

9. Wildlife – Referral comments received by the Colorado Division of Wildlife indicate that although some features of the proposed development should benefit wildlife, others may be detrimental. Specifically, the Division of Wildlife stated that burying power lines will benefit wildlife, but lighting on the towers could cause migrating birds to fly into the towers. To address this concern, the applicant indicated a willingness to address this issue by employing Colorado State University students to monitor bird kill at the site during migration season. The applicant also noted by letter that Pinnacle will consider additional beacons and 24-hour lighting of the tower during migration season to mitigate bird kills. A written restriction that addresses this issue was also included. The applicant proposes to implement reasonable mitigation measures if birds collide with the towers constructed onsite. As written, this restriction is relatively non-binding. Staff recommends as an alternative written restriction that requires the applicant commit to a monitoring program to document the incidence of bird kill. If after two migration seasons, monitoring indicates that bird kill at the site is not statistically linked to the towers, the formal monitoring program will cease. If, however, it is determined that the towers are a significant cause of bird kill, the applicant must implement mitigation measures that consist of a method(s) approved by the Colorado Division of Wildlife.

The Division of Wildlife also noted an additional item of concern in their remarks. Citing the likelihood that some blasting will be necessary during construction, they request that no blasting occur from April 1<sup>st</sup> to June 15<sup>th</sup> so that nesting raptors are not disturbed.

### **The Telecommunication Land Use Plan (TLUP)**

The TLUP contains a series of site suitability and site development policies. In particular, there are five primary criteria for evaluation. These are:

- Engineering and Economic Concerns
- Visual and Noise Impacts
- Residential Interference
- Health Issues
- Tower Siting and Review

Each is discussed below, as well as addressed in the attached tabular evaluation.

Engineering and Economic Concerns – The following policies are recommended:

- Broadcast sites should be able to serve most of the metropolitan area.
- Two-way and cellular radio sectors need to find sites capable of serving their markets.
- Facilities must meet FAA and FCC requirements.

Overall, the proposed facility meets these guidelines because it is capable of serving most of the Metropolitan area. Further, two-way and cellular are already present at the site. The applicant notes that it will meet all FCC and FAA requirements in siting and marking the tower, however, one issue remains outstanding. This issue involves the Table Mountain National Radio Quiet Zone, an area set aside by the Federal Communications Commission (FCC) via Federal law (47 C.F.R. S73.1030(b)). Within this area, electric-field strengths are restricted for the purpose of research and testing conducted by the Department of Commerce Boulder Laboratories. The Department of Commerce (National Institute of Standards) has expressed concern for whether the proposed development on Eldorado Mountain can protect the Quiet Zone.

The applicant has submitted a report, reviewed by Jim Hart, expert contracted by the County, that addresses protection of the Quiet Zone. Mr. Hart's review concludes that the antenna proposed will not adequately protect the Quiet Zone. As a result of this review, the applicant submitted an additional report addressing the methods used to calculate the power density from a transmitting antenna to the Quiet Zone. This report was transmitted to Jim Hart on August 27, 2001 for review. Confirmation that the transmission equipment proposed will protect the Quiet Zone is necessary to meet FCC standards regarding the Quiet Zone. However, FCC licensing will require that compliance with FCC regulations, including those governing the Quiet Zone.

Visual and Noise Impacts – Specific policies recommended in the TLUP are listed in the attached tabular evaluation. In summary, the following policies are recommended:

- Telecommunications facilities should result in minimal visual impact to be compatible with the aesthetic character of the area.
- FAA requirements for coloring and lighting of the towers must be considered relative to visual impact. Towers that require coloring and lighting should be avoided if possible. If required, waivers of FAA requirements should be requested.
- The facility design should take coloring, lighting, view corridors, topography, materials, and architecture into account. Towers and antenna should be neutral in color to blend with the background.
- Locating antennas near similar uses or in industrial areas is preferred.
- Power lines should be carefully placed.
- Noise impacts should be minimized.
- Equipment buildings should use coloring or other measures to blend with the surrounding area.
- Power lines and fuel tanks should be buried and/or screened.

The applicant has proposed written restrictions that include screening the proposed new building, as well as the existing buildings if expanded, with a faux rock façade and natural colors to blend with the ridgeline and surrounding area. They also propose to utilize natural colors and vegetation to screen support buildings not located on the ridgeline. The written restrictions also indicate that equipment, such as ground-mounted satellite dishes or HVAC equipment, and fencing will also be colored and screened to match the surrounding terrain.

The applicant also proposes to have the towers remain galvanized grey to blend with the sky backdrop. However, the FAA will determine whether orange and white coloration is necessary to protect aircraft. The applicant has indicated that they wish to use daytime white strobes to mark the towers and red, blinking lights at night. Further, they note that they will request a waiver from the FAA to have medium, rather than high-intensity strobes. Prior to tower construction, a Form 7460-1, which is a notice of proposed construction or alteration of towers, must be filed with the FAA. At that time, the applicant will request a determination of the marking and lighting requirements for the tower. Until Form 7460-1 is filed and a determination is made, the marking and lighting requirements will remain unknown.

A diesel storage tank, maximum 40,000-gallon capacity, is proposed by the applicant to fuel generators that will be used if a power outage occurs. The written restrictions indicate that the tank will be either above or below ground. The Jefferson County Department of Health and Environment has noted that an above-ground tank will be less likely to impact the environment, specifically groundwater. However, the TLUP guidelines recommend that tanks be buried to enhance visual appearance. In either case, the tank will be permitted by the State Inspector of Oils in compliance with State regulations. Staff recommends that if an above-ground tank is used, it must be screened with native vegetation, a rock outcrop, berm, or other feature to meet the TLUP guidelines.

Generally, the proposed facility is not anticipated to generate significant noise impacts. However, the proposed heliport has the potential to generate noise that would impact the surrounding community. To address this concern, the applicant has included a written restriction that limits the noise level at any residence to the permitted state noise level unless permission is received from the property owner, except in emergencies.

Residential Interference - The following policies are recommended in the TLUP:

- New telecommunication facilities should minimize interference for nearby residents.
- Interference problems should be shared by all parties involved.
- New towers should be sited to minimize interference by utilizing towers that are elevated above populated areas; and use appropriate antenna design. Further, the County should discourage rezoning land near established broadcast sites for intensive residential uses, and rezoning of residential land for towers should be discouraged.

As proposed, the written restrictions state that if a party experiences interference, the site owner or operator of the RF source shall conduct an investigation and, if warranted, will implement a mitigation plan. Further, the applicant provided a report prepared by Mullaney Engineering and Raines Engineering that compared blanket interference expected at five different broadcast sites, including Eldorado Mountain, Lookout Mountain, and Squaw Mountain. Of the five sites evaluated, the least population effected was at Squaw (593 individuals), with Eldorado close behind (609 individuals). The Mullaney-Raines report goes on to address interference with consumer electronics and notes that there is no standard for assessing susceptibility of consumer electronics to interference. However, they state that the calculated blanket interference, and interference with consumer electronics can qualitatively be compared. Again, the area surrounding Eldorado and Squaw can expect the least interference.

Jim Hart also provided some information regarding interference. This letter is attached. To summarize, he stated that interference with consumer electronics is truly dependent upon the electronic device. There is no standard for the susceptibility of receiving equipment. Therefore, it is not possible to model interference with any degree of certainty. However, overall the greatest interference will occur where the transmitter is on the same horizontal plane as the transmitter. It also is dependent on the distance, antenna elevation angle to the horizon, and the transmission power density. He also states that the power density of a transmission in free space drops off very quickly as the distance between the transmitter and receiver increase. Mr. Hart concludes that there is no practical way to conduct a study for interference with electronic equipment. He does note that to some degree the antenna pattern can be modified.

Both the Mullaney-Raines study and information from Jim Hart indicate that there is no way to determine whether interference with consumer electronics will occur because the response is very dependent on the consumer device. However, Mullaney-Raines states that there are advantages of locating at a site where the immediate surrounding area is relatively undeveloped. Additionally, Jim Hart notes that the power density of a transmission in free space drops off quickly with distance. The majority of residences located at the same elevation as Eldorado Mountain appear to be located to the west with many of them separated from the site by Scar Top Mountain.

Health Issues – The following policies regarding health issues are listed in the TLUP.

- Telecommunication facilities should be located and designed to prevent exposure to RF in excess of current, projected, or suggested standards (at the time of rezoning an applicant should show that when the proposed facility is fully operational, the NIER level measured at the property line will not exceed the current standard).
- To reduce RF exposure stations should lease space on tall, existing towers (to avoid locating within the same horizontal plane as area residents); require an adequate buffer based on RF standards; measure actual RF levels at nearest habitable structure near the proposed tower.

The applicant submitted a report prepared by Richard Tell Associates, Inc. that presents an evaluation of the maximum possible RF field levels that might be expected from broadcast transmitter operations at the site. For the analysis, a total accumulative power density from 30 broadcast stations that are potentially capable of operating at the site, was used. Mr. Tell selected 18 geographic points within the Eldorado Mountain Communications Site region, to measure the Total % Maximum Public Exposure (MPE) that would be anticipated at each point. Most of the 18 points selected were essentially line-of-sight to the transmitter site, and ranged from 430 to 28,042-feet from the transmitter. Total % MPE is a percentage of the FCC general public MPE limit for continuous exposure (i.e. 100% is the FCC limit for MPE continuous exposure). The % MPE values obtained ranged from 0.00545% on Shirttail Peak, 8252-feet from the transmitter, to 38.8%, 430-feet from the transmitter adjacent to the south property line. These values are within those necessary to meet FCC health-based standards. Mr. Jim Hart, a consultant contracted by the County, also reviewed these data and concluded that the site and surrounding areas will meet the general population standard using the proposed towers and antennas.

As designed, the proposed site will consist of two use areas. Use Area A, 9.82-acres in size, will serve as the area for buildings, towers, and other equipment. Use Area B, 30.86-acres in size, will surround Use Area A. Use Area B will contain utilities, transmission lines, and other ancillary equipment, but no buildings, towers,

antennas, or broadcast equipment. It will essentially serve as a buffer for Use Area A. The nearest residence (Barrick) is located approximately 1 to 1.5 miles south, but it is not in the same horizontal plane as the transmission site. The Barrick property is at approximately 7,000-feet above mean sea level (AMSL), while the subject site is at approximately 8,300-feet AMSL. The nearest residences to the site that fall within the same horizontal plane appear to be located just north of the Jefferson/Boulder County line, approximately 1.75 to 2-miles west-northwest. The distance of residences from the site, coupled with their location relative to topography, limit the RF exposure to area residents. The evaluation by Richard Tell Associates, indicates that the proposal is in compliance with the Community Plan regarding health issues. This was confirmed by Jim Hart.

#### Tower Siting and Review –

- Towers, dishes, and accessory buildings should be located to avoid the most visual impact.
- A new tower should be stressed to accommodate multiple users.
- New towers should be permitted only when an equal face area of existing tower(s) can be removed. Some tower face area credit can be given for new facilities that will provide space for at least 2 different TV or FM stations; among others.
- It should be demonstrated that there is not suitable space on existing towers at other telecommunication sites or on other sufficiently tall structures to accommodate the proposed use. If suitable space does not exist, guidelines suggest construction of a facility that can serve multiple users; locate a new tower in close proximity to others; or locate a tower in areas where the tower can be 80% screened by vegetation or other.
- New towers should accommodate other users such as two-way radio.

The Eldorado Mountain site is in area that is on a ridgeline and is readily viewed from a variety of locations, with the most impact to those viewing from the east. It should be noted that one tower and two buildings are already present at the site. As stated earlier, in the discussion on visual impact, the applicant proposes to screen the new or expanded buildings with a faux rock façade, and color existing buildings and equipment to match the surrounding terrain.

The applicant has also noted and has issued a “Letter of Intent” to lease space to multiple users on the proposed tower site. However, the applicant has not demonstrated that they will remove an equal face area of an existing tower. The TLUP policies do state, however, that some face area credit can be given for new facilities that will provide space for at least 2 different TV or FM stations. The applicant has stated that the proposed facility can handle all the facilities in the Metro area. Specifically, they state that the first new tower is proposed for new digital television service, and it will have the capacity for at least 11 digital television stations and 8 FM radio stations. Therefore, the initial tower conforms to the policies in the TLUP regarding removal of towers. Written restrictions proposed by the applicant state that a permit to construct a second or third tower at the site shall be granted if the applicant can demonstrate either that the facilities were not previously permitted in the market; the tower is required to support facilities that cannot be placed on an existing tower at the site; there is no suitable alternative tower; or that a tower within the market area with equivalent face area will be removed. This is in conformance with the policies in the TLUP.

Letters received from various tower owners in the Front Range area note that, with the exception of Squaw Mountain, none can handle the facilities proposed by Pinnacle, Inc. on Eldorado Mountain. Squaw Mountain has an Official Development Plan, approved by Clear Creek County on February 29, 1988, that permits the construction of up to three towers, to a maximum height of 200-feet. Squaw states that they can accommodate all services, although it is unclear whether they can be accommodated on an existing tower, or if a new tower is necessary. A referral response from Squaw Mountain stated that they plan to begin construction on a new master tower in May or June 2001. Work previously conducted by Jim Hart for Jefferson County indicates that shadowing does occur with transmissions from Squaw Mountain and that boosters and translators would be necessary to reach certain areas in the Front Range, most notably, Jefferson County. However, the work done by Jim Hart also confirms that shadowing of some portions of the Front Range will occur with all sites (Lookout Mountain, Mt. Morrison, and Eldorado Mountain), but that the shadowing can be corrected with boosters and translators.

## COMPATIBILITY:

There are several issues related to this proposal that relate to compatibility of the proposed use with the surrounding area. These are health issues, visual and noise impact, wildlife impact, and residential interference. Each is briefly discussed below.

Health Issues: The proposed Eldorado Communications Site is located in an area that is sparsely populated and is already the site of an existing tower and communications facility. Reports submitted by the applicant and reviewed by Jim Hart, indicate that the site should not create negative health effects for area residents.

Visual and Noise Impact: As discussed earlier in this report, the applicants have proposed screening and natural coloration for the Eldorado Site; and they have proposed to leave the towers an unpainted galvanized grey to blend with the sky. Further, it is their intent to request a waiver from FAA requirements to mark the towers with orange and white coloration and reduce high-intensity strobes to medium intensity. There is no certainty as to whether the waiver request will be approved or denied. However, the applicant has demonstrated a method to mitigate the visual impact of the building, and has indicated a desire to soften the impact of the towers. The towers will, regardless of the marking and lighting required by the FAA, remain visually apparent, as does the existing tower.

The proposed facility is not anticipated to generate significant noise impacts. However, the proposed heliport has the potential to generate noise that would impact the surrounding community. To address this concern, the applicant has included a written restriction that limits the noise level at any residence to the permitted state noise level unless permission is received from the property owner, except in emergencies.

Wildlife Impact: Concern has been raised about potential bird kill at the site during migration season. The applicant has demonstrated a willingness to monitor the birds, and if bird kill becomes an issue, implement a method of mitigation. To increase the compatibility with wildlife, Staff is recommending a written restriction that would require a monitoring program.

The Division of Wildlife also noted an additional item of concern in their remarks. Citing the likelihood that some blasting will be necessary during construction, they request that no blasting occur from April 1<sup>st</sup> to June 15<sup>th</sup> so that nesting raptors are not disturbed.

Residential Interference: Reports prepared by communications experts, and information provided by Jim Hart indicates that because of the varied array of consumer electronic devices on the market, there is no way to predict whether interference will occur. The experts have noted that interference decreases rapidly with distance and the nearest residence is over one-mile away and at a lower elevation. The applicant has also proposed in the written restrictions to investigate any report of interference and, if warranted, implement a mitigation plan.

In summary, the applicant has committed to the above-noted measures to minimize impacts and increase compatibility. Also, it should be noted that this site is currently used as a communications site. Therefore, staff finds that the proposal is compatible with the surrounding area.

## COMMERCIAL MINERAL DEPOSITS:

There are no known mineral deposits of economic significance on the property.

**FINDINGS/RECOMMENDATIONS:**

**Staff recommends that the Planning Commission find that:**

- 1. This proposal is in substantial conformance with the North Mountains Community Plan because it meets the Plan recommendations regarding air, odor, and noise, hazards, open space/trails, pre-historical/historical/archaeological resources, public services, transportation, visual resources, water/sanitation, and wildlife.**
- 2. The proposal is in substantial compliance with the Telecommunications Land Use Plan because it meets the recommendations of both plans regarding engineering and economic concerns, visual and noise impacts, residential interference, health issues, and tower siting and review.**
- 3. The proposal meets the review criteria for planned developments for telecommunications towers as described in the Jefferson County Zoning Resolution, Section 15.F.2.**
- 4. The proposed land use is compatible with existing and allowed land uses in the surrounding area in all directions.**

**And;**

**That the Planning Commission recommend APPROVAL of Case No. 00015485RZP1 to the Board of County Commissioners subject to the following conditions:**

- Confirmation of access prior to completion of the Exemption from Platting process.**
- Revisions to the red-marked print of the Official Development Plan dated September 5, 2001. This includes;**
  - Revisions to the ODP graphic.**
  - Revisions to the written restrictions regarding tower and building standards, permitting requirements, field measurement requirements, site reclamation, and a program to monitor the incidence of bird kill.**

COMMENTS PREPARED BY:



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August 30, 2001