	Joseph Hamilton, Vice Chairman, 9/27/04
May be a traditional use area but know of no cultural resources in the project area. Hope that the transfer of land to the Conservancy will offer equal protection on any cultural resources that may be on the lands	Non-significant	During a field survey no cultural sites were found on the federal parcels and SHPO concurred there would be no effect.	Britt W.Wilson, Project Mgr and Cultural Resource Coordinator, Morongo Band of Mission Indians, 9/28/04 (email)
Concern that the federal lands will be resold for development purposes. Suggest a MOU or deed restriction to ensure land protected and not developed	non-significant conjectural and not supported by scientific or factual evidence	The Conservancy has no history of selling off lands for development. This would not be in line with their mission. These were alternatives considered but eliminated from detail analysis.	Director, Western Land Exchange Project, 12/10/04
Support the proposal. Feel the federal lands, as an addition to the Wildwood Canyon State Park, will provide areas of open space for the public.	non- issue	This is not an issue. It is a statement of support	Chairman, Trails and Open Space Committee, City of Yucaipa, 1/5/05
Wanted to ensure there would be no deed restriction on their parcel should the exchange be approved	non-significant outside the scope of the proposed action	The Forest Service has no authority to add deed restrictions on adjacent non-federal lands. No deed restrictions are proposed for this project.	B. and D. Baker, Landowner adjacent to the Wildwood Canyon parcel (fed), 1/10/05 – phone call
In favor of the land exchange. Allows for the creation and expansion of the Wildwood	non-issue	This is not an issue. It is a statement of support	Mayor of the City of Yucaipa, 1/12/05

Canyon State park which would increase public recreation and education			
Wanted to ensure the Conservancy would continue to support their uses on their adjacent lands.	non-significant outside the scope of the proposed action	The proposal is for a land exchange for forest system lands adjacent to this private parcel for private lands further from this private parcel. The Conservancy's continued support of the landowner uses on their adjacent lands is outside the scope of this project.	Landowner adjacent to the ..... parcel (fed), 1/14/05
Feels the adjacent federal parcels are not good candidates for the State Park System and would like to recommend they be the stewards of those parcels	non-significant outside the scope of the proposed action	County zoning and land ownership decisions will determine uses of these federal lands once they are acquired by the Conservancy. The Conservancy's stated intent is to transfer these lands to the State for a State Park	Landowner adjacent to the ..... parcel (fed), 1/14/05
Concerned their property values could be dimmished adjacent to the federal lands involved with the exchange	non-significant conjectural and not supported by scientific or factual evidence	The land uses are proposed to be the same as what presently exists – only the ownership changes. Land values are not anticipated to increase or decrease in and around the exchange parcels due to the proposed exchange.	Landowner adjacent to the ..... parcel (fed), 1/14/05
Overall public interest will be served and the final result will enhance both the Forest and the Yucaipa foothill area. Fully endorses and encourages the approval of the proposed exchange	non- issue	This is not an issue. It is a statement of support	Arnie Bean, President, San Bernardino Mountains Land Trust, 1/21/05
Does not appear to affect or significantly impact any existing or future Flood Control District facilities or County Roads. Therefore, have no comments.	non- issue	This is not an issue. It is a statement of no effect on their facilities.	Naresh P. Varma, Division Chief, Env. Mgmt, San Bernardino County, Dept of Public Works

Appendix 2 – Summary of improvements and rights on the parcels proposed for exchange

PARCEL NAME	EXISTING IMPROVEMENTS AND RIGHTS	PROPOSED ACTION (ALTERNATIVE 1)
	Federal Parcels	
Wallace Creek	Un-named native surface road in northeast section of parcel	Reserve to the United States a right-of-way for ditches or canals. The Wildlands Conservancy would accept the parcel without recorded access and the existing road with no recorded easement.
Water Canyon	Native surface access way and fuelbreak (authorized through Special Use Permit to California Department of Forestry (CDF)), native surface Water Canyon Road (authorized through an easement in favor of San Bernardino County), earthen dam, stock pond, diversion ditch, well, well head, pressure relief tube, transmission lines, and abandoned native surface spur road	Reserve to the United States a right-of-way for ditches or canals. The Wildlands Conservancy would execute a suitable easement or agreement to CDF for the existing authorized uses. For encroachments, The Wildlands Conservancy would be responsible for resolution. The Forest would not be involved.
East Water Canyon	None found.	Reserve to the United States a right-of-way for ditches or canals. The Wildlands Conservancy would accept the parcel without recorded access. State lands are contiguous on the northern, western, and southern boundaries of the parcel.
Wildwood Canyon	Helispot, cement 10,000 gallon water tank, pipeline, hydrant box, catchment basin, native surface access ways, and fuelbreak (authorized through Special Use Permits to CDF), Forest System Road (1S07) known as Pisgah Peak Road, private 10,000 gallon metal	Reserve to the United States a right-of-way for ditches or canals. The Wildlands Conservancy would accept the parcel without recorded access. The Wildlands Conservancy would execute a suitable easement or agreement to CDF for the authorized Special Uses. For encroachments, The Wildlands Conservancy would be

	water tank, gravel pad, transmission lines & cleared access with abandoned lumber debris near tank, native surface spur road on federal land to access water tank on adjacent private land, abandoned native surface road traveling towards the Yucaipa Conservancy parcel.	responsible for resolution. The Forest would not be involved.
Mile High	None found	Reserve to the United States a right-of-way for ditches or canals. The Wildlands Conservancy would accept the parcel without recorded access.
Pisgah Peak	10,000 gallon cement water tank, catchment basin, waterline, hydrant, native surface access way and fuelbreak (authorized through Special Use Permits to CDF), Forest System road (1S07) known as Pisgah Peak Road, native surface road connecting Water Canyon Road with Pisgah Peak Road, 2 gates, fence.	Reserve to the United States a right-of-way for ditches or canals The Wildlands Conservancy would execute a suitable easement or agreement to CDF for the existing authorized uses. For encroachments, The Wildlands Conservancy would be responsible for resolution. The Forest would not be involved.
	Non-Federal Parcels	
Onyx	3 abandoned buildings and debris, abandoned cable system related to abandon mine on adjacent Forest land, spring box, native surface Forest System Road 1N01 (authorized through an easement in favor of USA). Outstanding water right and strip of land 200 feet in width reserved to Southern Pacific Land Company for a railroad track. One road easement over entire parcel or section (authorized through an easement in favor of the County of San Bernardino).	The two parties would work together to remove remaining structures, debris, etc. after title is transferred to the United States. Road easement (1N01) would merge with title. The Wildlands Conservancy would attempt to acquire from Southern Pacific Land Company a quitclaim for the 200' strip of land and water right prior to the Forest acquiring the parcel through the land exchange. The Forest would accept the parcel with the outstanding right for the road easement to the County of San Bernardino.
Heartbreak Ridge	Native surface jeep trail (2N68Y) and unnamed native surface road, cabin and outhouse with scattered miscellaneous debris, abandoned improvements (including tank with motor, earth dam, stock pond, rubber liner for pond, irrigation pipe, spring	The Forest would accept the parcel without recorded access and the existing roads with no recorded easement (access could occur through adjacent National Forest System lands and existing roads). The two parties would work together to remove remaining structure, debris, etc. after title is transferred to the United States.

	development, building material debris from a demolished structure)	
Galena Peak	No improvements found. Outstanding mineral rights reserved by SF Pacific Properties, Inc.	The Wildlands Conservancy would attempt to acquire from SF Pacific Properties, Inc. a quitclaim for the mineral right prior to the Forest acquiring the parcel through the land exchange. The Forest would accept the parcel without recorded access (access could occur through adjacent NFS lands).
Little San Gorgonio	Forest Service Trail 1E11 (authorized through an easement) Outstanding mineral rights reserved by SF Pacific Properties, Inc.	The trail easement (1E11) would merge with title. The Wildlands Conservancy would attempt to acquire from SF Pacific Properties, Inc. a quitclaim for the mineral right prior to the Forest acquiring the parcel through the land exchange. The Forest would accept the parcel without recorded access (access could occur through adjacent NFS lands).
S. Fork Whitewater	No improvements found. Outstanding mineral rights reserved by Santa Fe Pacific Realty Corporation.	The Wildlands Conservancy would attempt to acquire from Santa Fe Pacific Realty Corporation a quitclaim for the mineral right prior to the Forest acquiring the parcel through the land exchange. The Forest would accept the parcel without recorded access (access could occur through adjacent NFS lands).

KLEIN BROADCAST ENGINEERING, L.L.C.

dedicated to improving the science and technology of radio & television communications

JANUARY 2009

ENGINEERING ANALYSIS & STATEMENT
RELOCATION/TRANSMISSION FACILITY IMPROVEMENTS
FM Broadcast Station KXRS
FM Channel 288 A / 105.5mHz.
Hemet, California

Introduction & Summary

Klein Broadcast Engineering, L.L.C., has been retained by Citizens for Preservation of Rural Living, of Redlands, California, to prepare this engineering analysis and statement concerning the proposed relocation of FM Broadcast Station KXRS, licensed to the Principal Community of Hemet, California.

As discussed in more detail below, we conclude that the existing FM Radio Station KXRS located at Polly Butte, California, is in full compliance with applicable Rules and Regulations of the Federal Communications Commission (FCC), and is not required by the FCC to move or relocate its facility.

We also conclude as a result of our engineering research that there are, at minimum, at least two existing FCC registered tower sites upon which KXRS could locate while meeting all applicable FCC requirements including, most importantly, serving its Principal Community of Hemet, California. Relocating to either of the existing alternative sites discussed below would greatly improve the number of persons served and the coverage area of Radio Station KXRS. We also believe that

there are likely dozens of additional FCC compliant alternative sites that could be located, given the size of the area to locate.

1) THE EXISTING POLLY BUTTE SITE for KXRS IS IN COMPLIANCE

Our review of the FCC files concerning FM Radio Station KXRS shows that the station is operating at its existing licensed location in compliance with the Grandfathered Short Spacing Rule, 47 C.F.R. Section 73.213 of the Rules and Regulations of the Federal Communications Commission. We believe the station's licensed facility and site are in full compliance with the applicable FCC Rules and Regulations. The station is not under any order or directive from the Federal Communications Commission that compels it to abandon its FCC authorized and presently licensed site, or to relocate its transmission facility.

2) FM STATION KXRS FIRST OBLIGATION IS TO SERVE HEMET, CA

Every FM Broadcast Station is licensed to serve an assigned Principal Community. FM Station KXRS operates as a Class A FM Broadcast Station that is licensed to serve its Principal Community of License, Hemet, California.

Every FM Broadcast Station including KXRS must cover it Principal Community (in this case, Hemet, California) with a 70dBu, 3.16mV/M, signal. This is known as a station's "City Grade Coverage Contour." FCC Rule Section 73.315 requires at least 80% of the Principal Community be covered by this FM field strength contour. There is a specific way in which an FM broadcast station's coverage contours are calculated, the details of which may be found in 47 C.F.R. Section 73.313.

Class A FM Stations, such as KXRS, are licensed by the FCC to serve smaller communities and local areas. The City Grade Coverage Contour for KXRS, when calculated by the methods described in FCC Rule Section 47 C.F.R. Section 73.313, shows that the average distance this contour extends beyond the station's transmitter site is 9.94 miles. Generally, a Class A Station must not be located more than 10 to 12 miles distant from the farthest boundary of its Principal Community. The FCC "Protected Contour" of 60dBu, 1.00mV/M of a class A FM station generally extends 17.4 miles distant from its transmitter site.

3) STATION KXRS IS NOT COMPELLED TO MOVE OR UPGRADE

FM stations in the United States are not mandated or required by any governmental agency to change transmitter site locations to enlarge a particular station's coverage area. FM Station KXRS is under no order from the Federal Communications Commission to enlarge its coverage area. A station licensee may choose to improve a particular station's coverage area but it is not required to do so.

In the case of FM Station KXRS, if its licensee chooses to try to improve or enlarge the coverage area of the station, it must comply with specific FCC spacing rules. There are two specific rules that apply in this case. The first is 47 C.F R. Section 73.207 and the second is 47 C.F.R. Section 73.215 of the Rules and Regulations of the Federal Communications Commission. The first quoted rule section has a table of distances for specified classes of FM stations, including class A stations such as KXRS, that must be separated by specific distances to each other according to the

FM station channel relationship to each other. The "Spacing Table" found in 47 C.F.R. Section 73.207 can only be violated with the invocation of the second quoted Rule, Section 47 C.F.R. Section 73.215. This Rule Section requires the use of Contour Protection if a station desires to operate under this rule section.

Any FM station that desires to use the Contour Protection Rule must protect all affected stations around it by not interfering with the other affected station's Protected Contours with the Proposed Interfering Contour. The specifics for the calculation of these contour protection requirements may be found in 47 C.F.R. Section 73.215 of the FCC Rules and Regulations. This FCC Rule was designed and implemented to give FM station such as KXRS more flexibility with regard to transmitter site location options.

4) AREA TO LOCATE MAPS FROM FCC CHANNEL SPACING STUDIES

Area to locate maps can be prepared to show the specific area a station must locate within, in order to be compliant with the two above-captioned FM Station Channel Spacing Rules. We have prepared such maps that are attached herein and marked as Exhibit E1, E-1A (this exhibit is a zoomed in view of Exhibit E-1 to show more detail) and E2. Exhibit E-1 was prepared using the spacing requirements of 47 C.F.R. Section 73.207. Exhibit E-2 is an area to locate map that was prepared under the second quoted Rule, Section 47 C.F.R. Section 73.215.

As can be seen looking at the two area to locate maps, both maps show a fairly large area in which FM Station KXRS can locate and be compliant with the two applicable FM Station Channel Spacing Rules. The first map, Exhibit E-1 and E-1A, depicts an area to locate that is 73.69 square miles in land area. This map is the same (or nearly the same) as the map marked Exhibit A to the Hatfield & Dawson Engineering Statement dated October 2008. The second map (Exhibit E-2), prepared under 47 C.F.R. Section 73.215, shows an area to locate of approximately 1936 square miles in size.

Within the area to locate shown on Exhibit E-1 and E-1A, within the 73.69 square mile area, there are at least two existing registered towers of sufficient height above ground to be useful to FM Station KXRS. We studied both of these existing towers. The first tower and site studied has been assigned ASR# 1263499 (ASR = Antenna Structure Registration) by the FCC and is referred to here in as "Alternative Site 1." This tower is 328 feet in height above ground level. The second tower and site studied has been assigned ASR# 1202850 by the FCC and is referred to herein as "Alternative Site 2." The tower on this second site is 403 feet in height above ground level.

5) ANALYSIS OF POLLY BUTTE SITE & ALTERNATIVE SITE 1

The existing KXRS facility located at Polly Butte serves 197,826 persons in an area that encompasses 900.3 square miles within its calculated 60dBu, 1.00mV/M FCC Protected Contour. We designed a hypothetical class A FM transmission facility at

Alternative Site 1 (ASR# 1263499) and found the requisite 70dBu, 3.16mV/M City Grade Contour covered 75.1% of the land area of the KXRS Principal Community, Hemet, California, and served 85.4% of the population. These are very similar figures quoted by Station KXRS and granted by the Federal Communications Commission for the proposed Pisgah Peak Road Site.

From Alternative Site 1, KXRS would be able to serve 1,167,369 persons within an area of 1,971.1 square miles within the predicted 60dBu, 1.00mV/M FCC Protected Contour. This represents an increase of 590.1% in the number of persons that could be served by a Class A FM station located on the existing permitted tower and site identified as Alternative Site 1 (ASR# 1263499) compared to the existing KXRS site, even though the FCC does not mandate a specific increase in area or population served when a station chooses to upgrade its facilities. Exhibit E-3 is a Contour Map showing the predicted 60dBu, 1.00mV/M FCC Protected Contour from the existing KXRS Polly Butte Site and Alternative Site 1 (ASR# 1263499).

<u>6) STUDY & ANALYSIS OF ALTENATIVE SITE 2</u>

We also designed a hypothetical Class A FM Station on Alternative Site 2 (ASR# 1202850). Like Alternative Site 1, the tower located on this site is within the 73.69 square mile area shown on Exhibit E-1 and E-1A, which means that this site also complies fully with the FM Channel Spacing requirements found in 47 C.F.R. Section 73.207 of the Rules and Regulations of the Federal Communications Commission. This site also complies with the City Grade 70dBu, 3.16mV/M signal

coverage requirement of 47 C.F.R. Section 73.315 of the FCC Rules and Regulations. In fact, as demonstrated in Exhibit E-4, 97.6% of the land area of the KXRS Principal Community, Hemet, California, could be covered by the requisite City Grade Contour and 97.1% of the population from a hypothetical facility located at Alternative Site 2.

Although the existing tower on Alternative Site 2 (ASR# 1202850) is 403 feet in height above ground level, for purposes of our study, we located the antenna COR (center of radiation) at the 396 foot level of this structure. As previously noted, the existing KXRS Polly Butte Site facility serves 197,826 persons within an area of 900.3 square miles within the station's existing 60dBu, 1.00mV/M FCC Protected Signal Contour. The same 60dBu, 1.00mV/M FCC Protected Contour signal from Alternative Site 2 (ASR# 1202850) would serve 1,784,791 persons in an area of 3,307 square miles. This represents a substantial increase both in population and in land area served, very similar to the proposed Pisgah Peak Road site. The actual increase in population served is an increase of 902.2% and a 376.3% increase in land area served compared to KXRS's existing operations. This substantial increase in coverage could be achieved by locating on an existing tower site within the Area To Locate shown on the maps attached as Exhibit E-1 and E-1A and would be fully compliant with all applicable FCC Rules and Regulations.

Exhibit E-5 is a contour map that shows the existing KXRS 60dBu, 1.00mV/M FCC Protected Contour Signal from Polly Butte and the 60dBu, 1.00mV/M FCC

Protected Contour Signal generated from Alternative Site 2 (ASR# 1202850). This exhibit graphically demonstrates the large increase in persons and land area that could be served by locating at Alternative Site 2 as compared to the existing KXRS Polly Butte signal.

7) CONCLUSIONS

Within the scope of this engineering study and analysis we have found two existing tower sites suitable for the relocation of FM Broadcast Station KXRS. We have demonstrated that the two sites analyzed are suitable for the intended purposes of the licensee of FM Broadcast Station KXRS, would greatly improve the number of people reached by the station, and would be fully compliant with all applicable FCC Rules and Regulations. Given the size of the area to locate, it is our belief there are likely a dozen or more existing sites on which KXRS could relocate for an improved transmission facility for FM Station KXRS. The fact is there are likely to be several dozen sites available that would allow FM Station KXRS to improve its coverage of and service to San Bernardino and Riverside Counties.

However, we point out again, the MAIN and PRIMARY responsibility of FM Station KXRS is to serve its Principal Community of License, Hemet, California. KXRS is not compelled by the FCC to relocate its existing Polly Butte transmission facility. The existing KXRS Polly Butte Facility is in full compliance with the applicable FCC Rules and Regulations for Class A FM Broadcast Stations. FM

Station KXRS is not compelled to serve any specific land area or population beyond the FCC requirements that KXRS serve it licensed Principal Community, Hemet, California, under 47 C.F.R. Section 73.315 of the Rules and Regulations of the Federal Communications Commission.

The population data and Principal Community Boundary data presented herein was taken from the 2000 U.S. Census as revised. This is the most recent source of census block data presently available.

Respectfully submitted,

Signature Not Verified

Elliott Kurt Klein

Digitally signed by Elliott Kurt Klein
DN: cn=Elliott Kurt Klein, c=US
Date: 2009.01.21 15:27:15 -07'00'
Location: Paraqdise Valley, Arizona

Elliott Kurt Klein,
Consulting Broadcast Engineer

QUALIFICATIONS OF ANALYZING ENGINEER

The firm of Klein Broadcast Engineering, L.L.C., was founded in 1976. It is in the business of designing and constructing commercial radio and television broadcast station facilities. Its principal business is the design of these types of facilities and the preparation of engineering statements and supporting engineering exhibits in support of applications filed before the Federal Communications Commission for construction permits and station licenses for commercial radio and television stations operations in the United States of America. Elliott K. Klein, the company's founder, has been engaged in the broadcast engineering profession since 1967. He has prepared and filed hundreds of applications, engineering briefs and other engineering comments before the Federal Communications Commission during the past forty-two years. His engineering qualifications are a matter of record with the Federal Communications Commission. Mr. Klein is also a member of the Institute of Electrical and Electronic Engineers (I.E.E.E.) and an Associate Member of the Association of Federal Communications Consulting Engineers (A.F.C.C.E)

QUOTED FCC RULE SECTIONS FOLLOW THIS PAGE

meridian to the 43.5° parallel; thence east along this parallel to the United States-Canada border; thence southerly and following that border until it again intersects the 43.5° parallel; thence east along this parallel to the 71st meridian; thence in a straight line to the intersection of the 69th meridian and the 45th parallel; thence east along the 45th parallel to the Atlantic Ocean. When any of the above lines pass through a city, the city shall be considered to be located in Zone I. (See Figure 1 of §73.699.)

(b) Zone I-A consists of Puerto Rico, the Virgin Islands and that portion of the State of California which is located south of the 40th parallel.

(c) Zone II consists of Alaska, Hawaii and the rest of the United States which is not located in either Zone I or Zone I-A.

[29 FR 14116, Oct. 14, 1964, and 31 FR 10125, July 27, 1966, as amended at 48 FR 29504, June 27, 1983]

§73.207 Minimum distance separation between stations.

(a) Except for assignments made pursuant to §73.213 or 73.215, FM allotments and assignments must be separated from other allotments and assignments on the same channel (co-channel) and five pairs of adjacent channels by not less than the minimum distances specified in paragraphs (b) and (c) of this section. The Commission will not accept petitions to amend the Table of Allotments unless the reference points meet all of the minimum distance separation requirements of this section. The Commission will not accept applications for new stations, or applications to change the channel or location of existing assignments unless transmitter sites meet the minimum distance separation requirements of this section, or such applications conform to the requirements of §73.213 or 73.215. However, applications to modify the facilities of stations with short-spaced antenna locations authorized pursuant to prior waivers of the distance separation requirements may be accepted, provided that such applications propose to maintain or improve that particular spacing deficiency. Class D (secondary) assignments are subject only to the distance separation requirements contained in paragraph (b)(3) of this section. (See §73.512 for rules governing the channel and location of Class D (secondary) assignments.)

(b) The distances listed in Tables A, B, and C apply to allotments and assignments on the same channel and each of five pairs of adjacent channels. The five pairs of adjacent channels are the first (200 kHz above and 200 kHz below the channel under consideration), the second (400 kHz above and below), the third (600 kHz above and below), the fifty-third (10.6 MHz above and below), and the fifty-fourth (10.8 MHz above and below). The distances in the Tables apply regardless of whether the proposed station class appears first or second in the "Relation" column of the table.

(1) Domestic allotments and assignments must be separated from each other by not less than the distances in Table A which follows:

TABLE A—MINIMUM DISTANCE SEPARATION REQUIREMENTS IN KILOMETERS (MILES)

Relation	Co-channel	200 kHz	400/600 kHz	10.6/10.8 MHz
A to A	115 (71)	72 (45)	31 (19)	10 (6)
A to B1	143 (89)	96 (60)	48 (30)	12 (7)
A to B	178 (111)	113 (70)	69 (43)	15 (9)
A to C3	142 (88)	89 (55)	42 (26)	12 (7)
A to C2	166 (103)	106 (66)	55 (34)	15 (9)
A to C1	200 (124)	133 (83)	75 (47)	22 (14)
A to C0	215 (134)	152 (94)	86 (53)	25 (16)
A to C	226 (140)	165 (103)	95 (59)	29 (18)
B1 to B1	175 (109)	114 (71)	50 (31)	14 (9)
B1 to B	211 (131)	145 (90)	71 (44)	17 (11)
B1 to C3	175 (109)	114 (71)	50 (31)	14 (9)
B1 to C2	200 (124)	134 (83)	56 (35)	17 (11)
B1 to C1	233 (145)	161 (100)	77 (48)	24 (15)
B1 to C0	248 (154)	180 (112)	87 (54)	27 (17)
B1 to C	259 (161)	193 (120)	105 (65)	31 (19)
B to B	241 (150)	169 (105)	74 (46)	20 (12)
B to C3	211 (131)	145 (90)	71 (44)	17 (11)
B to C2	241 (150)	169 (105)	74 (46)	20 (12)
B to C1	270 (168)	195 (121)	79 (49)	27 (17)

TABLE A—MINIMUM DISTANCE SEPARATION REQUIREMENTS IN KILOMETERS (MILES)—Continued

Relation	Co-channel	200 kHz	400/600 kHz	10.6/10.8 MHz
B to C0	272 (169)	214 (133)	89 (55)	31 (19)
B to C	274 (170)	217 (135)	105 (65)	35 (22)
C3 to C3	153 (95)	99 (62)	43 (27)	14 (9)
C3 to C2	177 (110)	117 (73)	56 (35)	17 (11)
C3 to C1	211 (131)	144 (90)	76 (47)	24 (15)
C3 to C0	226 (140)	163 (101)	87 (54)	27 (17)
C3 to C	237 (147)	176 (109)	96 (60)	31 (19)
C2 to C2	190 (118)	130 (81)	58 (36)	20 (12)
C2 to C1	224 (139)	158 (98)	79 (49)	27 (17)
C2 to C0	239 (148)	176 (109)	89 (55)	31 (19)
C2 to C	249 (155)	188 (117)	105 (65)	35 (22)
C1 to C1	245 (152)	177 (110)	82 (51)	34 (21)
C1 to C0	259 (161)	196 (122)	94 (58)	37 (23)
C1 to C	270 (168)	209 (130)	105 (65)	41 (25)
C0 to C0	270 (168)	207 (129)	96 (60)	41 (25)
C0 to C	281 (175)	220 (137)	105 (65)	45 (28)
C to C	290 (180)	241 (150)	105 (65)	48 (30)

(2) Under the Canada-United States FM Broadcasting Agreement, domestic U.S. allotments and assignments within 320 kilometers (199 miles) of the common border must be separated from Canadian allotments and assignments by not less than the distances given in Table B, which follows. When applying Table B, U.S. Class C2 allotments and assignments are considered to be Class B; also, U.S. Class C3 allotments and assignments and U.S. Class A assignments operating with more than 3 kW ERP and 100 meters antenna HAAT (or equivalent lower ERP and higher antenna HAAT based on a class contour distance of 24 km) are considered to be Class B1.

TABLE B—MINIMUM DISTANCE SEPARATION REQUIREMENTS IN KILOMETERS

Relation	Co-Channel	Adjacent Channels			I.F.
	0 kHz	200 kHz	400 kHz	600 kHz	10.6/10.8 MHz
A-A	132	85	45	37	8
A-B1	180	113	62	54	16
A-B	206	132	76	69	16
A-C1	239	164	98	90	32
A-C	242	177	108	100	32
B1-B1	197	131	70	57	24
B1-B	223	149	84	71	24
B1-C1	256	181	106	92	40
B1-C	259	195	116	103	40
B-B	237	164	94	74	24
B-C1	271	195	115	95	40
B-C	274	209	125	106	40
C1-C1	292	217	134	101	48
C1-C	302	230	144	111	48
C-C	306	241	153	113	48

(3) Under the 1992 Mexico-United States FM Broadcasting Agreement, domestic U.S. assignments or allotments within 320 kilometers (199 miles) of the common border must be separated from Mexican assignments or allotments by not less than the distances given in Table C in this paragraph (b)(3). When applying Table C—

(i) U.S. or Mexican assignments or allotments which have been notified internationally as Class A are limited to a maximum of 3.0 kW ERP at 100 meters HAAT, or the equivalent;

(ii) U.S. or Mexican assignments or allotments which have been notified internationally as Class AA are limited to a maximum of 6.0 kW ERP at 100 meters HAAT, or the equivalent;

(iii) U.S. Class C3 assignments or allotments are considered Class B1;

(iv) U.S. Class C2 assignments or allotments are considered Class B; and

(v) Class C1 assignments or allotments assume maximum facilities of 100 kW ERP at 300 meters HAAT. However, U.S. Class C1 stations may not, in any event, exceed the domestic U.S. limit of 100 kW ERP at 299 meters HAAT, or the equivalent.

TABLE C—MINIMUM DISTANCE SEPARATION REQUIREMENTS IN KILOMETERS

Relation	Co-Channel	200 kHz	400 kHz or 600 kHz	10.6 or 10.8 MHz (I.F.)
A to A	100	61	25	8
A to AA	111	68	31	9

TABLE C—MINIMUM DISTANCE SEPARATION REQUIREMENTS IN KILOMETERS—Continued

Relation	Co-Channel	200 kHz	400 kHz or 600 kHz	10.6 or 10.8 MHz (I.F.)
A to B1	138	88	48	11
A to B	163	105	65	14
A to C1	196	129	74	21
A to C	210	161	94	28
AA to AA	115	72	31	10
AA to B1	143	96	48	12
AA to B	178	125	69	15
AA to C1	200	133	75	22
AA to C	226	165	95	29
B1 to B1	175	114	50	14
B1 to B	211	145	71	17
B1 to C1	233	161	77	24
B1 to C	259	193	96	31
B to B	237	164	65	20
B to C1	270	195	79	27
B to C	270	215	98	35
C1 to C1	245	177	82	34
C1 to C	270	209	102	41
C to C	290	228	105	48

(c) The distances listed below apply only to allotments and assignments on Channel 253 (98.5 MHz). The Commission will not accept petitions to amend the Table of Allotments, applications for new stations, or applications to change the channel or location of existing assignments where the following minimum distances (between transmitter sites, in kilometers) from any TV Channel 6 allotment or assignment are not met:

MINIMUM DISTANCE SEPARATION FROM TV CHANNEL 6 (82–88 MHz)

FM Class	TV Zone I	TV Zones II & III
A	17	22
B1	19	23
B	22	26
C3	19	23
C2	22	26
C1	29	33
C	36	41

[48 FR 29504, June 27, 1983, as amended at 49 FR 10264, Mar. 20, 1984; 49 FR 19670, May 9, 1984; 49 FR 50047, Dec. 26, 1984; 51 FR 26250, July 22, 1986; 54 FR 14963, Apr. 14, 1989; 54 FR 16366, Apr. 24, 1989; 54 FR 19374, May 5, 1989; 54 FR 35338, Aug. 25, 1989; 56 FR 27426, June 14, 1991; 56 FR 57293, Nov. 8, 1991; 62 FR 50256, Sept. 25, 1997; 65 FR 79776, Dec. 20, 2000]

§ 73.208 Reference points and distance computations.

(a)(1) The following reference points must be used to determine distance separation requirements when petitions to amend the Table of Allotments (§ 73.202(b)) are considered:

(i) First, transmitter sites if authorized, or if proposed in applications with cut-off protection pursuant to paragraph (a)(3) of this section;

(ii) Second, reference coordinates designated by the FCC;

(iii) Third, coordinates listed in the United States Department of Interior publication entitled Index to the National Atlas of the United States of America; or

(iv) Last, coordinates of the main post office.

(The community's reference points for which the petition is submitted will normally be the coordinates listed in the above publication.)

(2) When the distance between communities is calculated using community reference points and it does not meet the minimum separation requirements of § 73.207, the channel may still be allotted if a transmitter site is available that would meet the minimum separation requirements and still permit the proposed station to meet the minimum field strength requirements of § 73.315. A showing indicating the availability of a suitable site should be sumitted with the petition. In cases where a station is not authorized in a community or communities and the proposed channel cannot meet the separation requirement a showing should also be made indicating adequate distance between suitable transmitter sites for all communities.

(3) Petitions to amend the Table of Allotments that do not meet minimum distance separation requirements to transmitter sites specified in pending applications will not be considered unless they are filed no later than:

(i) The last day of a filing window if the application is for a new FM facility or a major change in the non-reserved band and is filed during a filing window established under section 73.3564(d)(3); or

(ii) The cut-off date established in a Commission Public Notice under § 73.3564(d) and 73.3573(e) if the application is for a new FM facility or a major change in the reserved band; or

section may continue to operate as authorized. Stations operating with facilities in excess of those specified in paragraph (b) of this section may not increase their effective radiated powers or extend their 1 mV/m field strength contour beyond the location permitted by their present authorizations. The provisions of this section will not apply to applications to increase facilities for those stations operating with less than the minimum power specified in paragraph (a) of this section.

(d) *Existing Class C stations below minimum antenna HAAT.* Class C stations authorized prior to January 19, 2001 that do not meet the minimum antenna HAAT specified in paragraph (a)(2) of this section for Class C stations may continue to operate as authorized subject to the reclassification procedures set forth in Note 4 to § 73.3573.

[53 FR 17042, May 13, 1988, as amended at 54 FR 16367, Apr. 24, 1989; 54 FR 19374, May 5, 1989; 54 FR 35339, Aug. 25, 1989; 65 FR 79777, Dec. 20, 2000]

§ 73.212 Administrative changes in authorizations.

(a) In the issuance of FM broadcast station authorizations, the Commission will specify the transmitter output power and effective radiated power in accordance with the following tabulation:

Power (watts or kW)	Rounded out to nearest figure (watts or kW)
1 to 3	.05
3 to 10	1
10 to 30	5
30 to 100	1
100 to 300	5
300 to 1,000	10

(b) Antenna heights above average terrain will be rounded out to the nearest meter.

[28 FR 13623, Dec. 14, 1963, as amended at 48 FR 29506, June 27, 1983]

§ 73.213 Grandfathered short-spaced stations.

(a) Stations at locations authorized prior to November 16, 1964, that did not meet the separation distances required by § 73.207 and have remained continuously short-spaced since that time may be modified or relocated with respect to such short-spaced stations, *provided that* (i) any area predicted to receive interference lies completely within any area currently predicted to receive co-channel or first-adjacent channel interference as calculated in accordance with paragraph (a)(1) of this section, or that (ii) a showing is provided pursuant to paragraph (a)(2) of this section that demonstrates that the public interest would be served by the proposed changes.

(1) The F(50,50) curves in Figure 1 of § 73.333 are to be used in conjunction with the proposed effective radiated power and antenna height above average terrain, as calculated pursuant to § 73.313(c), (d)(2) and (d)(3), using data for as many radials as necessary, to determine the location of the desired (service) field strength. The F(50,10) curves in Figure 1a of § 73.333 are to be used in conjunction with the proposed effective radiated power and antenna height above average terrain, as calculated pursuant to § 73.313(c), (d)(2) and (d)(3), using data for as many radials as necessary, to determine the location of the undesired (interfering) field strength. Predicted interference is defined to exist only for locations where the desired (service) field strength exceeds 0.5 mV/m (54 dBu) for a Class B station, 0.7 mV/m (57 dBu) for a Class B1 station, and 1 mV/m (60 dBu) for any other class of station.

(i) Co-channel interference is predicted to exist, for the purpose of this section, at all locations where the undesired (interfering station) F(50,10) field strength exceeds a value 20 dB below the desired (service) F(50,50) field strength of the station being considered (e.g., where the protected field strength is 60 dBu, the interfering field strength must be 40 dBu or more for predicted interference to exist).

(ii) First-adjacent channel interference is predicted to exist, for the purpose of this section, at all locations where the undesired (interfering station) F(50,10) field strength exceeds a value 6 dB below the desired (service) F(50,50) field strength of the station being considered (e.g., where the protected field strength is 60 dBu, the interfering field strength must be 54

dBu or more for predicted interference to exist).

(2) For co-channel and first-adjacent channel stations, a showing that the public interest would be served by the changes proposed in an application must include exhibits demonstrating that the total area and population subject to co-channel or first-adjacent channel interference, caused and received, would be maintained or decreased. In addition, the showing must include exhibits demonstrating that the area and the population subject to co-channel or first-adjacent channel interference caused by the proposed facility to each short-spaced station individually is not increased. In all cases, the applicant must also show that any area predicted to lose service as a result of new co-channel or first-adjacent-channel interference has adequate aural service remaining. For the purpose of this section, adequate service is defined as 5 or more aural services (AM or FM).

(3) For co-channel and first-adjacent-channel stations, a copy of any application proposing interference caused in any areas where interference is not currently caused must be served upon the licensee(s) of the affected short-spaced station(s).

(4) For stations covered by this paragraph (a), there are no distance separation or interference protection requirements with respect to second-adjacent and third-adjacent channel short-spacings that have existed continuously since November 16, 1964.

(b) Stations at locations authorized prior to May 17, 1989, that did not meet the IF separation distances required by § 73.207 and have remained short-spaced since that time may be modified or relocated provided that the overlap area of the two stations' 36 mV/m field strength contours is not increased.

(c) Short spacings involving at least one Class A allotment or authorization. Stations that became short spaced on or after November 16, 1964 (including stations that do not meet the minimum distance separation requirements of paragraph (c)(1) of this section and that propose to maintain or increase their existing distance separations) may be modified or relocated in accordance with paragraph (c)(1) or (c)(2) of this section, except that this provision does not apply to stations that became short spaced by grant of applications filed after October 1, 1989, or filed pursuant to § 73.215. If the reference coordinates of an allotment are short spaced to an authorized facility or another allotment (as a result of the revision of § 73.207 in the Second Report and Order in MM Docket No. 88-375), an application for the allotment may be authorized, and subsequently modified after grant, in accordance with paragraph (c)(1) or (c)(2) of this section only with respect to such short spacing. No other stations will be authorized pursuant to these paragraphs.

(1) *Applications for authorization under requirements equivalent to those of prior rules.* Each application for authority to operate a Class A station with no more than 3000 watts ERP and 100 meters antenna HAAT (or equivalent lower ERP and higher antenna HAAT based on a class contour distance of 24 km) must specify a transmitter site that meets the minimum distance separation requirements in this paragraph. Each application for authority to operate a Class A station with more than 3000 watts ERP (up to a maximum of 5800 watts), but with an antenna HAAT lower than 100 meters such that the distance to the predicted 0.05 mV/m (34 dBμV/m) F(50,10) field strength contour does not exceed 98 km must specify a transmitter site that meets the minimum distance separation requirements in this paragraph. Each application for authority to operate an FM station of any class other than Class A must specify a transmitter site that meets the minimum distance separation requirements in this paragraph with respect to Class A stations operating pursuant to this paragraph or paragraph (c)(2) of this section, and that meets the minimum distance separation requirements of § 73.207 with respect to all other stations.

MINIMUM DISTANCE SEPARATION REQUIREMENTS IN KILOMETERS (MILES)

Relation	Co-channel	200 kHz	400/600 kHz	10.6/10.8 MHz
A to A	105 (65)	64 (40)	27 (17)	8 (5)
A to B1	138 (86)	88 (55)	48 (30)	11 (6)
A to B	163 (101)	105 (65)	69 (43)	14 (9)
A to C3	138 (86)	84 (52)	42 (26)	11 (6)
A to C2	163 (101)	105 (65)	55 (34)	14 (9)
A to C1	196 (122)	129 (80)	74 (46)	21 (13)
A to C	222 (138)	161 (100)	94 (58)	28 (17)

(2) Applications for authorization of Class A facilities greater than 3,000 watts ERP and 100 meters HAAT. Each application to operate a Class A station with an ERP and HAAT such that the reference distance would exceed 24 kilometers must contain an exhibit demonstrating the consent of the licensee of each co-channel, first, second or third adjacent channel station (for which the requirements of §73.207 are not met) to a grant of that application. Each such application must specify a transmitter site that meets the applicable IF-related channel distance separation requirements of §73.207. Applications that specify a new transmitter site which is short-spaced to an FM station other than another Class A station which is seeking a mutual increase in facilities may be granted only if no alternative fully-spaced site or less short-spaced site is available. Licensees of Class A stations seeking mutual increases in facilities need not show that a fully spaced site or less short-spaced site is available. Applications submitted pursuant to the provisions of this paragraph may be granted only if such action is consistent with the public interest.

[52 FR 37789, Oct. 9, 1987, as amended at 54 FR 14964, Apr. 14, 1989; 54 FR 35339, Aug. 25, 1989; 56 FR 27426, June 14, 1991; 62 FR 50521, Sept. 26, 1997; 63 FR 33876, June 22, 1998]

§73.215 Contour protection for short-spaced assignments.

The Commission will accept applications that specify short-spaced antenna locations (locations that do not meet the domestic co-channel and adjacent channel minimum distance separation requirements of §73.207); Provided That, such applications propose contour protection, as defined in paragraph (a) of this section, with all short-spaced assignments, applications and allotments, and meet the other applicable requirements of this section. Each application to be processed pursuant to this section must specifically request such processing on its face, and must include the necessary exhibit to demonstrate that the requisite contour protection will be provided. Such applications may be granted when the Commission determines that such action would serve the public interest, convenience, and necessity.

(a) *Contour protection.* Contour protection, for the purpose of this section, means that on the same channel and on the first, second and third adjacent channels, the predicted interfering contours of the proposed station do not overlap the predicted protected contours of other short-spaced assignments, applications and allotments, and the predicted interfering contours of other short-spaced assignments, applications and allotments do not overlap the predicted protected contour of the proposed station.

(1) The protected contours, for the purpose of this section, are defined as follows. For all Class B and B1 stations on Channels 221 through 300 inclusive, the F(50,50) field strengths along the protected contours are 0.5 mV/m (54 dBμ) and 0.7 mV/m (57 dBμ), respectively. For all other stations, the F(50,50) field strength along the protected contour is 1.0 mV/m (60 dBμ).

(2) The interfering contours, for the purpose of this section, are defined as follows. For co-channel stations, the F(50,10) field strength along the interfering contour is 20 dB lower than the F(50,50) field strength along the protected contour for which overlap is prohibited. For first adjacent channel stations (±200 kHz), the F(50,10) field strength along the interfering contour is 6 dB lower than the F(50,50) field strength along the protected contour

MINIMUM DISTANCE SEPARATION REQUIREMENTS IN KILOMETERS (MILES)

Relation	Co-channel	200 kHz	400/600 kHz	10.6/10.8 MHz
A to A	105 (65)	64 (40)	27 (17)	8 (5)
A to B1	138 (86)	88 (55)	48 (30)	11 (6)
A to B	163 (101)	105 (65)	69 (43)	14 (9)
A to C3	138 (86)	84 (52)	42 (26)	11 (6)
A to C2	163 (101)	105 (65)	55 (34)	14 (9)
A to C1	196 (122)	129 (80)	74 (46)	21 (13)
A to C	222 (138)	161 (100)	94 (58)	28 (17)

(2) Applications for authorization of Class A facilities greater than 3,000 watts ERP and 100 meters HAAT. Each application to operate a Class A station with an ERP and HAAT such that the reference distance would exceed 24 kilometers must contain an exhibit demonstrating the consent of the licensee of each co-channel, first, second or third adjacent channel station (for which the requirements of §73.207 are not met) to a grant of that application. Each such application must specify a transmitter site that meets the applicable IF-related channel distance separation requirements of §73.207. Applications that specify a new transmitter site which is short-spaced to an FM station other than another Class A station which is seeking a mutual increase in facilities may be granted only if no alternative fully-spaced site or less short-spaced site is available. Licensees of Class A stations seeking mutual increases in facilities need not show that a fully spaced site or less short-spaced site is available. Applications submitted pursuant to the provisions of this paragraph may be granted only if such action is consistent with the public interest.

[52 FR 37789, Oct. 9, 1987, as amended at 54 FR 14964, Apr. 14, 1989; 54 FR 35339, Aug. 25, 1989; 56 FR 27426, June 14, 1991; 62 FR 50521, Sept. 26, 1997; 63 FR 33876, June 22, 1998]

§ 73.215 Contour protection for short-spaced assignments.

The Commission will accept applications that specify short-spaced antenna locations (locations that do not meet the domestic co-channel and adjacent channel minimum distance separation requirements of §73.207); Provided That, such applications propose contour protection, as defined in paragraph (a) of this section, with all short-spaced assignments, applications and allotments, and meet the other applicable requirements of this section. Each application to be processed pursuant to this section must specifically request such processing on its face, and must include the necessary exhibit to demonstrate that the requisite contour protection will be provided. Such applications may be granted when the Commission determines that such action would serve the public interest, convenience, and necessity.

(a) *Contour protection.* Contour protection, for the purpose of this section, means that on the same channel and on the first, second and third adjacent channels, the predicted interfering contours of the proposed station do not overlap the predicted protected contours of other short-spaced assignments, applications and allotments, and the predicted interfering contours of other short-spaced assignments, applications and allotments do not overlap the predicted protected contour of the proposed station.

(1) The protected contours, for the purpose of this section, are defined as follows. For all Class B and B1 stations on Channels 221 through 300 inclusive, the F(50,50) field strengths along the protected contours are 0.5 mV/m (54 dBμ) and 0.7 mV/m (57 dBμ), respectively. For all other stations, the F(50,50) field strength along the protected contour is 1.0 mV/m (60 dBμ).

(2) The interfering contours, for the purpose of this section, are defined as follows. For co-channel stations, the F(50,10) field strength along the interfering contour is 20 dB lower than the F(50,50) field strength along the protected contour for which overlap is prohibited. For first adjacent channel stations (±200 kHz), the F(50,10) field strength along the interfering contour is 6 dB lower than the F(50,50) field strength along the protected contour

for which overlap is prohibited. For both second and third adjacent channel stations (±400 kHz and ±600 kHz), the F(50,10) field strength along the interfering contour is 40 dB higher than the F(50,50) field strength along the protected contour for which overlap is prohibited.

(3) The locations of the protected and interfering contours of the proposed station and the other short-spaced assignments, applications and allotments must be determined in accordance with the procedures of paragraphs (c), (d)(2) and (d)(3) of §73.313, using data for as many radials as necessary to accurately locate the contours.

(4) Protected and interfering contours (in dBu) for stations in Puerto Rico and the U.S. Virgin Islands are as follows:

Station with interfering contour	Station with protected contour					
	Class A		Class B1		Class B	
	Interfering	Protected	Interfering	Protected	Interfering	Protected
Co-Channel:						
Class A	46	66	41	61	40	60
Class B1	43	63	39	59	38	58
Class B	45	65	41	61	41	61
1st Adj. Channel:						
Class A	61	67	56	62	59	65
Class B1	57	63	54	60	54	60
Class B	62	68	56	62	57	63
2nd-3rd Adj. Channel:						
Class A	107	67	100	60	104	64
Class B1	99	59	100	60	104	64
Class B	94	54	94	54	104	64

Maximum permitted facilities assumed for each station pursuant to 47 CFR 73.211(b)(3):
6 kW ERP/240 meters HAAT—Class A
25 kW ERP/150 meters HAAT—Class B1
50 kW ERP/472 meters HAAT—Class B

(b) Applicants requesting short-spaced assignments pursuant to this section must take into account the following factors in demonstrating that contour protection is achieved:

(1) The ERP and antenna HAAT of the proposed station in the direction of the contours of other short-spaced assignments, applications and allotments. If a directional antenna is proposed, the pattern of that antenna must be used to calculate the ERP in particular directions. See §73.316 for additional requirements for directional antennas.

(2) The ERP and antenna HAAT of other short-spaced assignments, applications and allotments in the direction of the contours of the proposed station. The ERP and antenna HAATs in the directions of concern must be determined as follows:

(i) For vacant allotments, contours are based on the presumed use, at the allotment's reference point, of the maximum ERP that could be authorized for the station class of the allotment, and antenna HAATs in the directions of concern that would result from a non-directional antenna mounted at a standard eight-radial antenna HAAT equal to the reference HAAT for the station class of the allotment.

(ii) For existing stations that were not authorized pursuant to this section, including stations with authorized ERP that exceeds the maximum ERP permitted by §73.211 for the standard eight-radial antenna HAAT employed, and for applications not requesting authorization pursuant to this section, contours are based on the presumed use of the maximum ERP for the applicable station class (as specified in §73.211), and the antenna HAATs in the directions of concern that would result from a non-directional antenna mounted at a standard eight-radial antenna HAAT equal to the reference HAAT for the applicable station class, without regard to any other restrictions that may apply (e.g. zoning laws, FAA constraints, application of §73.213).

(iii) For stations authorized pursuant to this section, except stations with authorized ERP that exceeds the maximum ERP permitted by §73.211 for the

standard eight-radial antenna HAAT employed, contours are based on the use of the authorized ERP in the directions of concern, and HAATs in the directions of concern derived from the authorized standard eight-radial antenna HAAT. For stations with authorized ERP that exceeds the maximum ERP permitted by §73.211 for the standard eight-radial antenna HAAT employed, authorized under this section, contours are based on the presumed use of the maximum ERP for the applicable station class (as specified in §73.211), and antenna HAATs in the directions of concern that would result from a non-directional antenna mounted at a standard eight-radial antenna HAAT equal to the reference HAAT for the applicable station class, without regard to any other restrictions that may apply.

(iv) For applications containing a request for authorization pursuant to this section, except for applications to continue operation with authorized ERP that exceeds the maximum ERP permitted by §73.211 for the standard eight-radial antenna HAAT employed, contours are based on the use of the proposed ERP in the directions of concern, and antenna HAATs in the directions of concern derived from the proposed standard eight-radial antenna HAAT. For applications to continue operation with an ERP that exceeds the maximum ERP permitted by §73.211 for the standard eight-radial HAAT employed, if processing is requested under this section, contours are based on the presumed use of the maximum ERP for the applicable station class (as specified in §73.211), and antenna HAATs in the directions of concern that would result from a non-directional antenna mounted at a standard eight-radial antenna HAAT equal to the reference HAAT for the applicable station class, without regard to any other restrictions that may apply.

NOTE TO PARAGRAPH (b): Applicants are cautioned that the antenna HAAT in any particular direction of concern will not usually be the same as the standard eight-radial antenna HAAT or the reference HAAT for the station class.

(c) Applications submitted for processing pursuant to this section are not required to propose contour protection of any assignment, application or allotment for which the minimum distance separation requirements of §73.207 are met, and may, in the directions of those assignments, applications and allotments, employ the maximum ERP permitted by §73.211 for the standard eight-radial antenna HAAT employed.

(d) Stations authorized pursuant to this section may be subsequently authorized on the basis of compliance with the domestic minimum separation distance requirements of §73.207, upon filing of an FCC Form 301 or FCC Form 340 (as appropriate) requesting a modification of authorization.

(e) The Commission will not accept applications that specify a short-spaced antenna location for which the following minimum distance separation requirements, in kilometers (miles), are not met:

Relation	Co-Channel	200 kHz	400/600 kHz
A to A	92 (57)	49 (30)	25 (16)
A to B1	119 (74)	72 (45)	42 (26)
A to B	143 (89)	96 (60)	63 (39)
A to C3	119 (74)	72 (45)	36 (22)
A to C2	143 (89)	89 (55)	49 (30)
A to C1	178 (111)	111 (69)	69 (43)
A to C0	193 (120)	130 (81)	80 (50)
A to C	203 (126)	142 (88)	89 (55)
B1 to B1	143 (89)	96 (60)	44 (27)
B1 to B	178 (111)	114 (71)	65 (40)
B1 to C3	143 (89)	96 (60)	44 (27)
B1 to C2	175 (109)	114 (71)	50 (31)
B1 to C1	200 (124)	134 (83)	71 (44)
B1 to C0	0215 (134)	153 (95)	81 (50)
B1 to C	233 (145)	165 (103)	99 (61)
B to B	211 (131)	145 (90)	68 (42)
B to C3	178 (111)	114 (70)	65 (40)
B to C2	211 (131)	145 (90)	68 (42)
B to C1	241 (150)	169 (105)	73 (45)
B to C0	266 (165)	195 (121)	83 (52)
B to C	268 (163)	195 (121)	99 (61)
C3 to C3	142 (88)	89 (55)	37 (23)
C3 to C2	166 (103)	106 (66)	50 (31)
C3 to C1	200 (124)	133 (83)	70 (43)
C3to C0	215 (134)	152 (94)	81 (50)
C3 to C	226 (140)	165 (103)	90 (56)
C2 to C2	177 (110)	117 (73)	52 (32)
C2 to C1	211 (131)	144 (90)	73 (45)
C2 to C0	227 (141)	163 (101)	83 (52)
C2 to C	237 (147)	176 (109)	96 (61)
C1 to C1	224 (139)	158 (98)	76 (47)
C1 to C0	239 (148)	176 (109)	88 (55)
C1 to C	249 (155)	188 (117)	99 (61)
C0 to C0	259 (161)	196 (122)	90 (56)
C0 to C	270 (168)	207 (129	99 (61)
C to C	270 (168)	209 (130)	99 (61)

[54 FR 9802, Mar. 8, 1989, as amended at 54 FR 35340, Aug. 25, 1989; 56 FR 57294, Nov. 8, 1991; 57 FR 46325, Oct. 8, 1992; 65 FR 79777, Dec. 20, 2000; 66 FR 8149, Jan. 29, 2001]

Form 301 or FCC Form 340, as appropriate.

(b) The field strength contours provided for in this section shall be considered for the following purposes only:

(1) In the estimation of coverage resulting from the selection of a particular transmitter site by an applicant for an FM broadcast station.

(2) In connection with problems of coverage arising out of application of § 73.3555.

(3) In determining compliance with § 73.315(a) concerning the minimum field strength to be provided over the principal community to be served.

(4) In determining compliance with § 73.215 concerning contour protection.

[28 FR 13623, Dec. 14, 1963, as amended at 31 FR 10126, July 27, 1966; 32 FR 11471, Aug. 9, 1967; 52 FR 10570, Apr. 2, 1987; 54 FR 9802, Mar. 8, 1989]

§ 73.312 Topographic data.

(a) In the preparation of the profile graphs previously described, and in determining the location and height above mean sea level of the antenna site, the elevation or contour intervals shall be taken from United States Geological Survey Topographic Quadrangle Maps, United States Army Corps of Engineers Maps or Tennessee Valley Authority maps, whichever is the latest, for all areas for which such maps are available. If such maps are not published for the area in question, the next best topographic information should be used. Topographic data may sometimes be obtained from state and municipal agencies. The data from the Sectional Aeronautical Charts (including bench marks) or railroad depot elevations and highway elevations from road maps may be used where no better information is available. In cases where limited topographic data can be obtained, use may be made of an altimeter in a car driven along roads extending generally radially from the transmitter site.

(b) The Commission will not ordinarily require the submission of topographical maps for areas beyond 24 km (15 miles) from the antenna site, but the maps must include the principal city or cities to be served. If it appears necessary, additional data may be requested.

(c) The U.S. Geological Survey Topography Quadrangle Sheets may be obtained from the U.S. Geological Survey Department of the Interior, Washington, DC 20240. The Sectional Aeronautical Charts are available from the U.S. Coast and Geodetic Survey, Department of Commerce, Washington, DC 20235. These maps may also be secured from branch offices and from authorized agents or dealers in most principal cities.

(d) In lieu of maps, the average terrain elevation may be computer generated except in cases of dispute, using elevations from a 30 second, point or better topographic data file. The file must be identified and the data processed for intermediate points along each radial using linear interpolation techniques. The height above mean sea level of the antenna site must be obtained manually using appropriate topographic maps.

[28 FR 13623, Dec. 14, 1963, as amended at 31 FR 10126, July 27, 1966; 49 FR 48937, Dec. 17, 1984; 58 FR 44950, Aug. 25, 1993; 63 FR 33877, June 22, 1998]

§ 73.313 Prediction of coverage.

(a) All predictions of coverage made pursuant to this section shall be made without regard to interference and shall be made only on the basis of estimated field strengths.

(b) Predictions of coverage shall be made only for the same purposes as relate to the use of field strength contours as specified in § 73.311.

(c) In predicting the distance to the field strength contours, the F(50,50) field strength chart, Figure 1 of § 73.333 must be used. The 50% field strength is defined as that value exceeded for 50% of the time.

(1) The F(50,50) chart gives the estimated 50% field strengths exceeded at 50% of the locations in dB above 1 uV/m. The chart is based on an effective power radiated from a half-wave dipole antenna in free space, that produces an unattenuated field strength at 1 kilometer of about 107 dB above 1 uV/m (221.4 mV/m).

(2) To use the chart for other ERP values, convert the ordinate scale by the appropriate adjustment in dB. For example, the ordinate scale for an ERP of 50 kW should be adjusted by 17 dB [10

log (50 kW) = 17 dBk], and therefore a field strength of 60 dBu would correspond to the field strength value at (60 − 17 =) 44 dBu on the chart. When predicting the distance to field strength contours, use the maximum ERP of the main radiated lobe in the pertinent azimuthal direction (do not account for beam tilt). When predicting field strengths over areas not in the plane of the maximum main lobe, use the ERP in the direction of such areas, determined by considering the appropriate vertical radiation pattern.

(d) The antenna height to be used with this chart is the height of the radiation center of the antenna above the average terrain along the radial in question. In determining the average elevation of the terrain, the elevations between 3 and 16 kilometers from the antenna site are used.

(1) Profile graphs must be drawn for eight radials beginning at the antenna site and extending 16 kilometers therefrom. The radials should be drawn for each 45° of azimuth starting with True North. At least one radial must include the principal community to be served even though it may be more than 16 kilometers from the antenna site. However, in the event none of the evenly spaced radials include the principal community to be served, and one or more such radials are drawn in addition, these radials must not be used in computing the antenna height above average terrain.

(2) Where the 3 to 16 kilometers portion of a radial extends in whole or in part over a large body of water or extends over foreign territory but the 50 uV/m (34 dBu) contour encompasses land area within the United States beyond the 16 kilometers portion of the radial, the entire 3 to 16 kilometers portion of the radial must be included in the computation of antenna height above average terrain. However, where the 50 uV/m (34 dBu) contour does not so encompass United States land area, and (i) the entire 3 to 16 kilometers portion of the radial extends over large bodies of water or over foreign territory, such radial must be completely omitted from the computation of antenna height above average terrain, and (ii) where a part of the 3 to 16 kilometers portion of a radial extends over large bodies of water or foreign territory, only that part of the radial extending from 3 kilometers to the outermost portion of land in the United States covered by the radial used must be used in the computation of antenna height above average terrain.

(3) The profile graph for each radial should be plotted by contour intervals of from 12 to 30 meters and, where the data permits, at least 50 points of elevation (generally uniformly spaced) should be used for each radial. In instances of very rugged terrain where the use of contour intervals of 30 meters would result in several points in a short distance, 60 or 120 meter contour intervals may be used for such distances. On the other hand, where the terrain is uniform or gently sloping the smallest contour interval indicated on the topographic map should be used, although only relatively few points may be available. The profile graph should indicate the topography accurately for each radial, and the graphs should be plotted with the distance in kilometers as the abscissa and the elevation in meters above mean sea level as the ordinate. The profile graphs should indicate the source of the topographical data used. The graph should also show the elevation of the center of the radiating system. The graph may be plotted either on rectangular coordinate paper or on special paper that shows the curvature of the earth. It is not necessary to take the curvature of the earth into consideration in this procedure as this factor is taken care of in the charts showing signal strengths. The average elevation of the 13 kilometer distance between 3 and 16 kilometers from the antenna site should then be determined from the profile graph for each radial. This may be obtained by averaging a large number of equally spaced points, by using a planimeter, or by obtaining the median elevation (that exceeded for 50% of the distance) in sectors and averaging those values.

(4) Examples of HAAT calculations:

(i) The heights above average terrain on the eight radials are as follows:

	Meters
0°	120

	Meters
45°	255
90°	185
135°	90
180°	−10
225°	−85
270°	40
315°	85

The antenna height above terrain (defined in § 73.310(a)) is computed as follows:

(120 + 255 + 185 + 90 − 10 − 85 + 40 + 85) / 8 = 85 meters.

(ii) Same as paragraph (d)(4)(i) of this section, except the 0° radial is entirely over sea water. The antenna height above average terrain is computed as follows (note that the divisor is 7 not 8):

(255 + 185 + 90 − 10 − 85 + 40 + 85) / 7 = 80 meters.

(iii) Same as paragraph (d)(4)(i) of this section, except that only the first 10 kilometers of the 90° radial are in the United States; beyond 10 kilometers the 90° radial is in a foreign country. The height above average terrain of the 3 to 10 kilometer portion of the 90° radial is 105 meters. The antenna height above average terrain is computed as follows (note that the divisor is 8 not 7.5):

(120 + 255 + 105 + 90 − 10 − 85 + 40 + 85) / 8 = 75 meters.

(e) In cases where the terrain in one or more directions from the antenna site departs widely from the average elevation of the 3 to 16 kilometer sector, the prediction method may indicate contour distances that are different from what may be expected in practice. For example, a mountain ridge may indicate the practical limit of service although the prediction method may indicate otherwise. In such cases, the prediction method should be followed, but a supplemental showing may be made concerning the contour distances as determined by other means. Such supplemental showings should describe the procedure used and should include sample calculations. Maps of predicted coverage should include both the coverage as predicted by the regular method and as predicted by a supplemental method. When measurements of area are required, these should include the area obtained by the regular prediction method and the area obtained by the supplemental method. In directions where the terrain is such that antenna heights less than 30 meters for the 3 to 16 kilometer sector are obtained, an assumed height of 30 meters must be used for the prediction of coverage. However, where the actual contour distances are critical factors, a supplemental showing of expected coverage must be included together with a description of the method used in predicting such coverage. In special cases, the FCC may require additional information as to terrain and coverage.

(f) The effect of terrain roughness on the predicted field strength of a signal at points distant from an FM transmitting antenna is assumed to depend on the magnitude of a terrain roughness factor (h) which, for a specific propagation path, is determined by the characteristics of a segment of the terrain profile for that path 40 kilometers in length located between 10 and 50 kilometers from the antenna. The terrain roughness factor has a value equal to the distance, in meters, between elevations exceeded by all points on the profile for 10% and 90% respectively, of the length of the profile segment. (See § 73.333, Figure 4.)

(g) If the lowest field strength value of interest is initially predicted to occur over a particular propagation path at a distance that is less than 50 kilometers from the antenna, the terrain profile segment used in the determination of terrain roughness factor over that path must be that included between points 10 kilometers from the transmitter and such lesser distances. No terrain roughness correction need be applied when all field strength values of interest are predicted to occur 10 kilometers or less from the transmitting antenna.

(h) Profile segments prepared for terrain roughness factor determinations are to be plotted in rectangular coordinates, with no less than 50 points evenly spaced within the segment using data obtained from topographic maps with contour intervals of approximately 15 meters (50 feet) or less if available.

(i) The field strength charts (§ 73.333, Figs. 1-1a) were developed assuming a terrain roughness factor of 50 meters, which is considered to be representative of average terrain in the United States. Where the roughness factor for a particular propagation path is found to depart appreciably from this value, a terrain roughness correction (ΔF) should be applied to field strength values along this path, as predicted with the use of these charts. The magnitude and sign of this correction, for any value of Δh, may be determined from a chart included in § 73.333 as Figure 5.

(j) Alternatively, the terrain roughness correction may be computed using the following formula:

$$\Delta F = 1.9 - 0.03(\Delta h)(1 + f/300)$$

Where:

ΔF=terrain roughness correction in dB
Δk=terrain roughness factor in meters
f=frequency of signal in MHz (MHz)

(Secs. 4, 5, 303, 48 Stat., as amended, 1066, 1068, 1082 (47 U.S.C. 154, 155, 303))

[28 FR 13623, Dec. 14, 1963, as amended at 40 FR 27678, July 1, 1975; 48 FR 29507, June 27, 1983; 52 FR 11655, Apr. 10, 1987; 52 FR 37789, Oct. 9, 1987; 57 FR 48333, Oct. 23, 1992; 63 FR 33877, June 22, 1998]

EFFECTIVE DATE NOTE: At 42 FR 25736, May 19, 1977, the effective date of § 73.313 paragraphs (i) and (j) was stayed indefinitely.

§ 73.314 Field strength measurements.

(a) Except as provided for in § 73.209, FM broadcast stations shall not be protected from any type of interference or propagation effect. Persons desiring to submit testimony, evidence or data to the Commission for the purpose of showing that the technical standards contained in this subpart do not properly reflect the levels of any given type of interference or propagation effect may do so only in appropriate rule making proceedings concerning the amendment of such technical standards. Persons making field strength measurements for formal submission to the Commission in rule making proceedings, or making such measurements upon the request of the Commission, shall follow the procedure for making and reporting such measurements outlined in paragraph (b) of this section. In instances where a showing of the measured level of a signal prevailing over a specific community is appropriate, the procedure for making and reporting field strength measurements for this purpose is set forth in paragraph (c) of this section.

(b) Collection of field strength data for propagation analysis.

(1) *Preparation for measurements.* (i) On large scale topographic maps, eight or more radials are drawn from the transmitter location to the maximum distance at which measurements are to be made, with the angles included between adjacent radials of approximately equal size. Radials should be oriented so as to traverse representative types of terrain. The specific number of radials and their orientation should be such as to accomplish this objective.

(ii) Each radial is marked, at a point exactly 16 kilometers from the transmitter and, at greater distances, at successive 3 kilometer intervals. Where measurements are to be conducted over extremely rugged terrain, shorter intervals may be used, but all such intervals must be of equal length. Accessible roads intersecting each radial as nearly as possible at each 3 kilometer marker are selected. These intersections are the points on the radial at which measurements are to be made, and are referred to subsequently as measuring locations. The elevation of each measuring location should approach the elevation at the corresponding 3 kilometer marker as nearly as possible.

(2) *Measurement procedure.* All measurements must be made utilizing a receiving antenna designed for reception of the horizontally polarized signal component, elevated 9 meters above the roadbed. At each measuring location, the following procedure must be used:

(i) The instrument calibration is checked.

(ii) The antenna is elevated to a height of 9 meters.

(iii) The receiving antenna is rotated to determine if the strongest signal is arriving from the direction of the transmitter.

(iv) The antenna is oriented so that the sector of its response pattern over which maximum gain is realized is in the direction of the transmitter.

(iii) A rectangular grid, of such size and shape as to encompass the boundaries of the community is drawn on an accurate map of the community. The number of line intersections on the grid included within the boundaries of the community shall be at least equal to the required number of measuring locations. The position of each intersection on the community map determines the location at which a measurement shall be made.

(2) *Measurement procedure.* All measurements must be made using a receiving antenna designed for reception of the horizontally polarized signal component, elevated 9 meters above ground level.

(i) Each measuring location shall be chosen as close as feasible to a point indicated on the map, as previously prepared, and at as nearly the same elevation as that point as possible.

(ii) At each measuring location, after equipment calibration and elevation of the antenna, a check is made to determine whether the strongest signal arrives from a direction other than from the transmitter.

(iii) At 20 percent or more of the measuring locations, mobile runs, as described in paragraph (b)(2) of this section shall be made, with no less than three such mobile runs in any case. The points at which mobile measurements are made shall be well separated. Spot measurements may be made at other measuring points.

(iv) Each actual measuring location is marked exactly on the map of the community, and suitably keyed. A written record shall be maintained, describing, for each location, factors which may affect the recorded field, such as the approximate time of measurement, weather, topography, overhead wiring, heights and types of vegetation, buildings and other structures. The orientation, with respect to the measuring location shall be indicated of objects of such shape and size as to be capable of causing shadows or reflections. If the strongest signal received was found to arrive from a direction other than that of the transmitter, this fact shall be recorded.

(3) *Method of reporting measurements.* A report of measurements to the Commission shall be submitted in affidavit form, in triplicate, and should contain the following information:

(i) A map of the community showing each actual measuring location, specifically identifying the points at which mobile runs were made.

(ii) A table keyed to the above map, showing the field strength at each measuring point, reduced to dBu for the actual effective radiated power of the station. Weather, date, and time of each measurement shall be indicated.

(iii) Notes describing each measuring location.

(iv) A topographic map of the largest available scale on which are marked the community and the transmitter site of the station whose signals have been measured, which includes all areas on or near the direct path of signal propagation.

(v) Computations of the mean and standard deviation of all measured field strengths, or a graph on which the distribution of measured field strength values is plotted.

(vi) A list of calibrated equipment used for the measurements, which for each instrument, specifies its manufacturer, type, serial number and rated accuracy, and the date of its most recent calibration by the manufacturer, or by a laboratory. Complete details of any instrument not of standard manufacture shall be submitted.

(vii) A detailed description of the procedure employed in the calibration of the measuring equipment, including field strength meters, measuring antenna, and connecting cable.

[40 FR 27682, July 1, 1975; 40 FR 28802, July 9, 1975, as amended at 48 FR 29508, June 27, 1983]

§ 73.315 FM transmitter location.

(a) The transmitter location shall be chosen so that, on the basis of the effective radiated power and antenna height above average terrain employed, a minimum field strength of 70 dB above one uV/m (dBu), or 3.16 mV/m, will be provided over the entire principal community to be served.

(b) The transmitter location should be chosen to maximize coverage to the city of license while minimizing interference. This is normally accomplished by locating in the least populated area available while maintaining the provisions of paragraph (a) of this section.

In general, the transmitting antenna of a station should be located in the most sparsely populated area available at the highest elevation available. The location of the antenna should be so chosen that line-of-sight can be obtained from the antenna over the principle city or cities to be served; in no event should there be a major obstruction in this path.

(c) The transmitting location should be selected so that the 1 mV/m contour encompasses the urban population within the area to be served. It is recognized that topography, shape of the desired service area, and population distribution may make the choice of a transmitter location difficult. In such cases consideration may be given to the use of a directional antenna system, although it is generally preferable to choose a site where a nondirectional antenna may be employed.

(d) In cases of questionable antenna locations it is desirable to conduct propagation tests to indicate the field strength expected in the principal city or cities to be served and in other areas, particularly where severe shadow problems may be expected. In considering applications proposing the use of such locations, the Commission may require site tests to be made. Such tests should include measurements made in accordance with the measurement procedures described in §73.314, and full data thereon shall be supplied to the Commission. The test transmitter should employ an antenna having a height as close as possible to the proposed antenna height, using a balloon or other support if necessary and feasible. Information concerning the authorization of site tests may be obtained from the Commission upon request.

(e) Cognizance must of course be taken regarding the possible hazard of the proposed antenna structure to aviation and the proximity of the proposed site to airports and airways. Procedures and standards with respect to the Commission's consideration of proposed antenna structures which will serve as a guide to persons intending to apply for radio station licenses are contained in Part 17 of this chapter (Construction, Marking, and Lighting of Antenna Structures).

[28 FR 13623, Dec. 14, 1963, as amended at 41 FR 22943, June 8, 1976; 49 FR 38131, Sept. 27, 1984; 49 FR 45146, Nov. 15, 1984; 51 FR 9965, Mar. 24, 1986; 52 FR 10570, Apr. 2, 1987; 65 FR 79778, Dec. 20, 2000]

§73.316 FM antenna systems.

(a) It shall be standard to employ horizontal polarization; however, circular or elliptical polarization may be employed if desired. Clockwise or counterclockwise rotation may be used. The supplemental vertically polarized effective radiated power required for circular or elliptical polarization shall in no event exceed the effective radiated power authorized.

(b) *Directional antennas.* A directional antenna is an antenna that is designed or altered for the purpose of obtaining a non-circular radiation pattern.

(1) Applications for the use of directional antennas that propose a ratio of maximum to minimum radiation in the horizontal plane of more than 15 dB will not be accepted.

(2) Directional antennas used to protect short-spaced stations pursuant to §73.213 or §73.215 of the rules, that have a radiation pattern which varies more than 2 dB per 10 degrees of azimuth will not be authorized.

(c) *Applications for directional antennas.* (1) Applications for construction permit proposing the use of directional antenna systems must include a tabulation of the composite antenna pattern for the proposed directional antenna. A value of 1.0 must be used to correspond to the direction of maximum radiation. The pattern must be tabulated such that 0° corresponds to the direction of maximum radiation or alternatively, in the case of an asymmetrical antenna pattern, the pattern must be tabulated such that 0° corresponds to the actual azimuth with respect to true North. In the case of a composite antenna composed of two or more individual antennas, the pattern required is that for the composite antenna, not the patterns for each of the individual antennas. Applications must include valuations tabulated at intervals of not greater than ten (10) degrees. In addition, tabulated values of all maximas and minimas, with their

EXHIBIT E-1 Area To Locate Map Section 73.207 / Analysis

Klein Broadcast Engineering, L.L.C.
Job: KXRS CP 288A 20090114.fmj
Master Database: 2009_Jan_14.fmd
Lat: N34:01:41 Lon: W116:58:37 NAD-27
Scale: 1:500000
Channel: 288 Class: A
Status: Licensed, Construction Permit, Application, Addition, Vacant/Reserved
Channels: Co-Channel, 1st Adj, 2nd Adj, 3rd Adj, IF, TV6
Range: 100 km, Clearance: FCC
Comments: Total Land Area in Area To Locate = 73.69 square miles.
Description: AREA TO LOCATE MAP KXRS SECTION 73.207

Date: 1/14/2009
Key:
Short

Clear

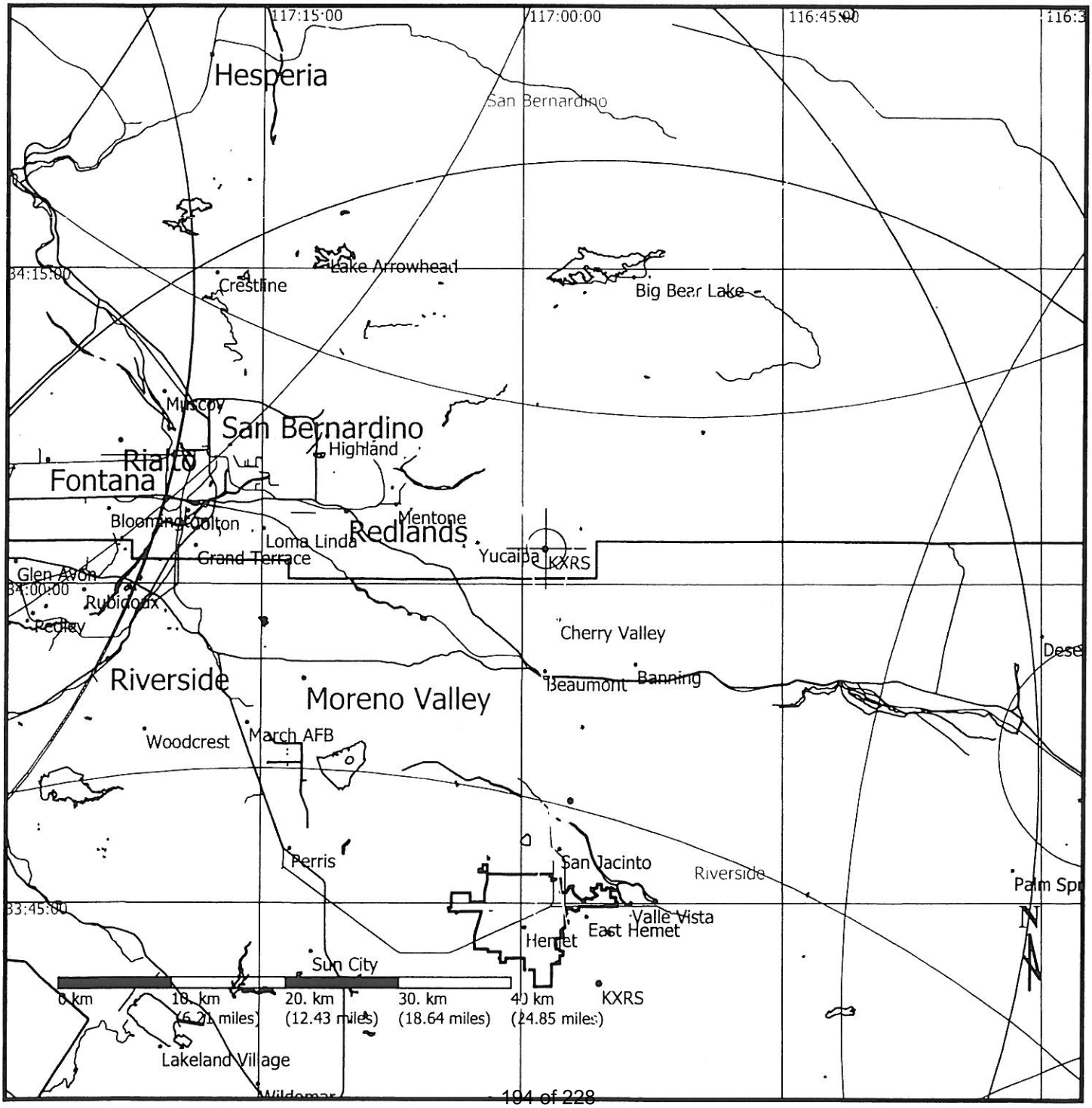


EXHIBIT E-1A Area To Locate Map Section 73.207 Analysis (Zoomed In View)

Klein Broadcast Engineering, L.L.C.
Job: KXRS CP 288A 20090114.fmj
Master Database: 2009_Jan_14.fmd
Lat: N33:59:36 Lon: W116:58:37 NAD-27
Scale: 1:200000
Channel: 288 Class: A
Status: Licensed, Construction Permit, Application, Addition, Vacant/Reserved
Channels: Co-Channel, 1st Adj, 2nd Adj, 3rd Adj, IF, TV6
Range: 100 km, Clearance: FCC
Comments: Area To Locae Land Area = 73.69 square miles.
Description: KXRS EXHIBIT E-1A AREA TO LOCATE UNDER 73207 KXRS (Zoomed In View)

Date: 1/16/2009
Key:
Short

Clear

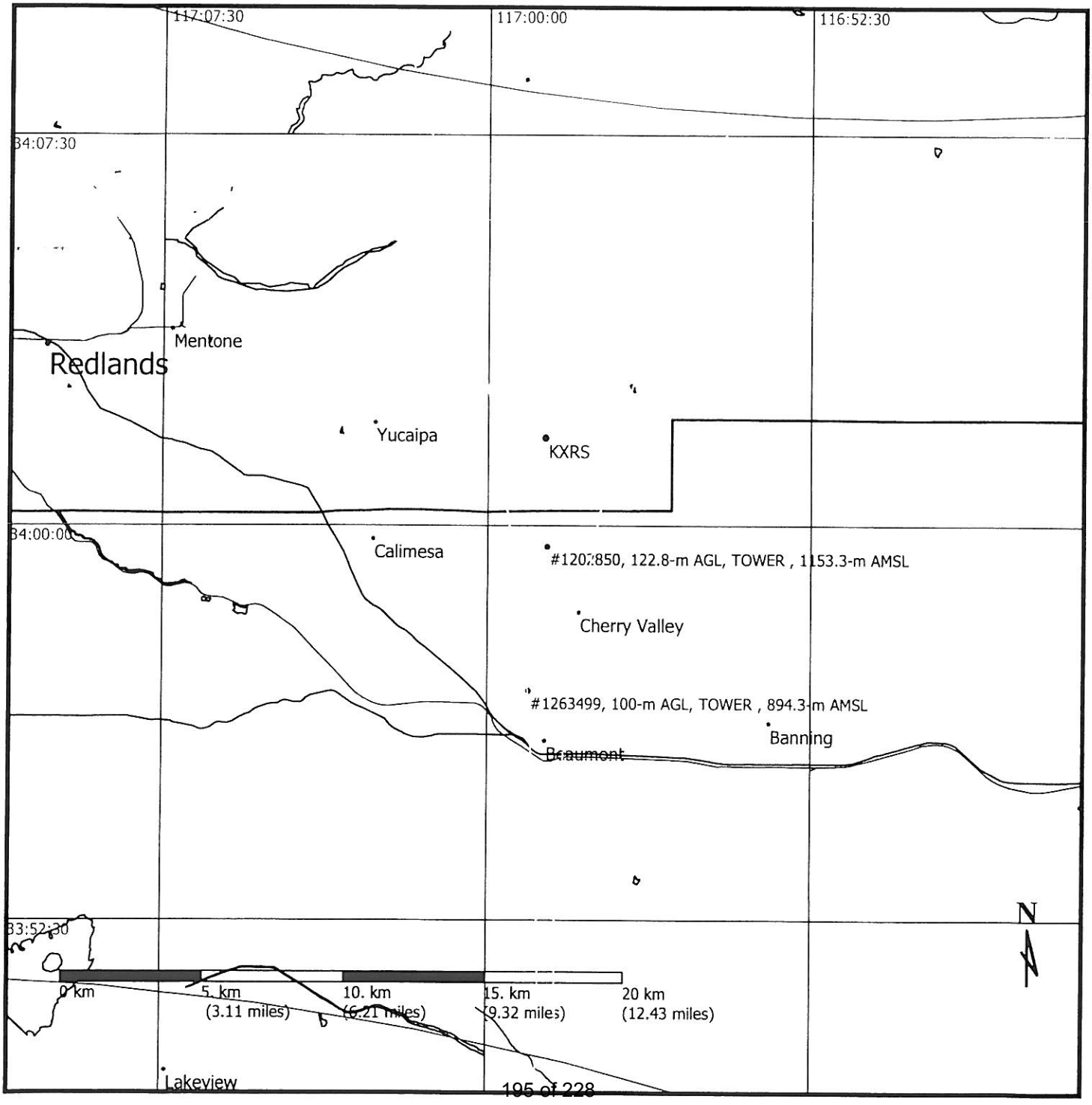


EXHIBIT E-2 Area To Locate Map Section 73.215 Analysis

Klein Broadcast Engineering, L.L.C.
Job: KXRS CP 288A 20090114.fmj
Master Database: 2009_Jan_14.fmd
Lat: N33:59:34 Lon: W116:58:37 NAD-27
Scale: 1:500000
Channel: 288 Class: A
Status: Licensed, Construction Permit, Application, Addition, Vacant/Reserved
Channels: Co-Channel, 1st Adj, 2nd Adj, 3rd Adj, IF, TV6
Range: 100 km, Clearance: FCC
Comments: No Comments
Description: EXHIBIT E-2 AREA TO LOCATE MAP SECTION 73.215 KXRS CH288A

Date: 1/16/2009
Key:
Short

Clear

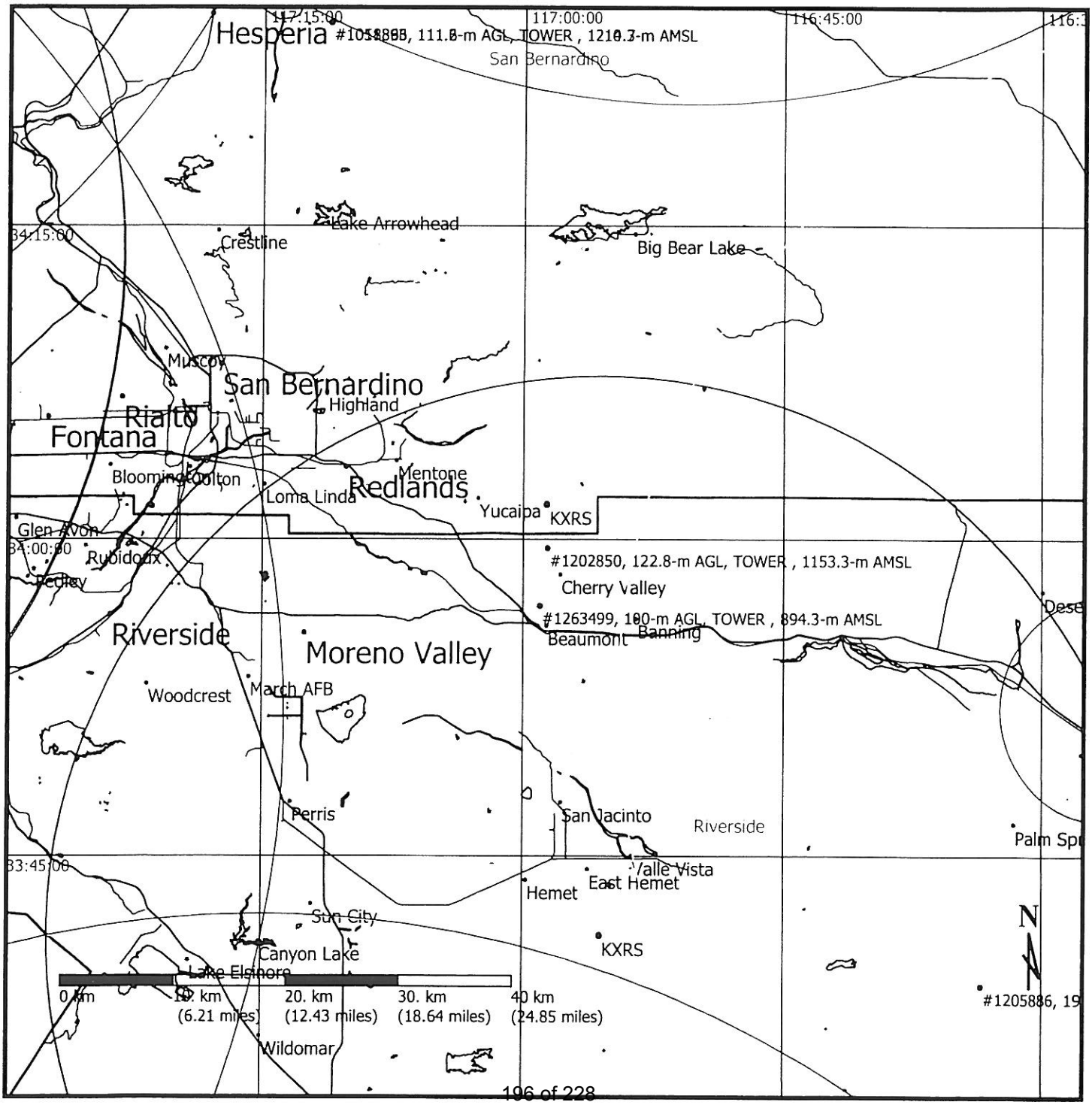


EXHIBIT E-3 60dBu(1.00mV/M) Contour Analysis Site#1 vs KXRS Existing Polly Butte

Klein Broadcast Engineering, L.L.C.
Job: KXRS CP 288A 20090114.fmj
Master Database: 2009_Jan_14.fmd
Date: 1/20/2009
Lat: N33:54:36 Lon: W117:00:00 NAD-27(Map Center)
Scale: 1:500000
Channel: 288 Class: A
Status: Licensed, Vacant/Reserved
Terrain Database: DMA 3 Arc Second Digitized Terrain Datafile, Conus.
Contour Prediction Method: FCC Standard f(50,50), 360 Radials
Comments: Alternate Site #1 vs Existing KXRS Polly Butte Site Coverage FCC PROTECTED Contour
Description: EXHIBIT E-3 EXISTING KXRS 60dBu (1.00mV/M) CONTOUR vs ALTERNATE SITE #1.

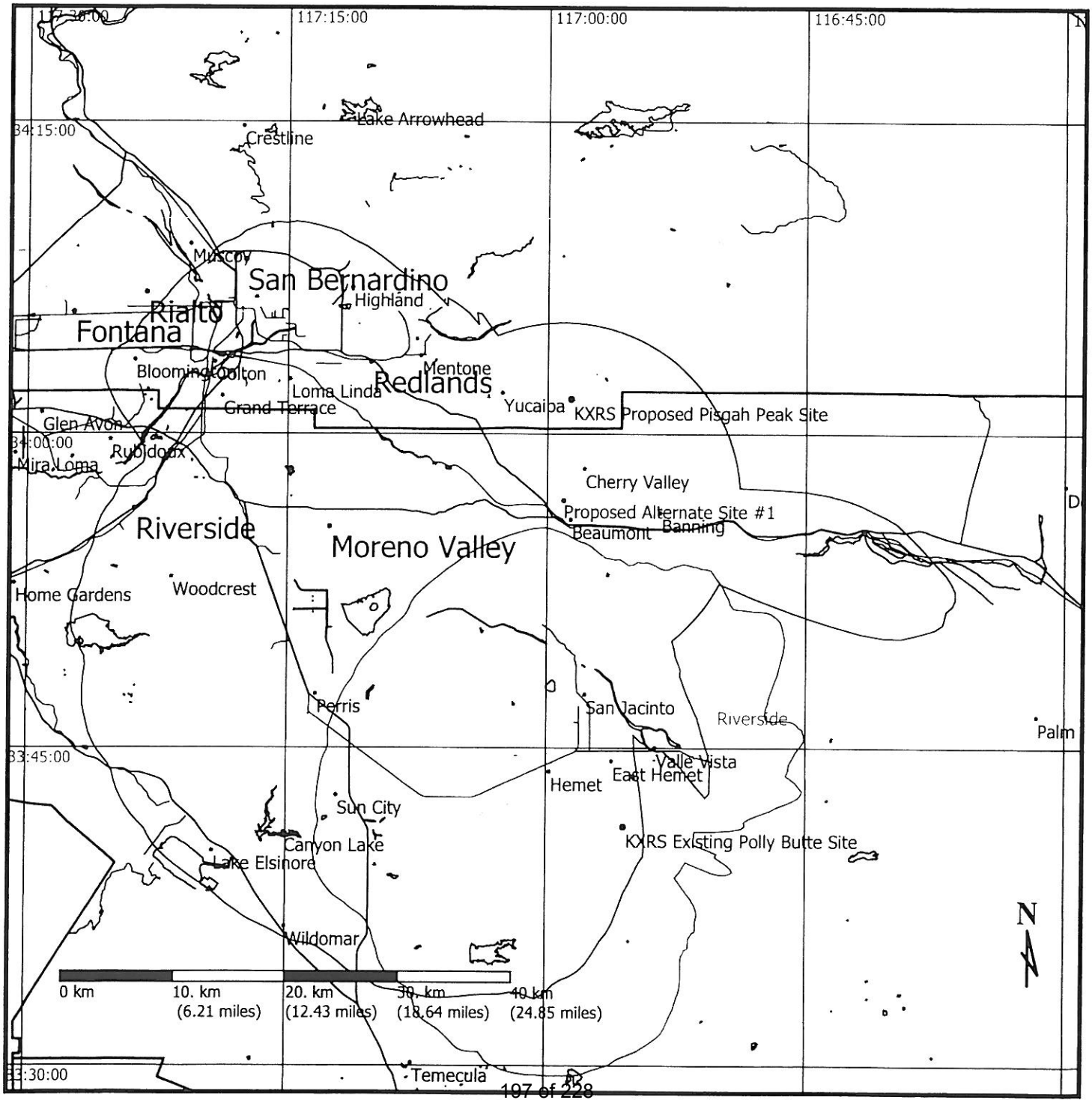


EXHIBIT E-4 City Grade 70dBu(3.16mV/M) Contour Analysis from Site #2

Klein Broadcast Engineering, L.L.C.
Job: KXRS CP 288A 20090114.fmj
Master Database: 2009_Jan_14.fmd
Date: 1/16/2009
Lat: N33:54:36 Lon: W117:00:00 NAD-27(Map Center)
Scale: 1:350000
Channel: 288 Class: A
Status: Licensed, Vacant/Reserved
Terrain Database: DMA 3 Arc Second Digitized Terrain Datafile, Conus.
Contour Prediction Method: FCC Standard f(50,50), 360 Radials.
Comments: Contour Covers 97.6% of Hemet Land Area & 97.1% of Hemet Population Complies Section 73.315
Description: KXRS EXHIBIT E-4 70dBu CITY GRADE CONTOUR ANALYSIS SITE #2 ASR

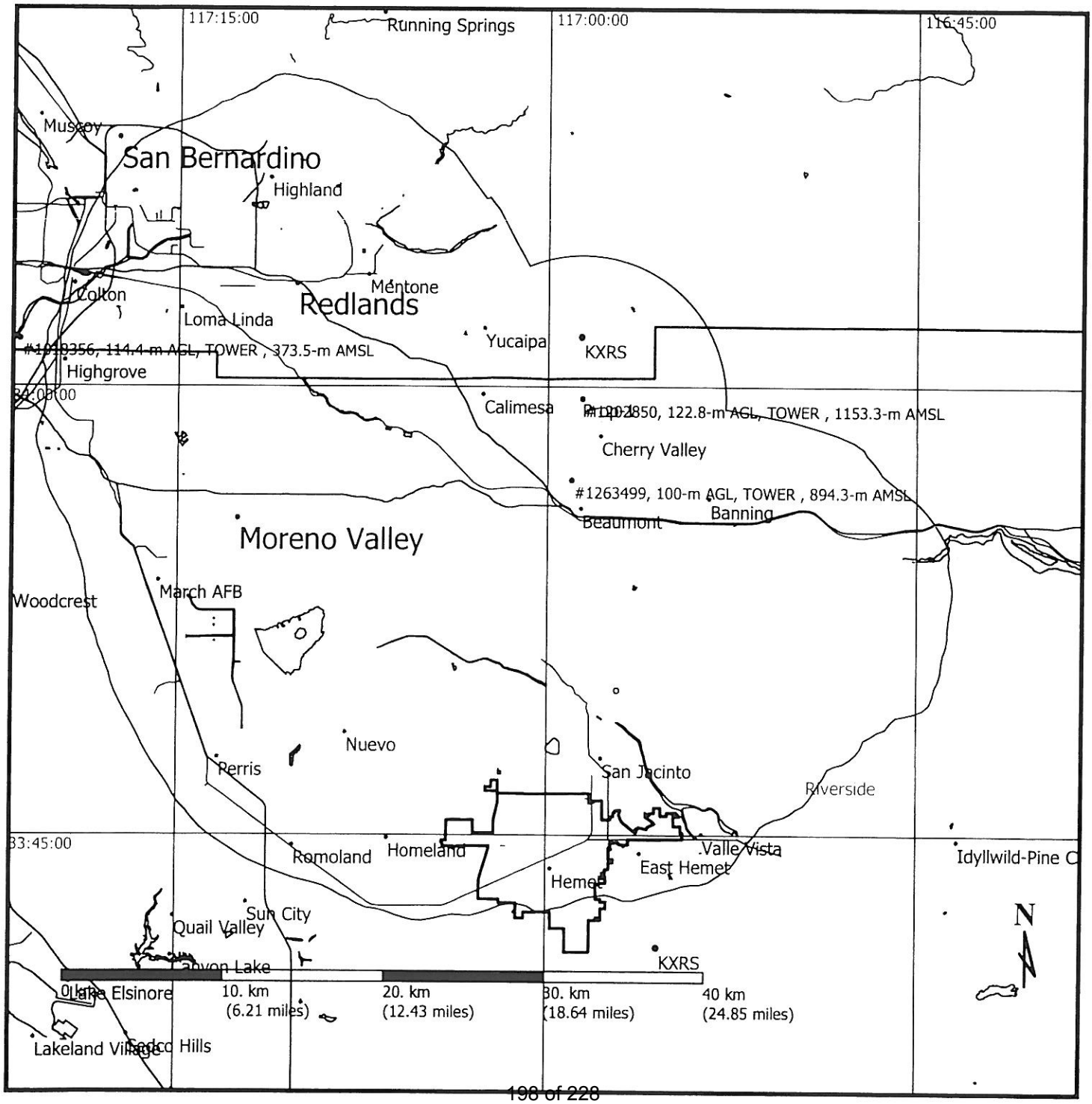
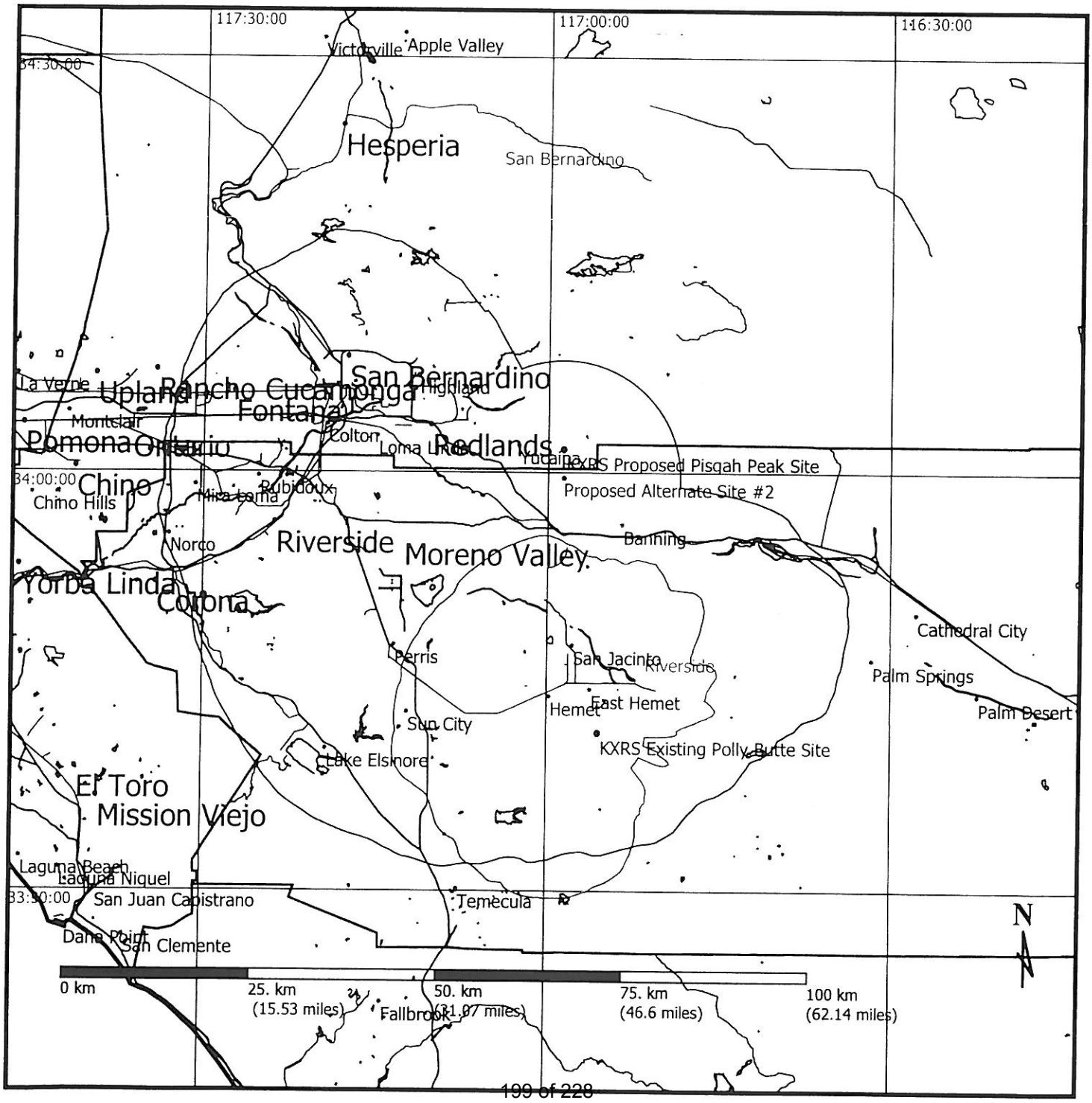


EXHIBIT E-5 60dBu Contour Analysis Alternate Site #2 vs Existing KXRS Polly Butte Site

Klein Broadcast Engineering, L.L.C.
Job: KXRS CP 288A 20090114.fmj
Master Database: 2009_Jan_14.fmd
Lat: N33:54:36 Lon: W117:00:00 NAD-27(Map Center)
Scale: 1:750000
Channel: 288 Class: A
Status: Licensed, Vacant/Reserved
Terrain Database: DMA 3 Arc Second Digitized Terrain Datafile, Conus.
Contour Prediction Method: FCC Standard f(50,50), 360 Radials.
Comments: No Comments
Description: EXHIBIT E-5 ALTERNATE SITE #2 vs EXISTING KXRS POLLY BUTTE SITE 60dBu FCC PROTECTED CONTOURS

Date: 1/21/2009

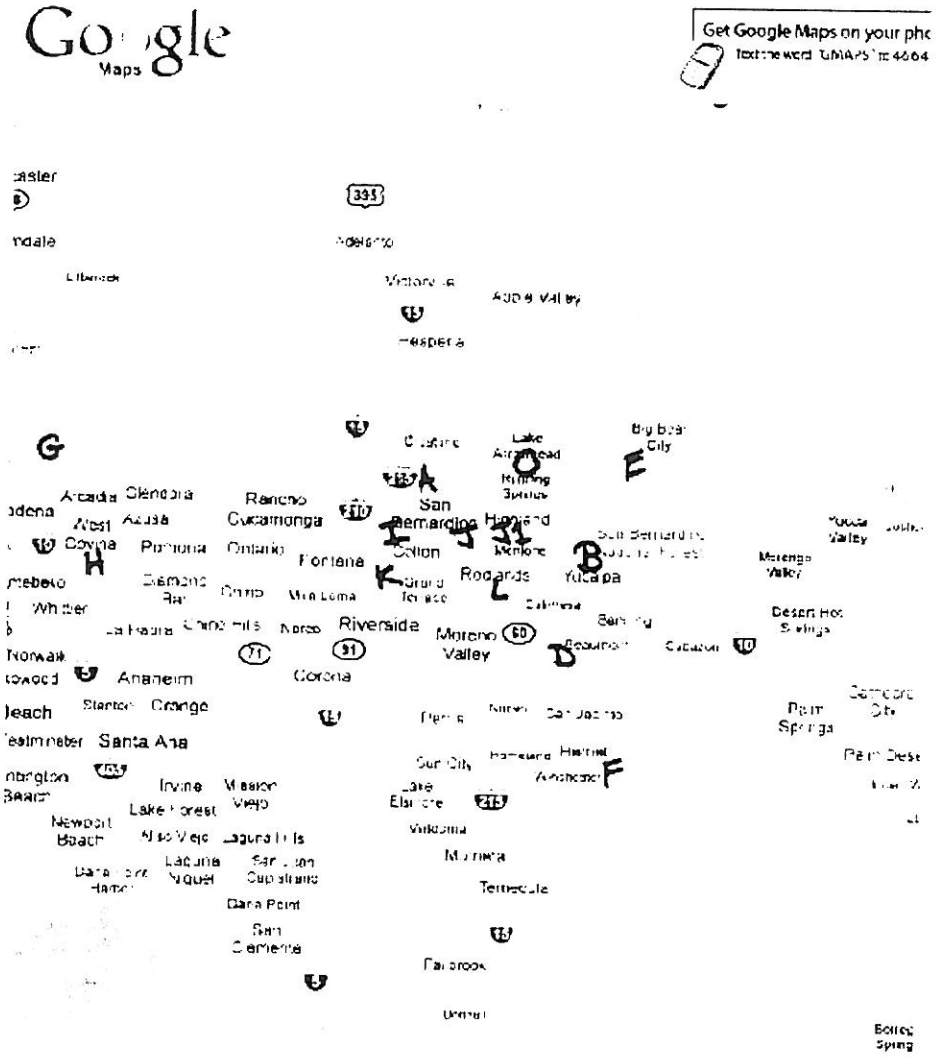


EXHIBIT

SPANISH LANGUAGE STATIONS SERVING SAN BERNARDINO[1]

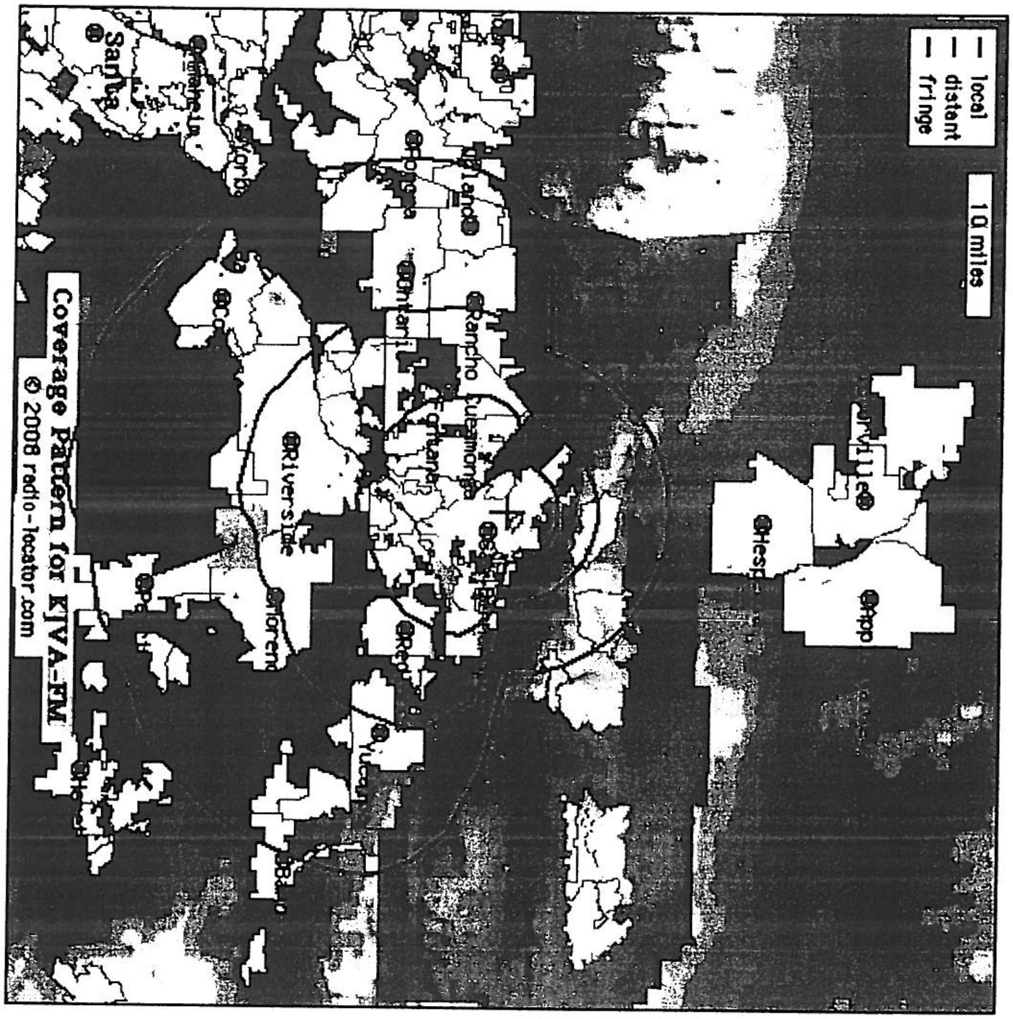
LETTERS	LICENSE	AREA				
KJVA-LP	San Bernardino	Riverside San Bernardino	94.3 MHz	Contemporary Christian	Via Abundante	http://vidaabundantesb.org
KRQB	San Jacinto	Riverside San Bernardino	96.1 MHz	Regional Mexican	Liberman Broadcasting (LBI Radio License, LLC)	quebuena961.com
KLYY	Riverside	Riverside San Bernardino	97.5 MHz	Spanish Adult Hits	Entravision Communications	http://www.jose975.com/
KAEH	Beaumont	Riverside San Bernardino	100.9 MHz	Regional Mexican	Luna Communications	www.lamaquinamusical.net
KXSB	Big Bear Lake	Riverside San Bernardino	101.7 MHz	Regional Mexican	Radio Lazer	www.radiolazer.com
KXRS	Hemet	Riverside San Bernardino	105.7 MHz	Regional Mexican	Radio Lazer	www.radiolazer.com
KLVE	Los Angeles	Los Angeles San Bernardino	107.5 MHz	Spanish Soft AC	Univision Radio	KLVE homepage
KTNQ	Los Angeles	Los Angeles San Bernardino	1020 kHz	Spanish News/Talk	Univision	KTNQ homepage
KEZY	San Bernardino	San Bernardino	1240 kHz	Spanish Religious	Hi-Favor Broadcasting, LLC	nuevavida.com
KCAL	Redlands	Riverside San Bernardino	1410 kHz	Spanish Oldies	Lazer Licenses, LLC	lamexicana1410.com
KDIF	Riverside	Riverside San Bernardino	1440 kHz	Spanish Oldies	Clear Channel Communications	
KHPY	Moreno Valley	Riverside San Bernardino	1670 kHz	Spanish Religious	D.L. Van Voorhis	

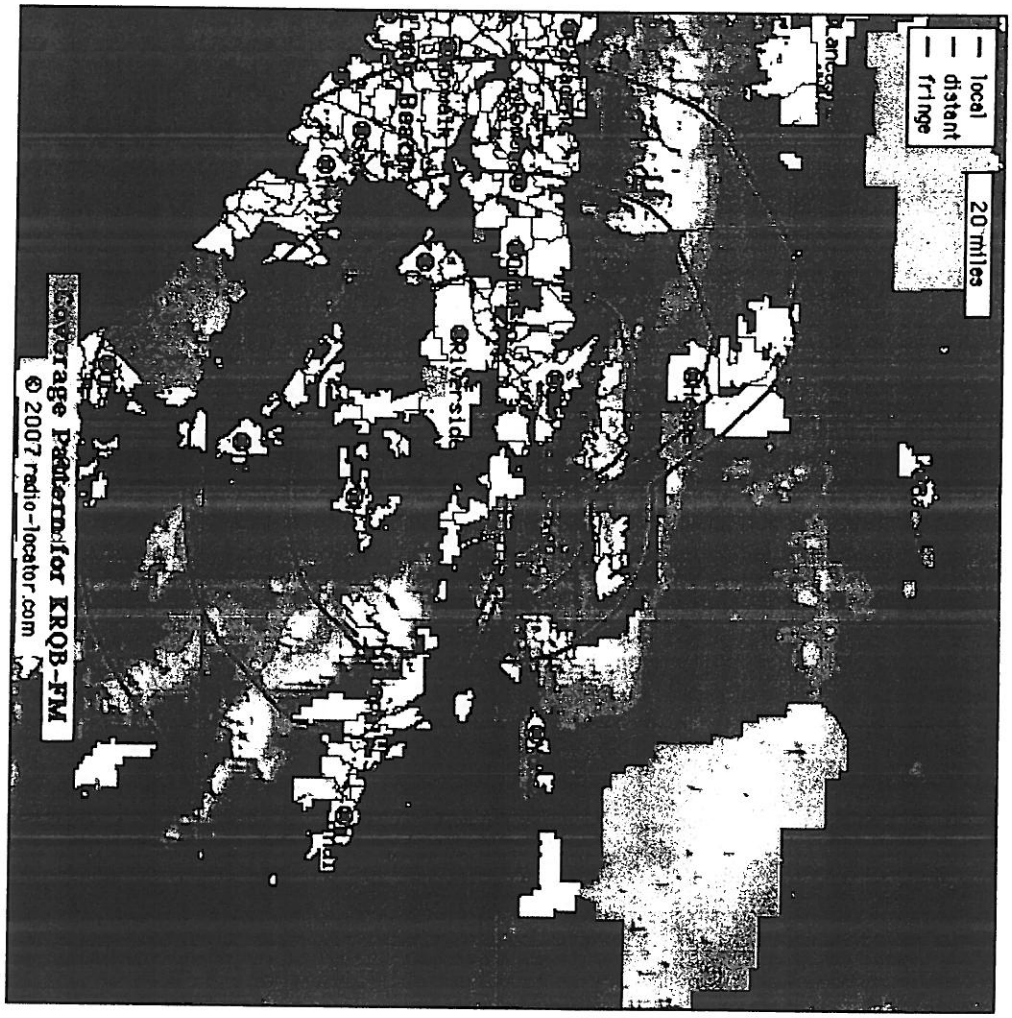
[1] Information obtained from http://en.wikipedia.org/wiki and http://www.radio-locator.com

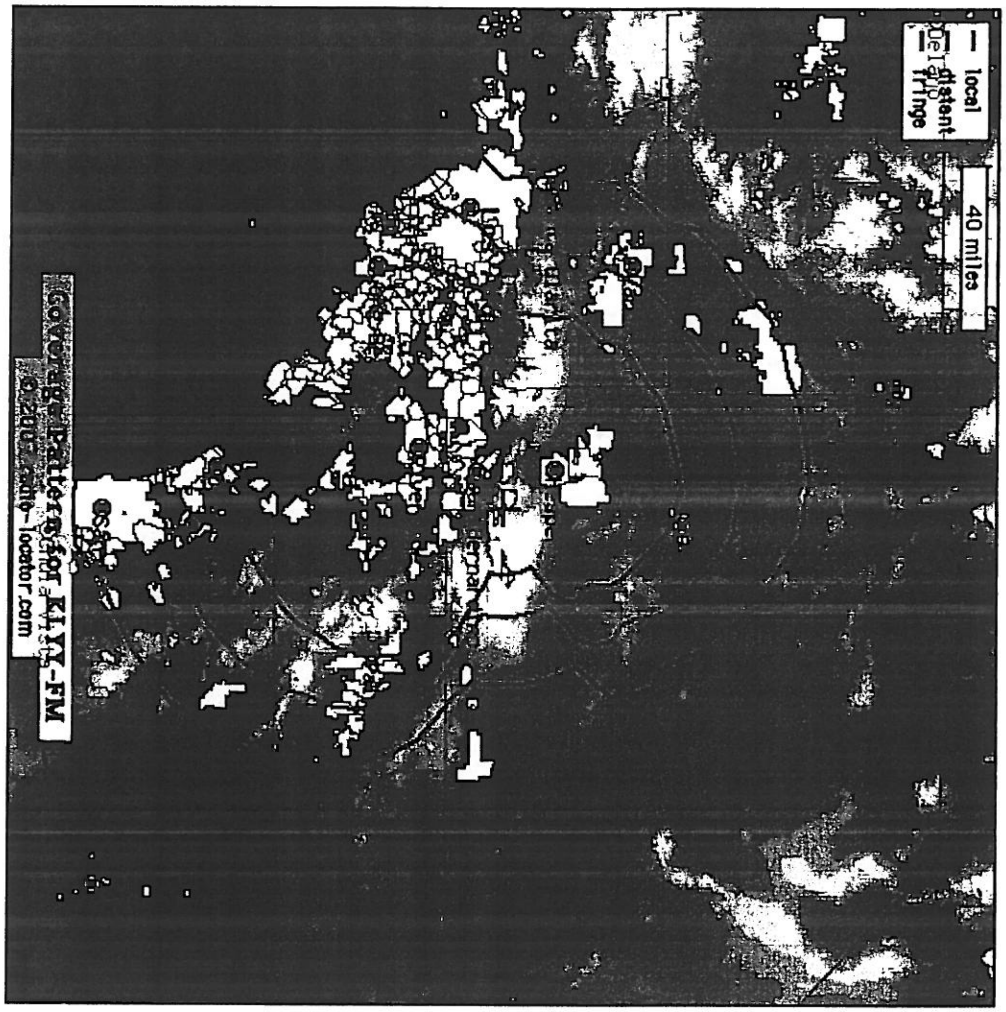


APPROXIMATE LOCATION OF TOWERS

A = KJVA
B = KROB
C = KLYY
D = KAEH
E = KXSB
F = KXRS
G = KLVE
H = KTNQ
I = KEZY
J = KCAL DAYTIME
J1 = KCAL NIGHTTIME
K = KDIF
L = KHPY


local
distant
fringe
10 miles
Rancho Cucamonga
Ontario
Riverside
Coverage Pattern for KJVA-FM
© 2008 radio-locator.com


local
distant
fringe
20 miles
Coverage Pattern for KRQB-FM
© 2007 radio-locator.com


local
distant
fringe
40 miles
Coverage Pattern for
locator.com

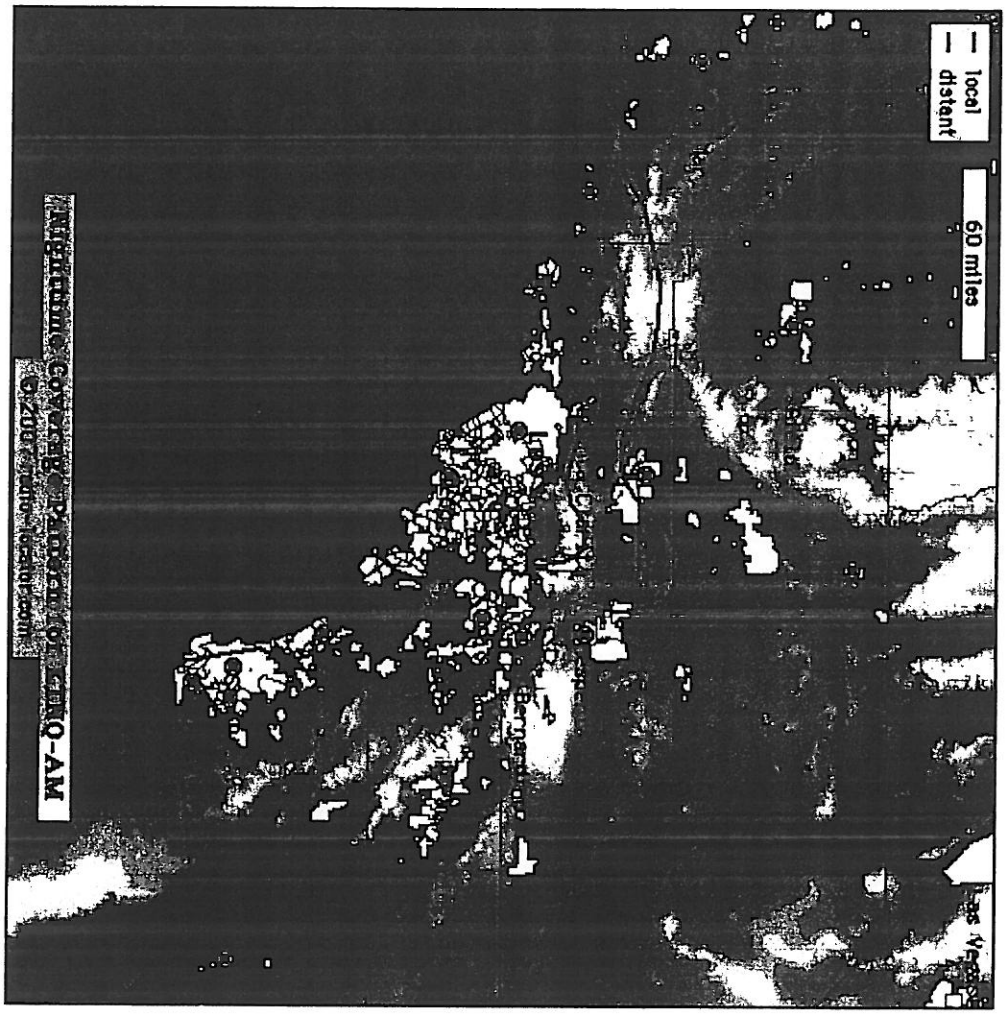
local
distant
fringe
20 miles
Coverage Pattern for KAHH-FM
© 2005 radio-locator.com

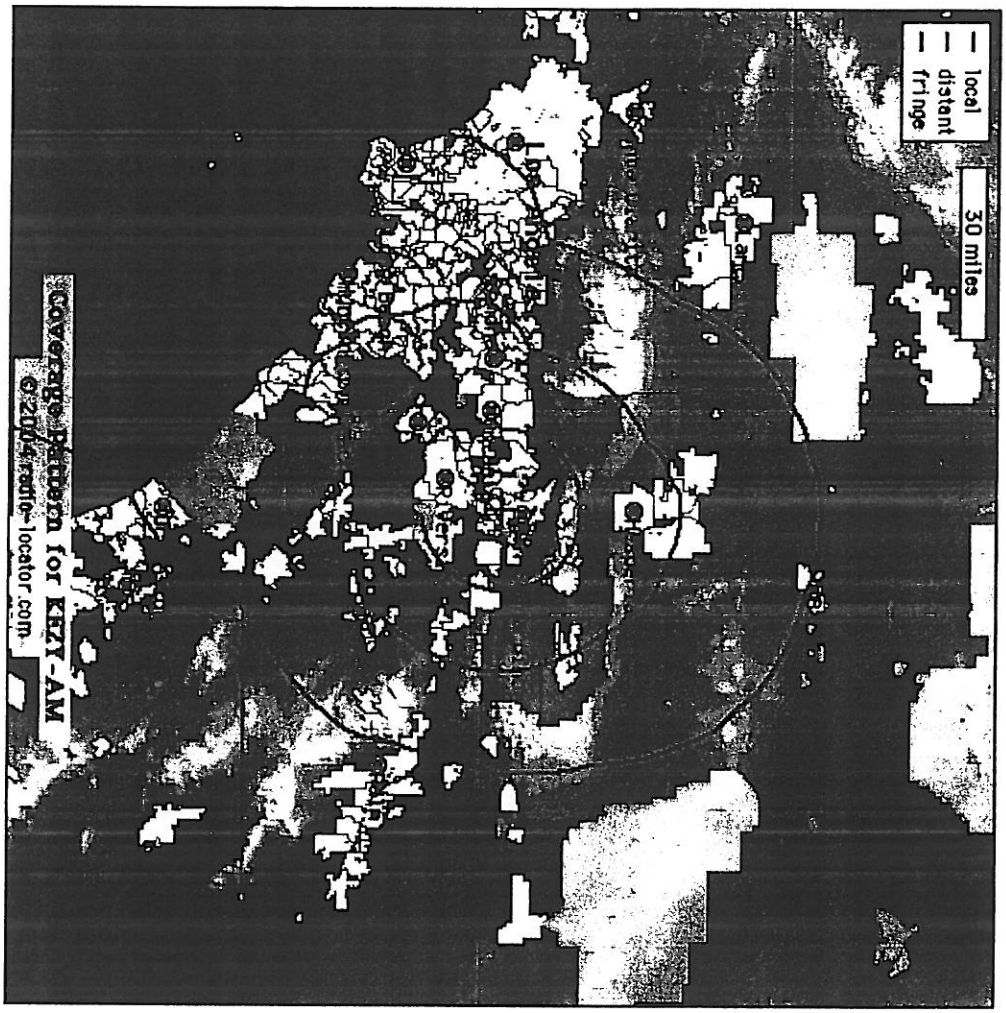

local
distant
fringe
20 miles
Riverside
Coverage Pattern for KKSB-FM
© 2004 radio-locator.com

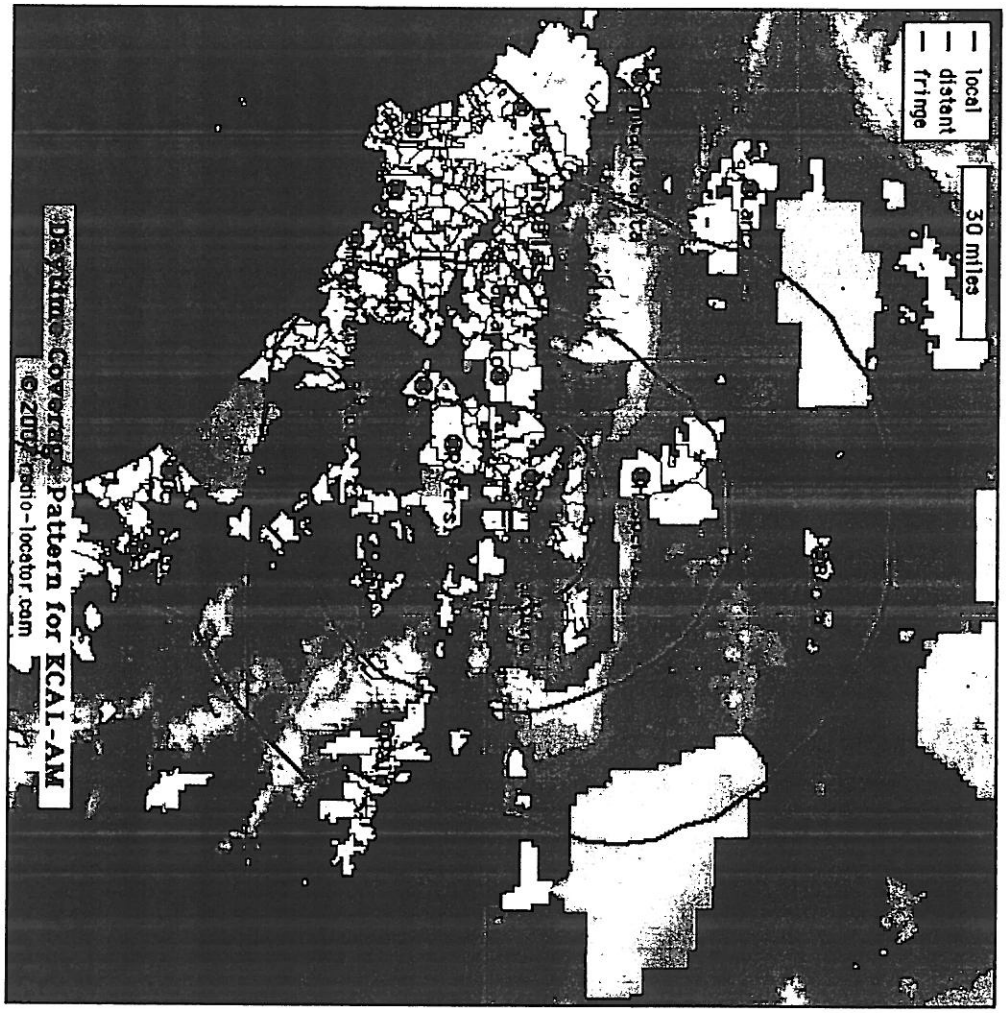
local
distant
fringe
20 miles
Coverage Pattern for KXRS-FM
© 2004 Radio Locator.com

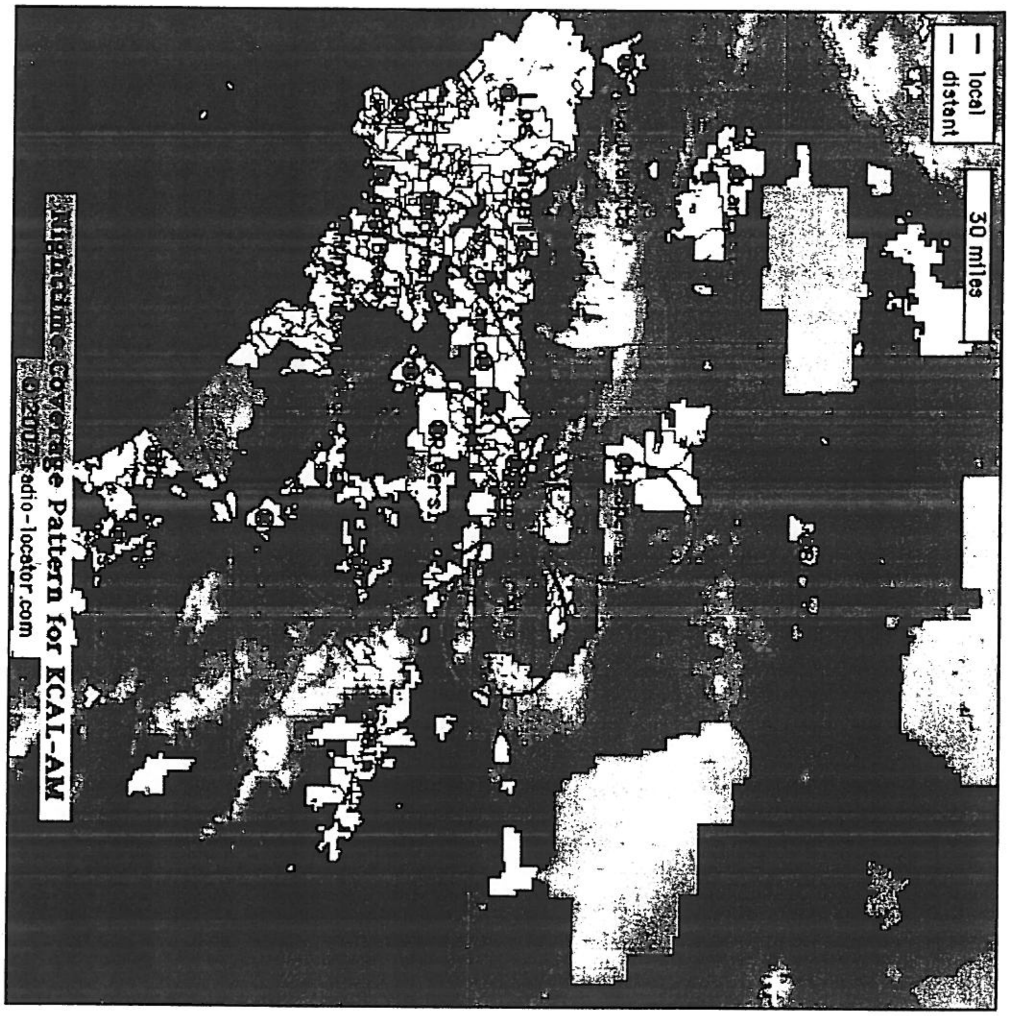

local
distant
fringe
40 miles

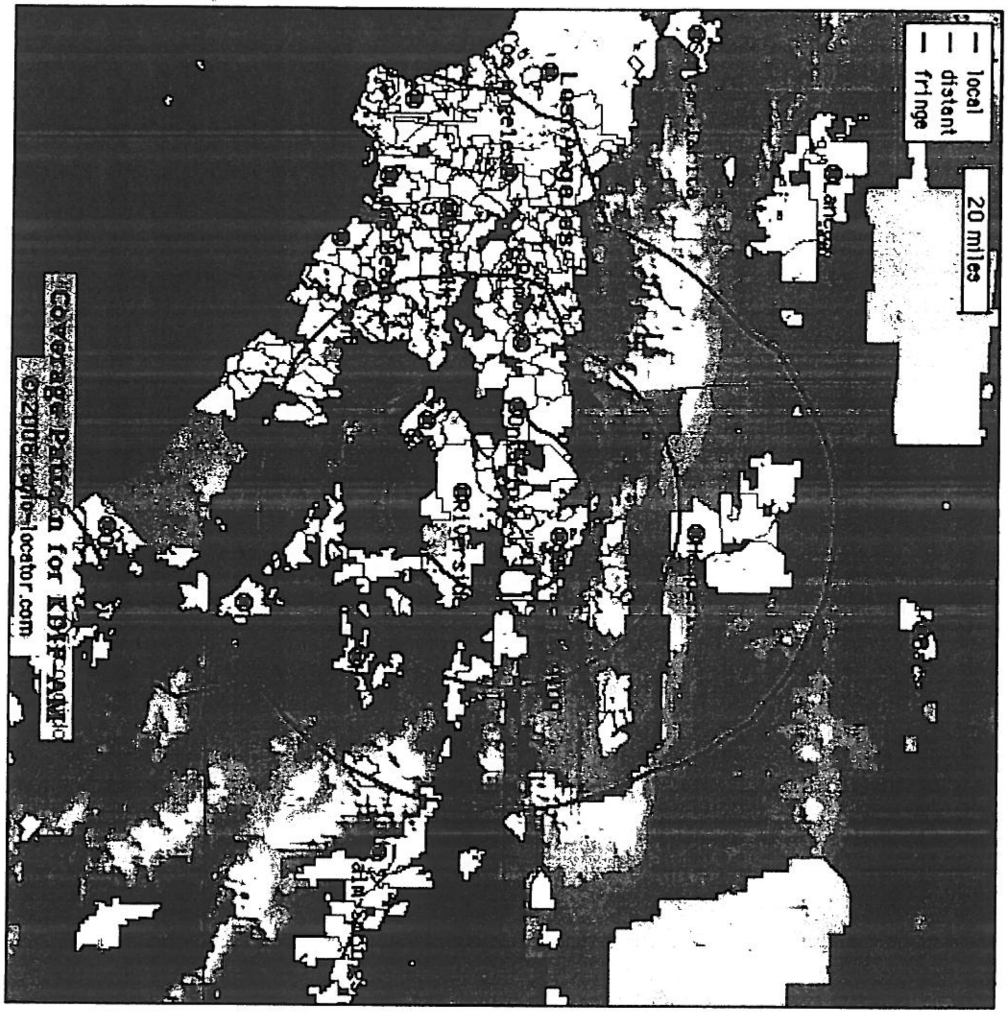
local
distant
fringe
60 miles
AM


local
distant
60 miles
KENO-AM

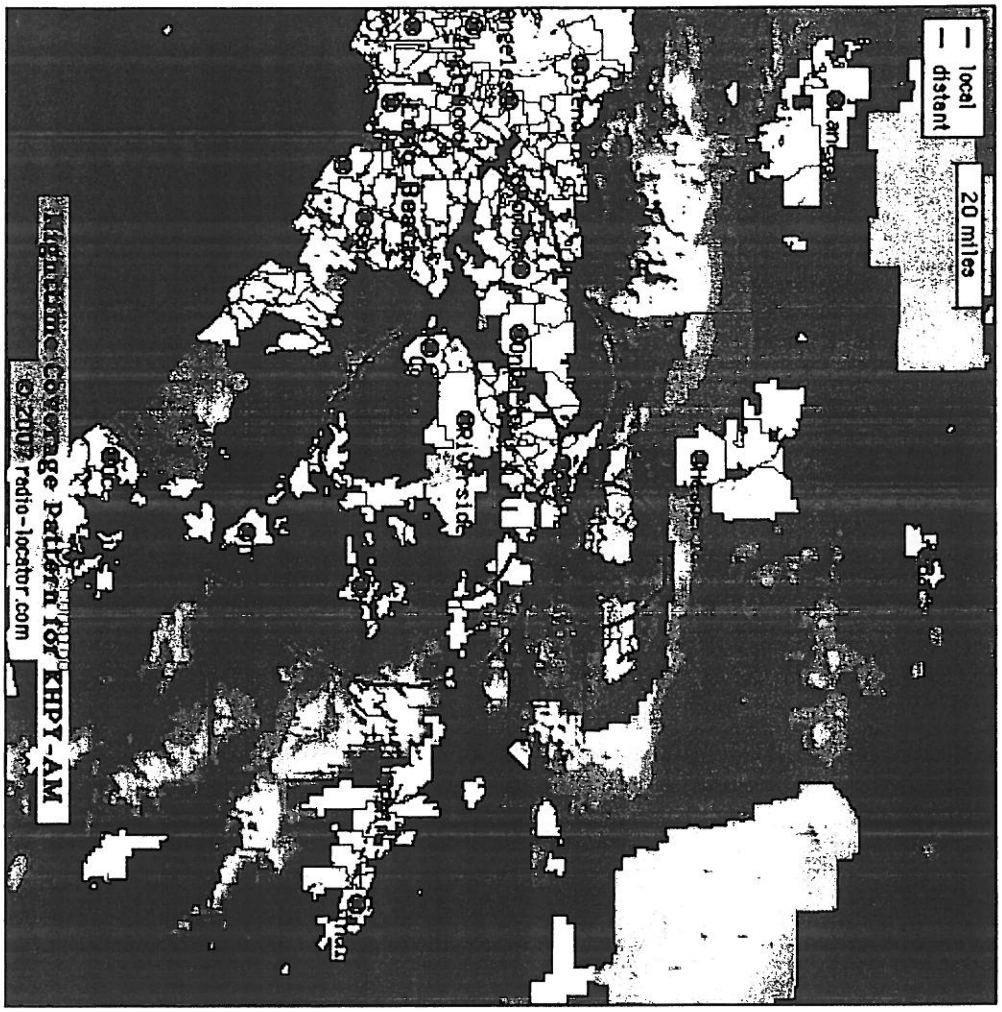

local
distant
fringe
30 miles
coverage pattern for KEZY-AM
© 2004 radio-locator.com


local
distant
fringe
30 miles
Daytime Coverage Pattern for KCAL-AM
© 2007 radio-locator.com


local
distant
30 miles
Nighttime Coverage Pattern for KCAL-AM
© 2007 radio-locator.com


local
distant
fringe
20 miles

local
fringe
40 miles
KHPY-AM


local
distant
20 miles
radio-locator.com

White, Kevin - LUS - Current Planning

From: Dan and DeDe Chudy [sweetwaterranch@cybertime.net]
Sent: Friday, June 18, 2010 1:34 PM
To: White, Kevin - LUS - Current Planning
Subject: Radio Tower

Dear Mr. White,

We have just heard that the radio tower has been proposed again near Wildwood Canyon state park. We worked very hard to see that this was not approved last time and was under the impression that it would not be reviewed again. Supervisor Josie Gonzales questioned staff at the hearing to be sure this would not be back again.

Please know that a tower anywhere near the park or Oak Glen is not expectable for us.

Sincerely,

Dan and DeDe Chudy
Sweetwater Ranch
Oak Glen CA

White, Kevin - LUS - Current Planning

From: Carol Hamilton [chamilton@cybertime.net]
Sent: Wednesday, June 16, 2010 10:00 AM
To: White, Kevin - LUS - Current Planning
Subject: Re: Second try at ruining our State Park

To Mr. Kevin White,

You might think the local opposition to your tower will simply tire of fighting this issue and you can build your tower as you planned. But I think you have underestimated the resolve of those of us that have spent years loving that particular canyon for it's beauty and it's lack of visibility of the outside world. If you persist in endangering that secluded and pristine topographical gem, we will continue to resist.

Please find another spot that doesn't overlook a treasured place,
Thanks for your time,
Ron and Carol Hamilton

County of San Bernardino
Land Use Services Department, Current Planning Division
Attn: Kevin White, Senior Associate Planner
385 N. Arrowhead Avenue, 3rd Floor
San Bernardino, CA 92415-0182

Neil Derry, 3rd District Supervisor
County Government Center
385 North Arrowhead Avenue, Fifth Floor
San Bernardino, CA 92415-0110

Dear Mr. White and Supervisor Derry:

I am **OUTRAGED** by Lazer's attempt to resubmit their proposal to construct their radio broadcast tower adjacent to the Wildwood Canyon State Park and Pisgah Peak areas.

We already voiced our opposition with more than **1,000** petitioners **against** this tower. We have been through this fight before. Residents of Yucaipa, Oak Glen and all of San Bernardino County need to be heard!

Lazer's radio tower will certainly cause detrimental aesthetic/land use impacts on this pristine open space area. It will be clearly visible from the Wildwood Canyon State Park and will mar the wilderness views for years to come.

The almost 50-ft tower will undoubtedly increase the risk of wildfires and threaten the habitat of native species and migratory birds. Hikers, bikers and horse riders of the Wildwood Canyon State Park do not want their unspoiled trails and pristine mountain peaks to be turned into a tower-dotted broadcast zone.

There are other, more appropriate locations for Lazer to place its radio tower -- this is not the place! Supervisor Neil Derry's support to protect our rural landscape did not go unnoticed, but we need the Planning Commission to stand up with us. Please DENY the project once and for all and help us **PRESERVE** the Wildwood Canyon State Park and Pisgah Peak areas.

Printed Name: Cheryl Swanson

Signature: Cheryl Swan

Address: 12099 S. Oak Glen Rd OAK GLEN

Email: willowbrookapple@aol.com

☑ If checked, please add my name to County's distribution list to receive notices of hearings and additional information regarding the proposed project.

June, 2010

San Bernardino Planning Commission
Land Use Services Department
385 N. Arrowhead Avenue, 1st floor
San Bernardino, Ca 92415-0182

Neil Derry, 3rd District Supervisor
County Government Center
385 N. Arrowhead Avenue, 5th Floor
San Bernardino, Ca 92415-0182

RE: Lazer Radio Project # 2010-00215

Dear Planning Department and Supervisor,

I am writing in support of this expansion project and new tower for Lazer Broadcasting.

I believe that Lazer has shown a great deal of support to local and regional members of the community. I am a frequent listener and resident of San Bernardino County and I consider their broadcast to be a primary source of public service announcements, News and generally all types of useful information for me as a listener. This plan to increase their service area is needed. In reaction of how we as patrons of their station and the many services they provide, please count me in total support.

Thank You,

Name JESUS VAZQUEZ CASTILLO
Address 12538 2ND. ST.
City YUCAIPA, CA. 92399
Phone (909) 838-6386
Signature Jesus Vazquez Castillo

June 15, 2010

County of San Bernardino
Land Use Services Department, Current Planning Division
Attn: Kevin White, Senior Associate Planner
385 N. Arrowhead Avenue, 3rd Floor
San Bernardino, CA 92415-0110

Re: Lazer Broadcast Corp: CUP/Major Variance—Radio Broadcast Tower
Assessor Parcel Number: 0325-011-19

Dear Mr. White and Supervisor Derry:

I OPPOSE the Lazer proposal to construct a 43 foot tall radio broadcast tower in the Wildwood Canyon State Park and Pisgah Peak areas and I DEMAND that a full Environmental Impact Report be prepared.

In 2009, Lazer proposed to build a radio tower on exactly the same parcel of land on which this radio tower is proposed. The County Board of Supervisors denied the 2009 radio tower application and made the following findings that continue to apply to this substantially similar radio tower application:

- Construction of the radio tower will have a negative impact upon the scenic vistas from Wildwood Canyon State Park
- No feasible mitigation measures have been identified that would allow the radio tower to be constructed without disrupting the scenic views from the park
- Neither a Conditional Use Permit nor a Major Variance can be granted because the radio tower is inconsistent with the County General Plan and the Oak Glen Community Plan, including the goal to provide a pristine wilderness experience to park visitors

The current application for construction of a radio tower is substantially similar to the 2009 radio tower application that was denied the Board of Supervisors. Although the tower has been reduced to 43 feet, the base of the tower has been moved 60 feet higher up the slope so that the tower will have more visibility from Wildwood Canyon State Park than the 2009 radio tower application that was denied. All of the same community leaders and organizations that opposed the 2009 tower continue to oppose this slightly modified tower.

I am especially CONCERNED with the following environmental issues that need complete and clear analysis in an Environmental Impact Report that are not adequately assessed and mitigated:

- Aesthetic/Land Use Impacts to this pristine open space area
- Biological impacts to sensitive vegetation, migratory birds and species of concern that inhabit the area
- Recreational impacts including view impacts from surrounding Wildwood Canyon State Park and San Bernardino Mountains

JOHN K. MIRAU *
MARK C. EDWARDS
ROBERT W. CANNON+
MICHAEL J. LEWIN

* Certified Specialist, Taxation Law, The State of California Board of Legal Specialization
+ Certified Specialist, Estate Planning, Trust and Probate Law, The State Bar of California Board of Legal Specialization

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P.O. Box 9058
Redlands, CA 92375-2258
(909) 793-0200
facsimile (909) 793-0790

FACSIMILE COVER LETTER

File No. S2197-002

DATE: September 30, 2010

FROM: Diane M. Sanchez, Paralegal to John K. Mirau

PLEASE DELIVER THE FOLLOWING PAGES TO:

FIRM: Kevin White, Land Use Services, County of San Bernardino

FAX NUMBER: 909-387-4288

OFFICE NUMBER:

ITEM(S) SENT: Project No. P201000215/CF

TOTAL NUMBER OF PAGES (Including Cover Letter): 4

PLEASE PHONE (909) 793-0200 AS SOON AS POSSIBLE IF YOU DO NOT RECEIVE ALL OF THE PAGES.

JOHN K. MIRAU*
MARK C. EDWARDS
ROBERT W. CANNON†
MICHAEL J. LEWIN
WILLIAM P. TOOKE

* Certified Specialist, Taxation Law, The State Bar of California Board of Legal Specialization
† Certified Specialist, Estate Planning, Trust and Probate Law, The State Bar of California Board of Legal Specialization

LAW OFFICES OF
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A PROFESSIONAL CORPORATION

1806 Orange Tree Lane
Suite "C"
Post Office Box 9058
Redlands, CA 92375
909-793-0200
Fax 793-0790

September 30, 2010

Mr. Kevin White
San Bernardino County Land Use Services Department
Planning Division
385 N. Arrowhead Avenue, First Floor
San Bernardino, CA 92415-0182

RE: Project No. P201000215/CF - Radio Tower Application
Lazer Parcel - APN 0325-011-19-0000
Application for Temporary Use Permit

Dear Mr. White:

This firm represents the Citizens for the Preservation of Rural Living ("CPRL"). CPRL is a public interest association that seeks to ensure that the open space and natural wilderness values of the Pisgah Peak and Wildwood Canyon State Park areas are preserved. We have previously submitted comments to the project application submitted by Lazer Broadcasting, Inc., which proposes the construction of a 43-foot tall radio tower ("Project") on an undeveloped 40-acre parcel of land in the San Bernardino Mountains.

The purpose of this letter is to comment on the Temporary Use Permit Application filed by Lazer Broadcast Corporation ("Lazer") dated September 6, 2010. Pursuant to such application, Lazer seeks a temporary use permit for a "wooden pole mock-up to show visible implications of a proposed 43-ft broadcast tower, proposed under CUP Project Application No. 201000215."

In fact, Lazer already illegally installed the so-called "mock-up" of its proposed 43-foot tower. By letter dated August 20, 2010, from the Land Use Services Department (Kevin White), Lazer was informed that installation of the pole required a Temporary Use Permit which constitutes a violation of the County Development Code. To the best of our information, sometime in the last week the illegal pole was removed from the Lazer property. This means that

Lazer ignored the County's letter of violation for over a month. Now, apparently, Lazer desires to reinstall the pole pursuant to its Temporary Use Permit Application.

Under the standards set forth in the Development Code, a Temporary Use Permit must be denied. Section 85.15.010 of the San Bernardino County Development Code (Temporary Use Permits) states as follows:

> "This Chapter establishes procedures and standards for the granting of Temporary Use Permits for allowed short-term activities. Compliance with applicable standards ensures that the establishment, maintenance and operation of the short-term activity would not be detrimental to the public health, safety, and welfare of persons residing or working in the neighborhood of the proposed activity." (Underlining Added)

Section 84.25.010 further provides development and use standards with respect to temporary structures as follows:

> "The intent of these standards is to minimize the potential incompatibility of a temporary structure or use... and to regulate the location, operation, and/or duration to protect the public convenience, health, interest, safety and general welfare." (Underlining Added)

Pursuant to these quoted sections of the Development Code, a Temporary Use Permit should not be issued if the temporary structure would be detrimental to public health, safety and welfare or if the temporary structure would be incompatible with adjacent uses.

As you know, Lazer applied for a Conditional Use Permit and a Major Variance to construct a 140-foot tower (which was later changed to an 88-foot tower) immediately adjacent to Wildwood Canyon State Park. That application was unanimously denied by the San Bernardino County Board of Supervisors in 2009. In connection with that denial, the County Board of Supervisors made findings of fact including the following:

A. "Construction of the radio tower project will be contradictory and detrimental to a primary goal of the State Park, which is to provide a pristine wilderness experience to park visitors."

B. "The proposed use will have a substantial adverse effect on abutting properties and the allowed uses of the abutting properties since the proposed radio broadcast tower is located on property adjacent to the Wildwood Canyon State Park."

Lazer claims that the very purpose of installing the pole is that it is a "mockup" of the radio tower that it proposes to build. We disagree that the pole is a mock-up of the radio tower, since the proposed radio tower is a metal lattice tower. We do agree, however, that the pole is visible from many aspects of the park and to a large extent has many of the same adverse impacts

on scenic views from the park that the actual project would have. In light of the fact that the County has already rejected the project itself because of its adverse impact on the scenic vistas from Wildwood Canyon State Park, the application for a Temporary Use Permit should be denied.

In addition to the fact that the standards for granting a Temporary Use Permit are not satisfied in connection with the application filed by Lazer, granting the application at this point in time would be rewarding Lazer for its blatant violation of county rules. Lazer did not follow the County rules which require a permit to install the pole. Rather, Lazer just installed the pole and ignored the county rules requiring a permit. Furthermore, Lazer ignored the County's notice of violation for over a month. We urge you not to grant a permit at this point time because it would be rewarding Lazer for its illegal actions.

Thank you for this opportunity to comment on the application for a Temporary Use Permit. Please keep us informed of any actions on the matter, and keep us on the mailing list for any notices associated with the application. We also request, pursuant to the California Public Records Act, copies of any additional documents of any kind submitted by the applicant related to the Temporary Use Permit application.

Very truly yours,
MIRAU, EDWARDS, CANNON,
LEWIN & TOOKE

By: John K. Mirau, Esq.

Cc: Supervisor Neil Derry
Mayor Dick Riddell
Mr. Bill Collazo
Mr. David Myers, The Wildlands Conservancy
Mr. Frank Sissons, Yucaipa Valley Conservancy

September 29, 2010

Honorable Chairman and Members
of the Planning Commission
San Bernardino County
385 N. Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415 - 0182

RE: Lazer Broadcasting FM Radio Broadcast Facility (Project No. P201000215/CF)

Dear Chairman Cramer and Members of the Commission:

The project referenced above represents the re-submittal of an application that was unanimously rejected by the Board of Supervisors in December of 2008. Although the new application now proposes the construction of a smaller tower and ancillary equipment structure, they would still be located on the border of Wildwood Canyon State Park, but at a higher elevation to make up for the reduced tower height. This nearly pristine natural area was chosen for State Park status primarily because of its exceptional aesthetic and natural values, and it should go without saying that the presence of a very prominent metal tower and its equipment building in this environment is entirely contrary to the mission of the State Park.

All available evidence indicates that this project will result in significant adverse impacts on the environment, but County staff members have downplayed this evidence. Without question, this antenna tower will have a substantial adverse effect on a major scenic vista (Wildwood Canyon State Park), and it will substantially degrade the existing visual character or quality of the site and its surroundings. In addition, once utilities are extended to this facility, it is almost certain that the County will receive additional applications for more communication towers, and therefore, the cumulative impacts associated with this project also must be considered as significant.

We believe that these three issues alone warrant the preparation of a full environmental impact report, but equally important, and equally lacking from the current environmental assessment, is any discussion of alternative sites. An environmental impact report should be required to address this issue in detail, and we believe that the burden of proof is on the applicant to demonstrate that there are no alternative sites for this facility. Supposedly, this is the only location where they can broadcast to their listeners, but we would submit that most, if not all of the residents in Hemet currently receive radio broadcasts, and none of them are originating from this location.

We have been advised that an independently prepared study (Kline Report) clearly demonstrates that other suitable locations exist for this broadcast antenna, either on existing antenna towers or other vacant property several miles to the east of the currently proposed site. We understand that the applicants would be required to lease space on an existing tower, or purchase additional property, but financial considerations do not overcome the obligation to consider alternatives which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives.

At a hearing held by this Council on September 27, 2010, we observed considerable opposition to this proposal from many of our own residents, as well as from representatives from the Supporters of Wildwood Canyon State Park, the Yucaipa Conservancy, and the Wildlands Conservancy. This facility is clearly inconsistent with their long-range goals for this natural area, and they indicated that over 2,500 people have signed their petitions opposing this project. This opposition was focused on the belief that the border of Wildwood Canyon State Park was simply the wrong location for this facility and that a less obtrusive site must surely exist somewhere.

These sentiments were echoed by each of our City Council members during our discussion of the proposal, and it was also noted that this proposal would be in direct violation of the City's policies and standards for ridgeline developments if it were subject to our jurisdiction. We understand that the Board of Supervisors adopted rather extensive Findings in their action to deny the previous proposal, including a Finding that the facility was inconsistent with the land use policies of the Oak Glen Community Plan, and we have not seen anything to date that would indicate that the current proposal will eliminate or even reduce any of the previously identified adverse impacts.

In summary, we believe that the negative visual impact of this antenna tower is completely out of character with the existing environment, and that it will not be possible to mitigate the adverse impacts of this ill-conceived project to a less-than-significant level as required by the California Environmental Quality Act. Consequently, we are requesting that you deny this application, or at a minimum, require the preparation of a full environmental impact report to adequately address this issue, as well as the others, including the evaluation of alternative sites for this facility. We believe that this so-called "compromise" project does nothing to eliminate these negative impacts.

Very truly yours,

Dick Riddell
Mayor

Allan Drusys, D.V.M.
Mayor Pro Tem

Denise Hoyt
Councilmember

Tom Masner
Councilmember

Diane Smith
Councilmember

cc: Neil Derry, 3rd District Supervisor
Kevin White, Sr. Associate Planner

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