

6. The FCC has determined that there is a legitimate need for cellular radio in the metropolitan area.
7. The presence of high mountain top sites in Jefferson County and its proximity to most market areas in the metropolitan area make it quite desirable for broadcasters and two-way communication providers.
8. Under select circumstances, shared use of antennas is possible.

### **Policies:**

1. Broadcasting sites should be capable of serving most of the metropolitan area.
2. The two-way and cellular radio sectors need to find sites capable of serving their desired markets.
3. Telecommunication sites should recognize consumer needs.
4. Telecommunication facilities should be located, designed and operated in a manner that will comply with all FCC permits and conditions to prevent objectionable levels of interference.
5. Telecommunication facility location and design must meet the requirements imposed by the FAA and FCC.

## **Visual & Noise Impacts**

### **Findings:**

1. The key concerns related to visual impact are:
  - a. Unsightly proliferation of towers affects scenic values, economic values and the sense of privacy.
  - b. Some communication sites are poorly maintained and the appearance of equipment buildings is often incompatible with adjoining residential areas.
2. The FAA requirements regarding the coloring and lighting of towers are:
  - a. Any tower over 200' tall must be painted aviation orange and white and lit with sidelights and top beacons unless the FAA grants a waiver.
  - b. The FAA will allow towers over 200' tall to be painted other than orange and white if day and night strobe lights are installed.
  - c. If a tower is near an airport, or in the airport's flight path, lighting and coloring requirements may apply for towers less than 200'. Generally, these requirements apply if a tower is within 20,000 feet of a major airport or within 10,000 feet of a general aviation airport (like the Jeffco Airport).
  - d. The FAA has the discretion to grant waivers under specified conditions; for example, if a tower is proposed near a taller existing structure, painting and lighting requirements might be waived.
3. The factors that must be considered in looking at visual impact are:
  - a. Relationship of tower location to visual corridors for homes, cars, pedestrians and bikes.
  - b. Type of terrain and near and far visual impacts.
  - c. Presence of trees which help shield or block view angles for those around towers.
  - d. Use of colors and materials which are compatible with surrounding area.
  - e. FAA requirements for coloring and lighting.

### **Policies:**

1. Telecommunication facilities should result in a minimal visual impact for those residents in the immediate area and for those in the larger community who view these facilities from a distance.
  - a. Examples of minimal visual impact would be:
    - 1) A facility sited so that at least 80% of the height of the tower(s) and accompanying structure(s) is screened from view from off of the subject property by vegetation or landform.
    - 2) A uni-directional facility which is surrounded by vegetation or landform that screens the tower(s) from view on the non-broadcast side and screens accompanying structure(s).
    - 3) A facility where all broadcast equipment is contained within a building, the size, character and location of which is permitted by the underlying zone district.
    - 4) A facility that is located down-slope from the top of a ridge line so that from key public viewpoints, a minority of the height of the tower is viewed against the sky.
  - b. For facilities located in highly developed portions of the County, buildings may be used to accomplish the screening noted above.
  - c. It is acknowledged that large, multi-use towers located within major use transmission areas cannot be effectively screened. In order to minimize the visual impact, such new facilities should be located in close proximity to other comparable structures. Accompanying buildings, ground-mounted antennas, and other equipment and structures should be subject to screening recommendations.
2. The visual impact of telecommunication facilities should be compatible with the aesthetic character of the surrounding area.
3. FAA requirements for coloring and lighting of towers must be considered in looking at visual impact.
4. The specific communication facility design issues that should be examined in looking at visual impact are: coloring, lighting, relationship to view corridors, topography, materials and architecture. Towers and antennas should be neutral in color to blend with the visual backdrop, unless specifically required by the FAA to be painted otherwise.
5. The visual impact of existing communication facility sites should be reduced where possible.
6. To minimize the visual impact of new telecommunication towers, these measures should be implemented where possible:
  - a. Avoid tower heights and locations which necessitate FAA coloring and lighting. Towers of any height should not be lighted unless specifically required by the FAA. If FAA lighting is required, strobe lights should be avoided unless specifically required by the FAA.
  - b. Tower and antenna consolidation.
  - c. Locating away from key public viewpoints.

- d. Utilize monopoles or guyed towers rather than bulky self-supporting lattice towers whenever possible.
- e. Placement of two-way and microwave antenna inside accessory buildings when technically possible.
- f. Locating towers near similar uses or near industrial areas.
- g. Planning antenna on existing structures of sufficient height (i.e., water tower, buildings, etc.).
- h. Any new road to a telecommunication site should be acceptable to County Engineering and the local fire department and its visual impact should be minimized by reseeding excavated areas, avoiding cuts and fills when possible, and other feasible measures.
- i. Where possible, waivers to FAA coloring and lighting requirements should be sought.
- j. Careful placement of power lines.
- k. Noise impacts could be minimized through careful location and screening.
- l. Placement of two-way towers within forested areas with antennas just above treeline.

**7.** To minimize the visual impact of microwave dishes and commercial satellite operations, these measures should be used if technically feasible:

- a. Microwave dishes
  - Place inside structures.
  - Use non-reflective colors - galvanized or gray.
  - Use open grid dishes instead of solid ones.
- b. Commercial satellite operations:
  - Use colors compatible with the surrounding environment.
  - Incorporate landscaping.
  - Place in depressed areas shielded from view.

**8.** To minimize the visual and noise impacts of new equipment buildings and accessory uses (fuel tanks, fences, etc.), these measures should be utilized:

- a. Equipment buildings should blend in with the surrounding area by considering coloring, texture of materials, topography and scale of buildings.
- b. Fuel tanks can be buried or screened with landscaping, fencing or berms.
- c. Trash areas can be screened.
- d. The noise impacts of cooling and other types of equipment could be minimized through proper location and screening.
- e. Noise should not exceed state noise standards.

**9.** To minimize the visual and noise impacts of existing communication sites, these measures should be implemented:

- a. Within a specified time period, all existing sites used primarily for communication (not those where communication is accessory to a business like a towing business with two way communication equipment) should minimize visual and noise impacts by using the following measures:

- 1) Making equipment buildings compatible with the surrounding area by considering coloring, texture of materials, landscaping and screening. This should be done within a three year time period.
- 2) Burying and screening of fuel tanks. This should be completed within one year.
- 3) Unused or abandoned equipment must be removed, stored inside, or screened. This should be completed within one year.
- 4) The noise impacts of cooling or other types of equipment (like that used for UHF TV) could be minimized through proper screening. This should be completed within one year.
- 5) Noise should not exceed state noise standards.
- b. Measures other than regulation such as tax incentives should be considered to encourage the clean up of existing sites.
- c. Abandoned towers should be removed. County legal staff should explore ways of doing this.

## **Residential Interference**

### **Findings:**

- 1. The key concern related to residential interference is: Residences near areas with high RF levels often experience interference to their electronic appliances which is inconvenient and may result in the need of equipment modifications.
- 2. The representative interference problems experienced by some of the residents of Lookout Mountain are:
  - a. VCR operation results in fuzzy pictures.
  - b. Garage door openers are erratic - often times, the operator must be right in front of the door to make it work; sometimes, garage door won't open.
  - c. Cordless phones shut off or have extreme levels of static.
  - d. Regular phones pick up FM stations.
  - f. KOSI is picked up on the low-band emergency radios. This problem is also experienced by low-band users outside the Lookout Mountain area.
  - g. Radio stations such as KYGO, KPKE, and KOSI are received on stereo turntables.
  - h. Tape recorders won't work - just get a buzz.
  - i. TV stations often received on different dial settings.
  - j. Computers - fuzzy images received on terminals.
- 3. The factors which influence interference problems more than others are:
  - a. Close in residences receive more interference unless screened by topography.
  - b. Interference problems seem to increase when there is snow on the ground.
  - c. Increased interference occurs during the morning hours.
  - d. Being on the same horizontal plane as tower antennas increases interference problems.
- 4. The probable causes of these problems are: