

Worst Case Scenario - Lateral

- **However,**
 - Tower is surrounded by steep downhill slopes.
 - Debris will interact with the ground and travel even farther.
 - Debris with momentum could be expected to travel several hundred feet before coming to rest.
 - **Therefore, WORST CASE SCENARIO debris radius is 1800 + feet from the tower base in any direction.**

Tower Collapses Kill and Injure People

- The proposed tower represents more than 650,000 lbs of shrapnel, traveling at 100 mph, that may strike any object within the **WORST CASE SCENARIO** debris radius.

Tower Collapses Kill and Injure People

- In the **WORST CASE SCENARIO**,
**21 residences and 3 businesses are at
risk!**
 - LCG has options on **only two** of the homes and
none of the businesses!

Tower Collapses Kill and Injure People

- **THE TOWER SETBACK REQUIREMENT
IN THE ZONING REGULATION IS THERE
TO PROTECT THE RESIDENTS.**

Questions for Lake Cedar Group

- Has Mr. Hill, as a registered professional engineer, ever designed an antenna transmission tower of at least 854'? Has such a tower been built?
- Are there any towers of at least 854' in height, designed by anyone, any where in the world that have been designed to collapse within a radius of 25% or less of their height in all failure modes? Assume an act of sabotage is responsible for the failure: please explain how the tower works in a simultaneous failure of all of the anchors on one side of the tower.
- Will Mr. Hill and WJE take professional engineering responsibility for LCG's claim that they can design a tower that will not exceed 215' debris radius for all possible tower failure modes?

Questions for Lake Cedar Cedar Group

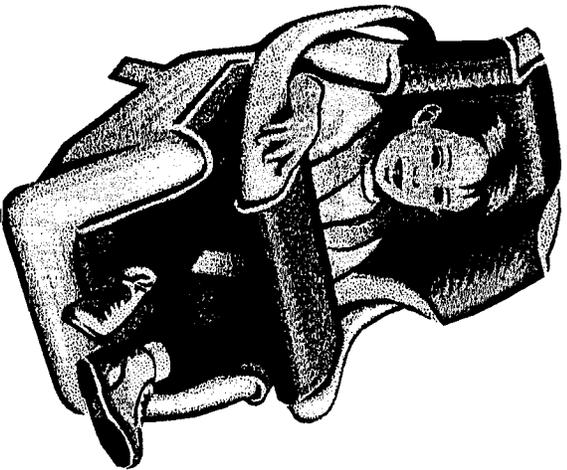
- Has there ever been any tests to substantiate LCG's claim that a tower of at least 854' can be designed to collapse within a radius of 25% of it's height under a failure mode that includes guy cables failing?
- In the event the Commissioners elect to accept any setback less than the 1800' WORST CASE SCENARIO setback:
 - How will LCG's and it's successors guarantee that this tower will not be sabotaged, or in any other way experience a guy cable or anchor failure during the tower's life? What monetary resources will they use to back up their guarantee? Is LCG a limited liability corporation, willing to expose all of the partners to such liability?
 - Who will insure compensation, from now until the tower is removed, for life and property of the residents that are within the potential debris radius in the event of a tower failure?

Conclusion

- Protecting people from the LATERAL FAILURE MODE is protecting people from the WORST CASE SCENARIO.
 - This is what is required by the zoning regulation.

Conclusion

- The County should protect us from the 1 in 10 chance of the proposed tower collapsing.



- C.A.R.E. respectfully asks the Board of County Commissioners to deny the Lake Cedar Group tower as our County Planning Department has recommended.

BOB BARRETT
CONSULTING ENGINEER
792 Aspen Road
Golden, Colorado 80401-9439
(303) 526-1800 (main)
(303) 526-1805 (fax)

January 5, 1999

**RE: Analysis of Debris Radius for Proposed
Lake Cedar Group Tower
(B2CE PROJECT NO. 99001.00)**

Dear CARE Board:

As requested, I have conducted an engineering study of possible debris radius should Lake Cedar Group's (LCG) proposed broadcast tower collapse. This letter summarizes my findings.

INTRODUCTION:

In this report, I define "debris radius" as the distance from the base of the proposed tower to the farthest significant debris from the tower, its antennae or its structural support system (including guy lines) in the event of a particular mode of structural failure of the tower.

As you know, my expertise is in mechanical engineering, not structural engineering. Therefore my study did not concern itself with specific elements of the tower's structural design. The purpose of my study was to conduct an engineering inquiry into the possibility that tower debris would extend past Lake Cedar Group's (LCG) property line in the event of a tower failure.

I did not establish the probability of any mode of failure. It is my professional opinion that extension of the debris radius past LCG's property line is probable enough that Jefferson County should retain a qualified firm to conduct a more in-depth engineering study. This firm should establish the probability of each of the failure modes discussed below. This will allow Jefferson County to decide if the risk to public safety from the collapse of the proposed tower is acceptable, and if the County is willing to assume the liability for such a decision.

For the most part, I have also not addressed the "collateral" damage that is possible in the event of a tower failure. Almost every structural collapse in an occupied area creates more collateral damage than structural damage. Debris may affect other communication towers (including Police and emergency transmitters). Fire and natural gas or diesel fuel releases are distinct possibilities in the event of any mode of tower failure. The County should also consider its liability with respect to wildfire or other environmental damage caused by a tower failure.

My calculations of debris radius use relatively simple geometry and dynamics equations.

METHOD:

I examined the information you gave me to review. It included a "Submission for the Record, Public Hearing before the Jefferson County Planning Commission", dated December 2, 1998; the Lake Cedar Group LLC "Official Development Plan" (four drawings dated 2 NOV 98); and an architectural elevation

of the tower and support building entitled sheet A-4 "LOOKOUT MOUNTAIN TRANSMITTER BUILDING", dated NOV 2, 1998.

I spoke to two structural engineers from the firm of Martin/Martin, Inc. in Wheat Ridge Colorado. These engineers have been responsible for performance specifications for broadcast and conveyance towers. They have also performed structural review and mitigation of weakness in existing broadcast towers and designed foundations for towers and guy anchors throughout the country. We discussed the nature of possible collapse mechanisms (called "modes" below), and their opinion of the likelihood of such events. They concurred that all of the failure modes discussed below are theoretically possible. I also had a brief telephone conversation with Mr. Raymond C. White, P.E. of Kline Towers.

I conducted a very brief Internet search on broadcast tower failures.

FINDINGS:

- 1) Broadcast towers fall down. According to my Internet research, several self-supporting and guyed towers have collapsed in recent years. The weight of the debris is significant. Each thirty-foot section of the proposed tower may weigh as much as 8 tons according to Kline Towers. The antennae and cables add several more tons of projectiles in the event of lateral or inertial tower failure.

On Lookout Mountain, a self supported 330-ft. tower (for KOA), failed while under construction in December of 1953, then again 15 months later. See the attached newspaper articles.

- 2) Guyed towers may fail in several different "modes". If any one of the hundreds of structural members or connections in the tower should fail, the tower may experience axial mode collapse. If both anchors (or most of the guy lines) on the same side of the tower fail, full lateral and inertial mode collapse are possible.

- a) **AXIAL MODE:** The most common mode of guyed tower collapse is axial failure. There is no redundancy in the structural members of such towers. Failure of a single member may cause the tower to "fall in upon itself". Kline Towers, the supplier of LCG's proposed tower reports that the median debris radius for a guyed tower that fails primarily due to icing is 20% of the tower height (their letter to Mr. J. Bart Johnson, dated December 22, 1998). The deviation from this mean is considerable. Failures that include other significant factors (such as wind) create much greater debris radii. In addition, smaller debris (such as antennae) may travel outside of the significant debris radius area. In my opinion, it would be imprudent to accept a debris radius value of 170 feet.

Elsewhere in the same letter, Kline defines the debris radius for an axial failure as "within ... its inner guy anchors". This value is shown as 325 ft. on the "Official Development Plan", and is the value used in my analysis.

- b) **LATERAL MODE:** It is possible for a tower to "fall like a tree", with debris extending approximately as far away as the tower is high. This can happen on a well designed and constructed tower that is simultaneously exposed to design ice and design wind loads. See the attached Internet posting concerning a 2000-ft. tower in Fargo, ND.

According to Kline Towers, each section of the proposed tower is rigidly connected to the adjacent section. Such connections would probably allow the tower to stay together as it fell; extending the debris radius at least as far as the tower is high. The tower and its highest antenna are approximately 850' above the ground.

It appears that collapse of one of the existing broadcast towers to the west of the proposed tower

could also create some lateral type failure by striking the proposed tower's guy lines.

I have used a value of 850 ft. for this mode in my analysis.

- c) **INERTIAL MODE:** It is theoretically possible for a lateral failure to cause the "loosened" guy lines and remnants of their anchors to "whip" past the end of the tower as it falls. In such a case, the debris radius would be an additive function of the longest guy lines and the tower elevation (less the top antennae). Therefore, it is theoretically possible for significant debris to extend 1800+ feet from the tower base in any direction.

The tower will carry the undamaged guy lines to the ground with it. It is possible for the inertial energy of the fall to create loops of guy wires that extend outward from their anchor points on the ground and from the collapsing tower. This is analogous to throwing a jump rope over one's head. The loop extends much farther from the center of motion than its anchor points (one's hands). Similarly, a portion of each "loop" of guy cable could extend much farther from the tower's base than either its anchor or its connection on the tower.

Presumably, debris would interact with the ground and travel even farther away from the tower base due to the potential energy released in the fall. Gravity would enhance travel for any debris directed "downhill" after it contact the ground. On the steep side-hill to the east of the tower, some debris may be expected to travel several hundred feet before it comes to rest.

I have used a value of 1150 ft. for this mode in my analysis.

Simultaneous icing and wind loading, an airplane strike or a well-designed, but simple act of sabotage can all create lateral and inertial mode failures.

A simple geometric analysis of the tower location with respect to LCG's legal description and graphic plot of its property line was performed.

The "Official Development Plan" EAST ELEVATION drawings show several sets of guy wires supporting the tower. On these drawings, the tower is diagrammatically shown in relationship to its anchors on a flat surface. The elevation contours on the other drawings show the real "lay of the land". All three "long guy" anchor points are actually located at an elevation below the base of the tower.

The longest anchors are depicted to be approximately 600' (perpendicular) from the base of the tower. The eastern-most guy will be over 1100 feet long due to the drop in terrain towards Golden and Denver. The longest northern guy anchor point is shown to be approximately 125' below the base of the tower. Its length calculates to approximately 1040'. The longest southern guy anchor point is shown to be approximately 50' below the base of the tower. Its length calculates to approximately 975'.

- 1) **AXIAL MODE DEBRIS RADIUS:** *A circle with a radius of 325 ft. (adjusted for the terrain change in elevation), and center located at the tower base extends outside of the property line in several locations to the west of LCG's property.*
 - a) *Approximately 100 feet of Cedar Lake Road is within the debris radius.*
 - b) *Several existing towers, and other broadcast structures (on LCG's property) fall within this radius.*
 - c) *Two private lots, including one residence (21109 Cedar Lake Road) also fall within this radius.*
- 2) **LATERAL AND INERTIAL MODE DEBRIS RADIUS:** *The worst case tower failure would see collapse to the northwestern or southwestern quadrants. This is where other towers and residences are closest to the tower. It could occur with an eastern or up-slope wind and failure of the eastern guy wires or guy anchors.*

The topmost antennae and tower would fall "like a tree" and extending approximately 850' up the hill

(to the west). The remaining, anchored guy lines would form several loops of heavy cable as the tower fell. The longest cables would extend from the top of the tower (approximately 720' from the tower base) to each of the remaining two "long guy" anchor points. Depending on the exact direction of the tower's fall, the guy wires could form a loop that at some points extend over 1000 ft. from the base of the tower.

The possibility of full extension of the loosened guy lines (+1800 ft.) is very slight due to the rise in elevation and likelihood that the cables would encounter other obstructions before full extension. However I have added a minimal safety factor to the calculated loop radius (adjusted for slope distance) to account for the enormous potential energy contained in the tower and tower guy cables. This may not be adequate in any direction that is downhill from the debris impact point. However, most of the terrain of concern projects uphill in the direction of impact.

- a) Approximately 1600 linear feet of Cedar Lake Road, several more existing towers, and other broadcast structures all fall within this radius.
- b) In addition, approximately 250' of Aspen Road (outside of LCG's property line) fall within this radius.
- c) Three additional residences on Cedar Lake Road (21139, 21189, and 21209) also fall within this radius.
- d) At least two residences on Aspen Road (732 and 743) fall within this radius.
- e) I did not have time to determine all of the locations where impact debris material may travel downhill. But it appears that several additional residences to the northwest and southwest of the proposed tower on Cedar Lake Road and Aspen Road may be in harm's way.
- f) A lateral or lateral and inertial failure of the proposed tower could cause failure of one or more of the existing tall towers to the west (e.g., KDVR, Channel 31). Secondary lateral failure of these towers (in the direction of the proposed tower's fall or down the fall-line of the mountain) may affect an additional ten residences on Cedar Lake Road and Aspen Road.

It is my professional opinion that all of the failure modes and resultant debris radii discussed above are possible. In my opinion, a reasonable engineering "offset" from the base of the tower to "protect dwellings outside of the property line" should extend at least 1200 feet from the base of the proposed tower. This offset does not exist in the case of Lake Cedar Group's proposed tower.

I hope you will find this information useful.

Sincerely,

BOB BARRETT
CONSULTING ENGINEER



M. Robert D. Barrett, P.E.
Principal

MRDB/b2

Attachments: First page of Kline Tower's letter to Mr. J. Bart Johnson (1 page)
Newspaper clippings of KOA's TV tower collapse (2 pages)
Representative Internet postings on tower failure (5 pages)



December 22, 1998

VIA FAX: 303-625-6525

Mr. J. Bart Johnson
 Otten, Johnson, Robinson, Neff & Ragonetti, P.C.
 Colorado National Bank Blvd., 16th Floor
 950 Seventeenth St.
 Denver, CO 80202

Re: Denver Starmount Tower
 Lookout Mountain, Colorado
 Kline Ref. No. 96-185

Dear Bart:

As requested, I have reviewed Item 1 concerning falling ice and tower failures in Mr. Timothy Carl's letter dated December 9, 1998 and will address each of these items to what I trust will be both his and the Jefferson County Planning Commission's satisfaction.

Regarding the possibility of a tower collapse, let me first say that any discussion along these lines should be prefaced by our opinion that the collapse of a tower is highly unlikely. In the unlikely event that a guyed broadcast tower would collapse, its ultimate failure mode would be the buckling of the tower shaft. Whether the failure is initiated by the buckling of an individual column (tower leg) or by the failure of a guy cable, the tower will collapse down on top of itself, typically within a radius defined by its inner guy anchors. This behavior is attributed to the collapsed tower being both pulled and guided to the ground by the guy cables, despite the fact that one or more of the guys may have failed.



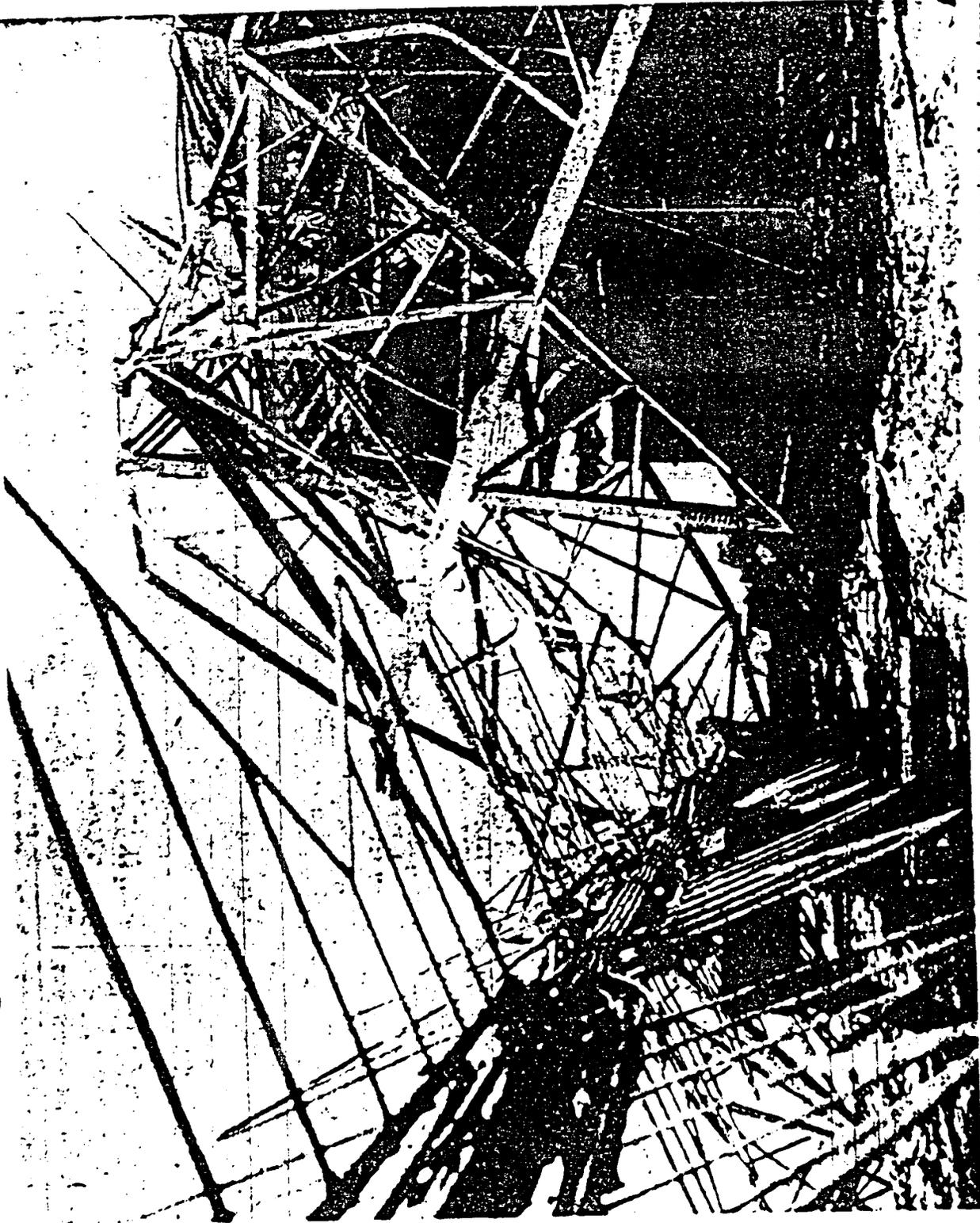
325'
 ON OFFICE
 DEVELOPMENT
 PLAN

At this time I am only aware of one source of information regarding an accumulation of data with regard to tower failures. This is a paper prepared by Mr. Nathan Mulherin entitled "Atmospheric Icing and Tower Collapse in the United States" which was presented at an International Workshop on Atmospheric Icing of Structures in June of 1996. Mr. Mulherin noted that in the cases he studied, the median collapse radius was 20% of the tower height. Based upon Mr. Mulherin's study, the collapse radius of the proposed tower would be expected to be 170 ft. (20% of 851 ft.). As we understand it, the nearest residence is approximately 250 ft. from the site of the proposed tower.

MEDIAN
 ICE ONLY



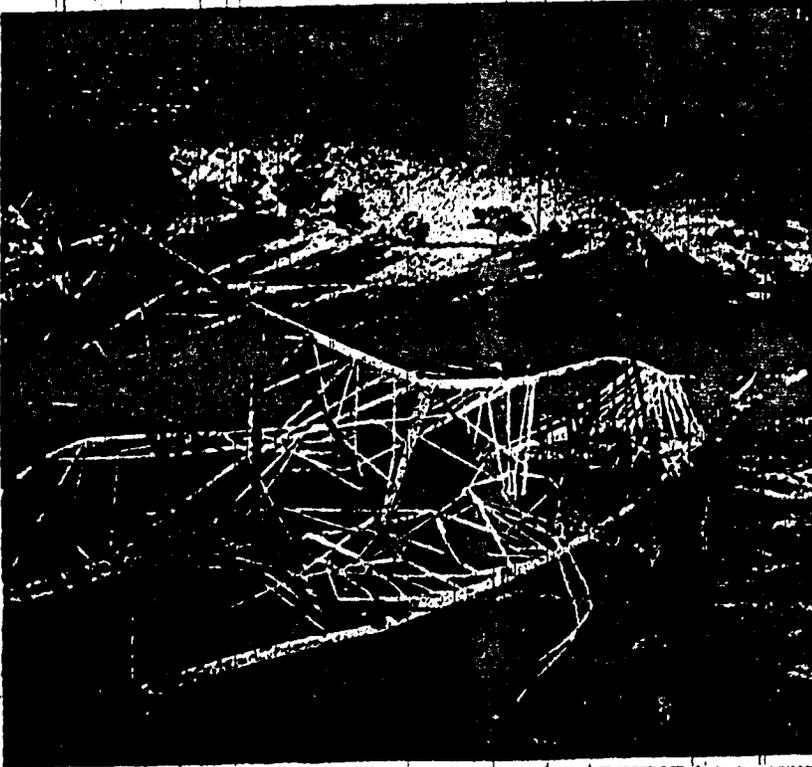
Falling TV Tower Tears Hole in Building



Monday Dec. 7, 1953, Denver, Colo. — ROCKY MOUNTAIN NEWS—68

KOA-TV's 300-foot tower on Lookout Mountain was knocked tumbling down. The falling tower tore a gaping hole in the transmitter building, at right. STORY ON PAGE 11.
—Rocky Mountain News Photo.

High Winds Hurl TV Tower From Mountain



The KOA-TV tower lies twisted and torn atop Lookout Mountain after winds hurled it to earth. Winds sweeping over the mountains were estimated up to 60 miles an hour by residents. The fall caused no damage to nearby cabins nor the tower maintenance building. A maintenance man was in the building when the tower fell. Damage was repaired Thursday night. (STORY ON PAGE 11.) —Rocky Mountain News/Photo.

High Winds Hurl TV Tower From Mountain

By BILL JONES
Rocky Mountain News Writer

A choking dust storm swept Colorado's eastern plains Thursday, howling over the KOA-TV 330-foot tower atop Lookout Mountain for the second time in a little more than a year.

Even as the winds boomed through the drought-stricken area, U.S. Soil Conservation officials were labeling wind damage there the worst since the 1937 blow.

The Channel 4 station went off the air at 3:40 p.m. as its \$60,000

tower toppled in the face of fierce winds.

After a little more than five hours wait—at 8:40 p.m.—crews had the station back on the air.

TEMPORARY SITE

The station's antennas was placed on top of the Lookout Mountain

Maintenance Bldg. in a temporary installation.

RCA officials flew a new antenna out of Rochester, N. Y., at

Picture on Page 14

3 a.m. Friday. KOA officials said they expect to erect a second tower with the new antenna on top within a week and a half.

Winds toppled the giant tower Dec. 6, 1953, three weeks before its debut. The station went on the air Christmas Eve with a temporary tower that was replaced with a permanent installation six months later.

The storm broke through Denver from the West at noon and winds were clocked as high as 60

miles an hour during the afternoon. At 8 p.m., they slackened to 10 miles.

PASSES SLICK

Meanwhile, mountain stations were reporting heavy snowfall. The State Patrol warned motorists that passes were snow packed and slippery.

Soil Conservation officials Thursday said more than 2 million acres in the eastern counties had been damaged by wind from Nov. 1 to Jan. 1, worst since the mid-1930s.

The U.S. Agriculture Department announced half the state's more than 3 million acres of winter wheat was lost.

These were the reports throughout the state as the storm blew over.

Akron—Mud-covered hail fell from a thunderhead as dust reduced visibility to 300 feet.

VISIBILITY FOE

La Junta—Gusts up to 60 miles an hour. Visibility one-half mile.

Lamar—Gusts up to 45 miles an hour. Visibility one-half mile.

Trinidad—Gusts up to 65 miles an hour. Visibility one mile.

Area Soil Conservationist Morris Semper announced Thursday

Electric Wiring Explained on TV

Electricity and wiring will be discussed in the "Your Home" TV program at 5 p.m. Saturday over KOA-TV Channel 4 now that the KOA tower, which blew over Thursday, has had its electricity and wiring repaired.

Sponsoring the program is the Apprenticeship Training Department of Opportunity School in co-operation with the Joint Apprenticeship Advisory Committee and the Denver Building Trades Council.

between 40,000 and 50,000 acres of crop land in Conson County, Wyo., had been damaged by wind erosion.

SNOW ON MONARCH

Heaviest snowfall was reported at Monarch Pass with 14 inches during the day. Average fall was 9 inches on the Western Slope.

U.S. Weather Bureau officials forecast diminishing winds in Denver and the plains Friday.

Forecasters said some of the dust carried by the storm would move eastward possibly as far as Kentucky and Tennessee because of the strong overhead currents.

KOA-TV officials in Denver told reporters they would have engineering studies made of their Lookout Mountain tower site in the wake of the tower's two tumbles.

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[TowerTalk] 2000' tower collapse (Fargo, ND) - more

Joe Subich (W8IK@ibm.net)
Mon, 07 Apr 97 20:16:14 -0400

- **Messages sorted by:** [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)
- **Previous message:** [K4OJ@aol.com: "Re: \[TowerTalk\] removing silicone"](#)

After posting the information on the 2000' tower collapse in Fargo, ND this past Saturday, I had a chance to see video of the site today. Unlike the Monroe, IA collapse, this one appears to have generally laid out for most, if not all its entire length.

Considering that the Fargo tower was brought down by severe ice and wind (a major blizzard/sleet storm was in progress), this tower looks like the upwind guy wires failed allowing the wind to blow it down. With the National Association of Broadcasters convention in progress this week, I suspect it will be some time before further details and an exact cause is determined.

Fortunately, there was nobody on site in Fargo and thus no injury or loss of life. OTH, replacement towers and broadcast transmitters are not cheap. Figure the Fargo and Monroe losses in the \$3 million plus range, each (not counting the loss of business <G>).

73,

... Joe Subich, W8IK ex-AD8I
<W8IK@ibm.net>
<jsubich@ibm.net>

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FAQ on WWW: <http://www.contesting.com/towertalkfaq.html>
Submissions: towertalk@contesting.com
Administrative requests: towertalk-REQUEST@contesting.com
Problems: owner-towertalk@contesting.com

- **Previous message:** [K4OJ@aol.com: "Re: \[TowerTalk\] removing silicone"](#)

1550 ft. Tower Fails

Kris Mraz, N5KM (mraz@rockdal.aud.alcatel.com)

Tue, 15 Oct 1996 09:09:07 -0500

- **Messages sorted by:** [date] [thread] [subject] [author]
- **Next message:** [Chuck Bradburn: "Re: Open in 60s"](#)
- **Previous message:** [sawyers: "Re: Guy supports"](#)
- **Next in thread:** [Del Sany: "Re: 1550 ft. Tower Fails"](#)

I'm not sure how widely this story was distributed but I'll repeat it here.

Last Saturday morning a 1550 ft. television tower failed at Cedar Hills, Texas just Southeast of Dallas. Three men were killed. The men were in the process of installing a new antenna using a gin pole. One man was near the top of the tower and the other two were near the base. Cause of the failure is unknown at this time. There is speculation that there may have been human error in the use of the one ton gin pole. FBI investigators have ruled out sabotage. There is also another story that indicates the men were also trying to get a bend out of one of the guywires. (I'm a little unsure of this last point. Its difficult at times to interpret a reporter's version of the facts when it gets technical).

There are several other similar towers at Cedar Hills. This is the site of most of the TV/radio towers that service Dallas/Ft. Worth. At the time of the failure several TV and radio stations went off the air. All TV stations were back on the air within a few hours except Channel 39 and the radio stations that shared their tower. There were also minor fires/explosions and power loss as a result of the collapse.

According to newspapers the tower had failed before in 1969 and in 1987 a jet had flown into one of its guywires and crashed but the tower stayed up.

Also according to the newspapers the tower was wind rated to 70 MPH. This seems incredibly low considering the size of this tower and this part of the country.

--

73
Kris N5KM
mrz@aud.alcatel.com

--

FAQ on WWW: <http://www.contesting.com/towertalkfaq.html>
Submissions: towertalk@contesting.com
Administrative requests: towertalk-REQUEST@contesting.com
Problems: K7LXC@contesting.com
Sponsored by Akorn Access, Inc & KM9P

- **Next message:** [Chuck Brantahl: "Re: Open in coax"](#)
- **Previous message:** [samper: "Re: Gay supports"](#)
- **Next in thread:** [Del Seay: "Re: 1550 ft. Tower Falls"](#)

[SBE] Ice Storms

Allen Sklar (ajs@airwaves.com)
Tue, 13 Jan 98 02:41:49 PST

- Messages sorted by: [date] [thread] [subject] [author]
- Next message: Oscar: "[SBE] E.H.H."
- Previous message: Dave Hieadi: "[SBE] Chapter 62 on "The Net"

To: broadcast@broadcast.net, radio-tech@broadcast.net, sbe@broadcast.net

From: Allen Sklar <ajs@airwaves.com>

Subject: [SBE] Ice Storms

Date: Tue, 13 Jan 98 02:41:49 PST

Hello All...

I found this on the [airwaves.com](http://www.airwaves.com) mailer

http://www.airwaves.com/AIRWAVES_ONLINE

Message-Id: <9801130702884674962.rrb15048@airwaves.com>

Date: Tue, 13 Jan 1998 07:02:42 GMT

From: NewsRadio <jmckay@interlog.com>

Subject: Ice Storm: Important info for tower owners in Quebec/Ontario

Organization: ISP

Reply-To: jmckay@interlog.com

Summary:

ICE STORM INFORMATION FOR TOWER OWNERS

Monday, January 12, 1998. This information is posted as an advisory for our customers by LeBlanc.

We will be posting important information for broadcasters and tower owners here by the end of the day. Several older broadcast towers have already collapsed due to the extreme icing conditions in Ontario and Quebec. As a safety precaution, technicians working in and around communications and broadcast tower sites should exercise extreme caution due to the dangers of falling ice and the possibility of tower structural collapse from the overloading weight of ice. Many towers in this region are reported to have upwards of 4" of radial ice whereas the current design code calls for only 1".

Older towers may not have been designed to withstand any ice at all. The
<http://www.broadcast.net/bmail/sbe/0129.html>

1/5/99

web site for the above has been set up at:

<http://www.broadcast.net/bmail/sbe/0129.html>

We hope to have additional information, guidelines, and recommended remedial action plans posted there later today for broadcasters and other tower owners who have structures that were involved in the Ontario/Quebec ice storm.

Regards;

John McKay--

**The Canadian Broadcast Directory
and Broadcast Engineering Page:**

<http://www.interlog.com/~jmckay>

Southern Ontario Storm Chasers/Canwarn Page:

<http://www.interlog.com/~jmckay/chaser.htm>

Allen Sklar Member

asklar@northrim.net SBE, ARRL, IEEE

aa7bj@amsat.org

Chief Engineer, KTFL, KMXM, KIKX, KTPZ, KMHI, AA7BJ

FM Idaho Co. Impact Radio Group, Twin Falls ID

- **Next message:** Oscar: "[SBE] Hello"
- **Previous message:** Dave Blondi: "[SBE] Chapter 62 on 'The Net'"

Witness Testimony

Ronald Selstad

1 minutes. All of you get out and stretch and take a walk and then we will all come
2 back.

3 HOLLOWAY: We're back. Is the sound on?

4 UNKNOWN: Yes.

5 HOLLOWAY: Okay, great.

6 **SELSTAD:** Am I on? It's live I guess. My name is Ronald

7 Selstad and I reside at 23461 Morning Rose Drive. I am also one of co-owners
8 and administrative office manager of Metro Brokers Lakewood. We are an
9 association of 28 companies with 43 brokers and we serve the West Metro area
10 for about 23 years. We list 200 to 400 properties per year and we also act as
11 buyer agents for an equal number. I am also a registered appraiser and a
12 president of the Reservation of Genesee Homeowners Association. And with
13 that I have developed and am presenting to you, I have given you a copy of a
14 summary of data obtained from your tax records. It includes the total number of
15 homeowners in two zones. The first is about 1 1/2 miles of the proposed tower
16 and the second is between 1 1/2 and 3 1/2 miles from the tower. Within Zone 1
17 as shown as a present property value of between 240 and 265 million dollars.
18 Taxes paid about three million dollars. Zone 2 in addition present property value
19 1.1 billion dollars. Taxes paid 11 to 12 million dollars. Total of about 7,000 to
20 7500 homes, 1.35 billion dollars in property and 14 to 15 million dollars in taxes.
21 From those numbers the Real Estate Commission and the code of ethics require
22 that anything adverse, part of the property that may impact the value should be
23 disclosed to potential buyers so they can make a decision based on those

1 factors. The caveat among responsible Realtors is if in doubt, disclose.
2 Disclosures regarding those towers the existing and proposed have started
3 being made already. Realtors serving Lookout Mountain and Genesee areas,
4 those disclosures will effect values. Matter of fact if this thing is passed I would
5 really recommend we change the name to the Realtor Retirement Act because it
6 will be a real boon to the listings in the mountains. You heard a lot of testimony,
7 you have heard about health effects, electronic interference, visual blight, if it's
8 approved those concerns will translate directly in a significant and adverse
9 financial impacts on values and taxes. Residents have stated already in this
10 meeting and to me if the tower is approved they will move for whatever price
11 they can get. The question of how adverse the impact will be can only be told
12 by time but by then the damage will have been done. For Zone 1, 1 1/2 miles I
13 would estimate the loss in value if this tower is approved between the range of
14 10%. I have heard figures higher I would go with the minimum number of 10%
15 that would yield a potential property value loss of 24, 26 million dollars in Zone 1
16 alone with taxes, if you include the figure in Zone 2, we are dealing with 1.35
17 billion and the losses are enormous. It's already happened in my area people
18 are lowering prices to sell homes based on concern about this tower coming in.
19 One in my area has gone down 17% already, just to get out. Two others have
20 already said they are going to sell if this thing is approved at whatever price they
21 can get. Contamination we are being asked to accept and by the way on this
22 map on Zone 2, I live where my finger is, about 3.4 miles from shall we say
23 ground zero and about the same distance Ralston is from the tower. The irony

1 here is two-fold, one is the corporate entity asking you to make the decision is
2 the minimal liability, they are a corporation once you pass this decision the
3 (inaudible) falls on you. If values drop, if tax revenues drop, it falls on your
4 decision here. Not because of their request, but it falls on you. I have done
5 things like this before, I have sat as a counsel person, I have looked at decisions
6 like yours, it's hard, it's tough. But, I think...may I have a glass of water please?
7 I think the one thing is that the nice thing about being in your seat is you get to
8 decide what's right and do the right thing. I think we have had hundreds and
9 thousands of people presenting faxes and testimony and speaking from their
10 heart to you. What I am here to tell you is, that it's not just speaking from the
11 heart. It is going to affect directly. The school district gets about 60% of those
12 tax revenues. The County gets about 30% of those tax revenues. We are
13 talking large amounts of taxes. If you do pass this thing or when you look at the
14 question to pass this thing, I think you have to ask a couple of questions, several
15 at least three. One is this vote in the best interest of my constituents. I would
16 certainly answer that myself "no". What are the benefits costs and risks to the
17 County? The health thing is still unknown I am not talking about that I am talking
18 about dollars and cents in real estate. I mean 1.35 billion dollars is to me quite a
19 bit of money. The prospect of having a large number of listings selling quickly
20 whatever is very enticing but don't do it, just don't do it, it would be just terrible
21 for the constituents. The last thing is if this does happen, I think Jefferson
22 County staff and Assessors have to consider how they are going to deal with the
23 lowered values and the tax revenues as a result of the visual blight and fears

1 about that tower. The time and resource draining the county is certainly going to
2 increase. There is a lot of people protesting the assessments, which I think they
3 should. My family made up of myself, my wife and two teenage daughters own
4 property about 3.4 miles from the tower in the vicinity of Genesee Ridge Road
5 and Brook Crest. We are not on Lookout Mountain we are 3.4 miles away and I
6 have still got a real concern about that. At that distance emission levels are still
7 expected to increase by a factor of 60 times, that's 6-0 times, I am concerned, I
8 have two teenage daughters, I have heard no guarantees as levels we are
9 talking about will guarantee the safety of my family nor based on the subjective
10 and sometime contradictory testimony of the applicants. I am not sure that I
11 believe the guarantees. Their homes and families are not in the shadow of way
12 path of the tower. They will not have to worry about the long term benefits, only
13 long term profits at any cost. On behalf of my family and the president of the
14 Reservation of Genesee Homeowners Association I am expressing in the
15 strongest terms a unanimous opposition to the proposed tower. Do you have
16 any questions? Sir?

17 SHEEHAN: Do you base this on Dr. Hutchison's estimate of
18 15%?

19 SELSTAD: He is speaking after me.

20 SHEEHAN: Oh, okay.

21 SELSTAD: Again, I estimated 10% he will speaking to whatever
22 his opinions are.

1 SHEEHAN: Do we actually have any statistical enthuses based
2 on current towers of reduction of property values in these areas over a period of
3 time, (inaudible) okay.

4 SELSTAD: My biggest figures come from similar facilities that
5 have cause, concern about areas. Rocky Mountain Arsenal, Rocky Flats, 6th
6 Avenue Estates, I hate to mention it but it's happening. If there is concern about
7 something it effects values, it effects sale time, it effects the eventual price.

8 HUTFLESS: Ah, just a reminder you know the Board does have
9 an awful lot of documents in the package that was submitted in the support
10 testimony, if there is additonal documentation on which you are relying in
11 presenting your testimony and it hasn't been included in this package and you
12 want it included in the record, make sure that the Clerk gets it. Thank you.

13 HUTCHISON: Thank you my name is Roger Hutchison, it's H-U-T-
14 C-H-I-S-O-N. I reside at one hundred thirty Old Y Road on Lookout Mountain. I
15 hold a Doctorate degree in both engineering and economics from the Colorado
16 School of Mines. The emphasis of my study at the Doctor of Philosophy level
17 was how new materials specifically advanced materials in Telecommunications
18 impact traditional consumption of metal. It's not a field that people beat their
19 door to study and to the best of my knowledge I am the only person who has
20 ever pursued a Doctor of Philosophy in this subject. I think it is both timely and
21 appropriate to this Commission and by the way I do stand before you with both
22 humility and respect for your positions. I would like to talk very briefly about one
23 other credential I hold which I think is very, very relevant. My company CD

Metro Brokers - Lakewood

2009 Wadsworth
Lakewood, Colorado 80215
303/233-1000
303/233-0423 Fax



Subject: Impact on Real Estate Values and Tax Base in Area of Influence of Proposed Tower

Speaker: Ronald W Selstad

A) Background/Credentials

**Co owner and Administrative/Office Manager of Metro Brokers Lakewood
Metro Brokers Lakewood**

- 1) association of 27 separate real estate companies
- 2) 38 total brokers and associates
- 3) MBL has served the Denver real estate market for 23 years, with an emphasis on the west metro area

Broker/Owner of Selstad Realty

Registered Appraiser

President of Reservation at Genesee Home Owners Association

B) Impact on Real Estate Values/Taxes

1) Data Summary (enclosed)

2) Analysis/Opinion

- a) potential loss/property value decrease of 10-20%
- b) 10% loss in Zone 1 = approx \$25 million in property values
- c) Zone 2 loss = \$1+ billion x loss factor = ? ? ? ?
- d) contamination Inescapable
- e) approval of application relieves applicant of responsibility and shifts onus on to Jefferson County.
- f) overwhelming residential opposition
- g) impact will only be negative
- h) relevant questions for Commissioners to ask regarding application

C) Proposed tower opposed by RGHOA

Post-It* Fax Note	7671	Date	4/20/99	# of pages	5
To	DEB CARNEY	From	RON SELSTAD		
Co./Dept.	CARE	Co.			
Phone #		Phone #	526-5190		
Fax #	526-9843	Fax #	SAME		

**IMPACT OF PROPOSED LOOKOUT MOUNTAIN
TOWER ON PROPERTY VALUES AND TAX BASE IN
AFFECTED AREA**

March 9, 1999

Prepared by : **Ronald W Selstad**
 23461 Morning Rose Drive
 Golden, Colo 80401
 303-526-5190 (H)
 303-233-1000 (O)

Broker License TBO316259
Appraiser License ARO1317631

CREDENTIALS**Ronald W Selstad****Co owner and Administrative/Office Manager****Metro Brokers Lakewood**

have been with MBL for 7 years

MBL is an association of 27 separate real estate companies

total of 38 Brokers and Realtors

office has served west metro area for 23 years

Broker/Owner of Selstad Realty**Registered Appraiser****President of the Reservation at Genesee Home Owners Association**

As a real estate broker and registered appraiser, I have developed and am presenting to you a summary of data obtained from Jefferson County tax records. It includes total number of homeowners in two zones. The first is within approximately 1.5 miles of the proposed tower. The second is between 1.5 and 3.5 miles from the tower.

(See Data Summary Page)

The Colorado Real Estate Commission and the Code of Ethics of Realtors require that any adverse conditions that are part of or that may impact a property must be disclosed to potential buyers so that they can make their decision based on those factors. The caveat among responsible Realtors is, if in doubt, disclose. Disclosures regarding existing and proposed emissions have already been begun being made by some Realtors serving the Lookout Mountain and Genesee areas. Those disclosures will adversely affect values.

The question of how adverse the impact will be will only be determined by time but by then, Jefferson County residents in the area will have suffered irreversible damage. For Zone 1, I would estimate the loss in value, and subsequent loss in tax revenues to Jefferson County to be in the range of 10-20%, with the minimum impact being in the area of 10%. The 10% figure yields a potential property value loss of \$ 24-26 million in Zone 1 alone. When a loss factor is applied to the additional \$1 billion + of values in Zone 2, the potential losses are enormous. That process has already begun, based on the recently released cancer study and buyer concerns about the proposed tower. I have been told by homeowners in the affected area that, should the proposed tower be approved, they will move, even if it means accepting a loss.

The contamination residents are being asked to accept is no different from and in some ways worse than other toxic contamination. Some contamination can be avoided by avoiding inhaling or ingesting them. The emissions from this tower are inescapable.

The irony of the situation you are being presented with is twofold. One is that the corporate entity making the request of you will have minimal liability because of their legal structure. The second ironic facet is that, should the county vote for the requested tower, the responsibility and onus will have shifted to Jefferson County.

I have been in situations similar to yours. I have sat as a Wheat Ridge Councilman, listening to proposals and speakers in favor and opposition to them. I understand the difficulty in telling an applicant no, but I also understand that that is exactly what makes the job rewarding, doing the right thing, especially when it is difficult. On the one side you are hearing the applicant who wants the lowest cost, easiest way to carry on their business. On the other, you are being presented with petitions, faxes, letters and testimony from hundreds, if not thousands of homeowners and Jefferson County residents who are asking you to listen, support and represent them. You are making an enormous economic decision affecting property values. The one certainty is that a yes vote on the tower will not have a positive impact on values. The impact can only be negative.

As you make this decision, I ask you to ask yourselves these questions :

- 1) "Is a vote for this request (to erect the tower) the best decision for Jefferson County and my constituents."
- 2) "What are the benefits, costs and risks to Jefferson County and the residents, homeowners and voters living in the affected area."
- 3) How will the Jefferson County staff and assessors office deal with the lowered values and tax revenues as a result of the visual blight and fears about the increased levels of emitted radiation. The time and resource drain on the county will almost certainly increase as large numbers of affected residents challenge their home assessments.

My family, made up of myself, my wife and two teenage daughters, owns property within the projected area of influence of the tower at approximately Genesee Ridge Road and Brookcross, where emission levels are anticipated to increase by a factor of 60 times

As a resident and as the president of the RGHOA, I am expressing in the strongest terms our unanimous opposition to the proposed tower. I am also making that statement on behalf of my family..

Thank you for your time and attention. Do you have any questions ?

Selstad Realty

2009 Wadsworth
Suite 100
Lakewood, CO 80215

**DATA SUMMARY PAGE**

Prepared by Ron Selstad, Real Estate Broker and Registered Appraiser

Source: Public Documents Center -Jefferson County Database

Assumptions/parameters

- property values searched between \$10,000 and \$5,000,000
- annual taxes range of \$100-10,000
- searched by parcel (section) as shown on Jefferson County map
- if 50% or more of a section was within a target zone, it was included in that zone
- searched up to approximately 1.5 miles for zone 1
searched from 1.5 to 3.5 miles for zone 2

ZONE 1

- actual property count was 1019 in 8 sections, not counting portions of 6 adjacent sections
- total value of property was \$222,000,000
- taxes paid totalled \$2,600,000
- assume 10-20% increase for portions of 6 sections not counted
- THEREFORE:

total property value of \$240-265,000,000

total taxes paid would be in range of \$3,000,000

ZONE 2

- actual property count was another 5982 in 23 sections, not counting portions of 14 adjacent sections
- total value of property was \$1,020,000,000
- taxes paid totalled \$10,047,000
- assume 10% increase for portion of 14 sections not counted
- THEREFORE :

total property value of \$1,100,000,000

total taxes paid would be in range of \$11-12,000,000

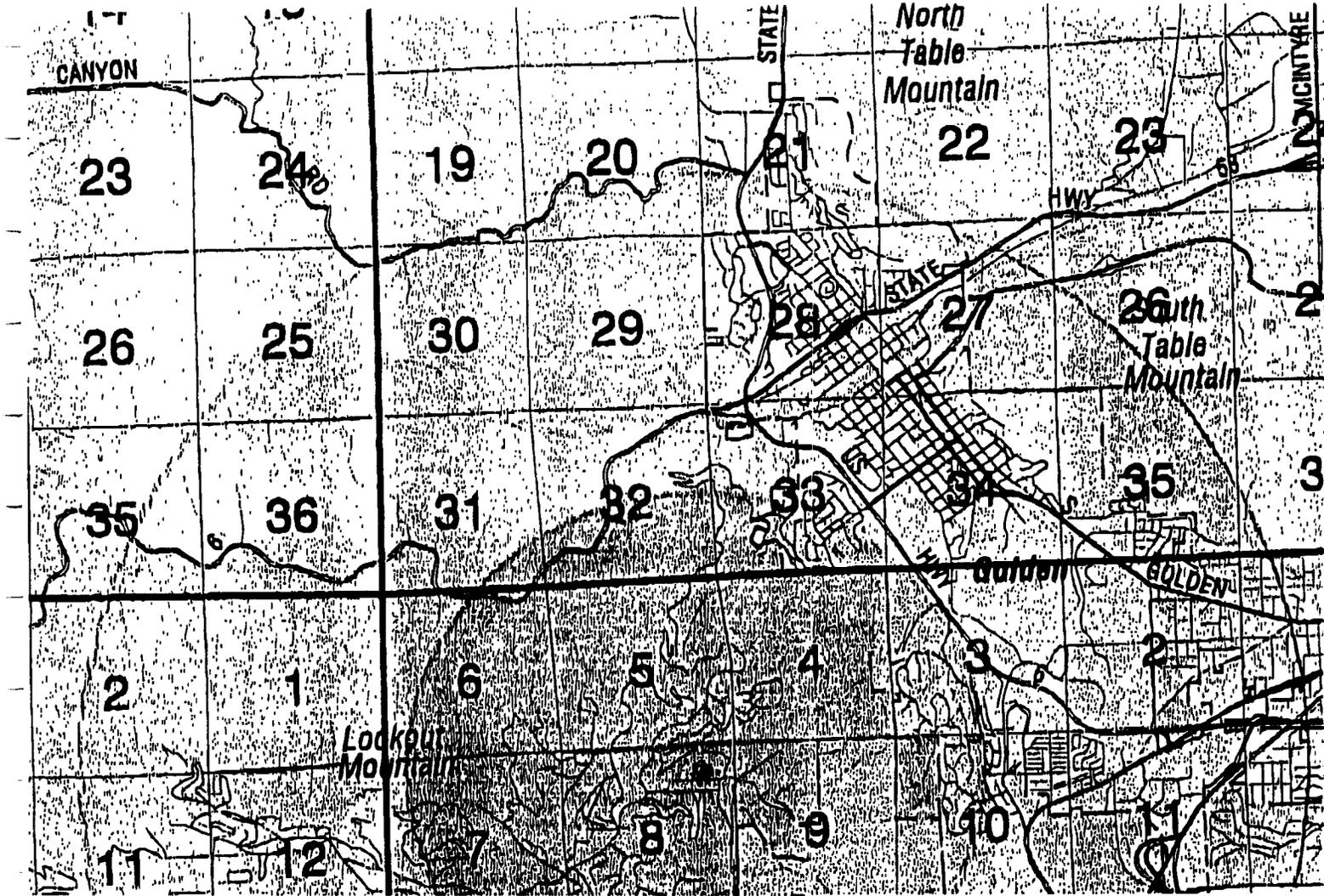
SUMMARY FOR ZONE 1 AND ZONE 2

approximately 7000-7200 homes

total property value of approximately \$1,350,000,000

total taxes paid of \$14-15,000,000





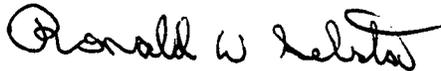
In the matter of the Lake Cedar Group LLC Proposal to Rezone and Build a New Tower
Case 9805154RZPI

Mr Tim Carl
Jefferson County Planning Dept
100 Jefferson County Parkway
Golden, Colo 80419

Affidavit of Ronald W Selstad

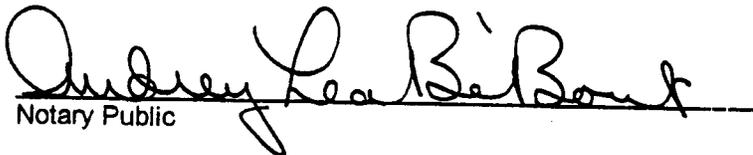
I, Ronald W Selstad, the affiant, having first been duly sworn, upon my oath, state I have personal knowledge of the following:

1. I was born November 7, 1944. I am 54 years old.
2. My address is 23461 Morning Rose Drive, Golden, Colo 80401
3. The information contained in the letter and exhibits (2) dated June 26, 1999 to the Board of County Commissioners is true and has been generated from the sources cited.



FURTHER THE AFFIANT SAYETH NOT. This 28 day of June, 1999.

Subscribed and sworn to before this 28th Day of June, 1999


Notary Public

My Commission expires: 9/9/2002

Selstad Realty

2009 Wadsworth
Suite 100
Lakewood, CO 80215



June 26, 1999

Board of County Commissioners
Jefferson County, Colorado

I have previously testified regarding my professional opinion that approval of the proposed new tower on Lookout Mountain would depress home sales by at least 10%. I have compiled statistics covering 1996, 1997, 1998 and the first half of 1999 and those actual numbers confirm my worst fears. I have prepared and am submitting data on both the Lookout Mountain area and the Genesee/Riva Chase area.

Except for the potentially affected area, overall area market activity for the first half of 1999 has been very good. June 1999 was the second best June on record in terms of sales with 3718 homes placed under contract. In the metro area, 22,243 homes have closed, a new record. Overall volume is 16% ahead of last year, with one glaring exception.

Sales in the Lookout Mountain and Genesee/Riva Chase areas are dramatically under last year. Based on 1998, Lookout Mountain should have had closed sales of at least 15 homes. There have been only 8, or slightly over 50% of what would be expected. Sales are also taking longer than before. (see Exhibit 1)

Sales in the Genesee/Lookout Mountain area are down even more. Based on 1998, we should have expected approximately 60 closed sales. There have been only 19, or less than 33% of what was expected. (see Exhibit 2) The feedback from potential buyers has been a "wait and see" attitude regarding the tower decision.

The statistics appear to be irrefutable. Since the tower proposal has been a matter of public concern, sales have dropped dramatically in both the Lookout Mountain and Genesee/Riva Chase areas, in sharp contrast to the ongoing boom the rest of the Denver market has experienced. Buyers are not buying and sellers are "holding their breath", waiting for the decision on the tower. The market factors are poised. Area housing demand is up and strong but sales of properties in the affected areas are down significantly.

The actual statistics raise even graver concerns about the potential negative impact that the approval of the tower would generate.

Ronald W Selstad
Real Estate Broker and Registered Appraiser



EXHIBIT 1 Lookout Mountain Home Sales Activity

SALES ON LOOKOUT MOUNTAIN *

(INCLUDING PANORAMA HEIGHTS AND PARADISE HILLS)

SOLD DATES	NO OF PROPERTIES	DAYS ON MKT
1/1/96-12/31/96	20	85
1/1/97-12/31/97	23	76
1/1/98-12/31/98	30	83
1/1/99-6/30/99 (EXPECTED)	15	80
1/1/99-6/22/99 (ACTUAL)	8	
PRESENTLY LISTED FOR SALE	32	

AVERAGE NUMBER OF DAYS THOSE PROPERTIES HAVE ALREADY
BEEN ON MARKET

103

*SOURCE: MULTIPLE LISTING DATA SERVICE

EXHIBIT 2 Genesee/Riva Chase Home Sales Activity

SALES IN GENESEE AND RIVA CHASE*

SOLD DATES	NUMBER OF PROPERTIES
1/1/96-12/31/96	78
1/1/97-12/31/97	104
1/1/98-12/31/98	122
1/1/99-6/30/99 (EXPECTED)	60
1/1/99-6/22/99 (ACTUAL)	19

*SOURCE: MULTIPLE LISTING DATA SERVICE

Witness Testimony

Dr. Roger Hutchison

1 SHEEHAN: Do we actually have any statistical enthuses based
2 on current towers of reduction of property values in these areas over a period of
3 time, (inaudible) okay.

4 SELSTAD: My biggest figures come from similar facilities that
5 have cause, concern about areas. Rocky Mountain Arsenal, Rocky Flats, 6th
6 Avenue Estates, I hate to mention it but it's happening. If there is concern about
7 something it effects values, it effects sale time, it effects the eventual price.

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9 an awful lot of documents in the package that was submitted in the support
10 testimony, if there is additonal documentation on which you are relying in
11 presenting your testimony and it hasn't been included in this package and you
12 want it included in the record, make sure that the Clerk gets it. Thank you.

13 **HUTCHISON:** Thank you my name is Roger Hutchison, it's H-U-T-
14 C-H-I-S-O-N. I reside at one hundred thirty Old Y Road on Lookout Mountain. I
15 hold a Doctorate degree in both engineering and economics from the Colorado
16 School of Mines. The emphasis of my study at the Doctor of Philosophy level
17 was how new materials specifically advanced materials in Telecommunications
18 impact traditional consumption of metal. It's not a field that people beat their
19 door to study and to the best of my knowledge I am the only person who has
20 ever pursued a Doctor of Philosophy in this subject. I think it is both timely and
21 appropriate to this Commission and by the way I do stand before you with both
22 humility and respect for your positions. I would like to talk very briefly about one
23 other credential I hold which I think is very, very relevant. My company CD

1 Rom, Inc. is a graduate of the Jefferson County Business Development
2 Program. I would like to thank the Jefferson County Commissioners for
3 supporting that program. My company CD Rom, Inc. graduated in 1991, two
4 years after I received my Doctorate degree. The Jefferson Business Economic
5 Development Program is for high tech businesses who respond in the local
6 community who have high potential impact on the economic well being of the
7 community. My company was identified by somebody in Jefferson County as
8 being the poor starving technologist working out of his garage with a good idea.
9 I received a phone call and I was literally freezing to death in my garage here in
10 Golden. I received a phone call and I was asked to be part of this high tech
11 support group sponsored by Jefferson County. I graduated from that two year
12 program as a business man, two years after I received my Doctorate. And when
13 I received my Doctorate it's widely also believed that my technical IQ is about
14 160 and my business IQ is about 60 and that's not too far from the truth. A year
15 after graduating from that program my company received the Inc Five Hundred
16 Award for being the 3rd fastest growing privately held company in the state of
17 Colorado and 184th in the United States. Since that time I have expanded and
18 now have six offices on five continents and to say that I appreciate the support
19 that the Jefferson County community and specifically the people of Golden have
20 given me is a specific understatement, so thank you. The brief report that I have
21 just handed you is only six pages long, it represents approximately 200 hours of
22 analysis. I have done it at no charge to my neighbors, whom I highly respect
23 who I live next to on Lookout Mountain. I should preface I have two biases that

1 should be known by the community who is hearing this testimony. The first bias
2 I have is I think I am the only person on Lookout Mountain who has a high
3 definition television and I am eagerly waiting the arrival of high definition TV. My
4 company was the first company to introduce DVD technology in the United
5 States which is the CD Rom equivalent of the quality aspects of high definition
6 TV. The second bias that I have that I bring to the group this evening is that I
7 have two children. One is 8 years and one is 11 years old. These children go to
8 Ralston Elementary School and in my opinion their well being is being
9 threatened by this technology. Those are my two biases. I would like to
10 proceed by analyzing or presenting the results of the analysis of what I have
11 done in terms of figures that have been provided to me by the County.
12 Everything in this part of the report and the analysis was provided with figures
13 that I received from the County. First of all in Zone Number 1 which Ron the
14 previous speaker referred to we can definitively state that there are 1280 single
15 dwelling residences. In Zone Number 2 which is the larger circle is extending up
16 to 5 miles we can definitely say providing with information provided by the
17 County that there are 11, 629 single family dwellings. We know for a fact that
18 the average family dwelling in Zone Number 1 is worth approximately 208,000
19 dollars. We know for a fact that the average family dwelling in Zone Number 2
20 has a current value of \$195,000. We also know that these property value
21 figures in other words the value of those homes has increased in Zone Number
22 1 almost exactly 100% in the past 10 years. The exact figure is 98.5%. We also
23 know that the average property in Zone Number 2 has increased 85.6% in the

1 past 10 years. Now if you calculate as Ron did, and by the way, I think this is all
2 about money. And I want to make sure everybody in this room and everybody
3 hearing this testimony knows that the bottom line here and the unarguable point
4 is that this is about money, big money, billions and billions of dollars. We know
5 that if you extrapolate out 10 years from now that the average property in Zone
6 Number 1 will be worth approximately 100% more. We know that the average
7 home in all things considered equal in Zone Number 2 will be worth about 85%
8 more in the next 10 years. Now what does that mean? That means that current
9 property values in Zone Number 1 are \$270.3 million give or take .1. We know
10 that this generates \$3 million of tax revenue to this county at this moment. In
11 other words the people who own property in Zone Number 1 put out \$3 million to
12 support schools, to support education, to support roads, to pay for the police
13 department, the fire department, to pay your salaries. We know that the current
14 property value in Zone Number 2 is just under \$2.24 billion at this moment. We
15 know that if all things are equal in the next ten years those figures will nearly
16 double. Zone Number 2 generates a real figure of today's dollars, of \$25 million
17 to this wonderful County. Now where are we going to go from here? I would
18 like to talk about perception of reality. I am going to jump ahead and use my
19 only stage prop. Perception of reality what is this worth. Everyone familiar with
20 this, what is this worth? What makes the dollar worth a dollar since 1973 since
21 the gold standard was let go and it's not backed by gold. It's the perception all
22 over the world that the United States economy is the strongest economy in the
23 world. That's what makes the value of our dollar worth a dollar. What is it

1 worth, it's worth about one tenth of one cent. Now, what's my property worth on
2 Lookout Mountain. Well, when I bought it, it was worth about a third of what it is
3 today, nine years later, why? I didn't put three times the value in my home. It's
4 because people want to move to Lookout Mountain. It's a wonderful community
5 with wonderful people. It's a good place to raise children, it's a good place to
6 live if you have a high tech community in Golden, Colorado or Jefferson County.
7 When I used to teach at Regis College in the Adult Education Program my first
8 question I would ask and I taught about a hundred and ten courses that's how I
9 got my way through school by the way at the School of Mines. The first
10 question I would ask my students, and I am talking about 18 year old students, I
11 am talking about the average age was between 35 and 40 years old and the
12 average person was a full time employee at a company either in their second
13 career or they were just leaving their first career. They were looking for a new
14 profession. The very first question I asked my students of which there were
15 many over a period of about ten years, was what is the value between, how
16 would you determine the value? I asked three questions, number one, what is
17 the value between a black and white TV and a color TV. I am not doing this
18 because of the topic of the committee this evening. I am doing it because that
19 was my question 10 years ago. How do you answer it? The second question I
20 asked was how do you determine the value of the currency that you have? In
21 ancient cultures, people would take a stone rock, cut a whole in the middle of it
22 and say this is my currency. You have all seen Easter Island, those statues,
23 what's the value of that? That used to be currency, people used to use that as a

1 symbol of wealth. They believed that it had value. Therefore it had value.
2 Would you give any money for that? Probably if you were an archeologist. You
3 wouldn't want to carry it around and buy a can of pop at your local store with one
4 of those things but it had value because people believed it had value. Now if I
5 were teaching courses today and unfortunately I am too busy to do it, because I
6 just love being in front of a group of people. I would ask the question, what is
7 the value of high definition TV verses analog TV? How much money are these
8 gentleman going to make, what are they going to make and what is the risk
9 associated with it? We are talking billions of dollars at risk and we are talking
10 about potentially making these gentleman worth probably a few billion dollars
11 over the next ten years. But, at what cost and who is paying it? Who is paying
12 the bill? I would like to talk about one more thing to do with perception of reality
13 and then I would like to conclude. On March 28th 1979, I am sure almost
14 everyone in this room remembers this, Three Mile Island. Well let's talk about
15 Federal Standards, let's talk about radiation of which my minor PHD is in.
16 nuclear radiation in the environment. I know what I am talking about. Let's talk
17 about what the Federal government said about the radiation leak at Three Mile
18 Island and let's talk about what happened to the property and the businesses in
19 Three Mile Island. The Federal government said and stands by the opinion
20 today, 20 years later almost to the day that the radiation exposure met and was
21 under federal standards for nuclear radiation in the environment. What
22 happened to the homeowners in Three Mile Island because they believed that
23 their children were under risk? They believed that they themselves were under

1 risk. They believed that if they lived next to a radiation plant a plant that had
2 leakage's of nuclear radiation that they would increase the danger to the well
3 being of their children, the health and safety of their children. What happened to
4 those people they bailed out and their property became virtually absolutely
5 worthless? But, it was under the Federal standard for nuclear radiation in the
6 environment. Now perception of reality is that this tower, right or wrong is going
7 to generate radiation. That radiation in the microwave region apparently has
8 tremendous, I am frightened listening to the testimony on the both sides here.
9 But, it is controversial it's not conclusive and the doctors who have testified here
10 the medical doctors are so far smarter than I am that it is incredible. So, I have
11 no comment about their expertise and what they are studying. But, I can tell you
12 as a resident it scares me to death the perception of reality if I were moving here
13 for the first time, the perception of reality is that this microwave tower is
14 dangerous, it will hurt our children. It will hurt our children, it will hurt our
15 community, if you want to move to Lookout Mountain and you know about this
16 you will not move. If that tower goes up you will bail out and this property, these
17 billions of dollars are at risk. My equity in my home, what I have built up for the
18 past ten years will be worthless and all of my neighbors, your homes are at risk.
19 Your dollars are at risk. So what do I conclude? I conclude cumulative ten year
20 property value effects. I conclude the average property will decline in value in
21 Zone Number 1 by \$62,000. Let's put real figures on it. It's actually 61,999 give
22 or take a dollar. I conclude and this is my professional opinion, if you want to
23 criticize my work go right ahead and I welcome it. This is my professional

1 opinion and I stand behind it and I have already posed my two biases, one
2 which should be very interesting to everybody. I conclude the equity decline in
3 Zone Number 2 will be \$54,300 if this tower goes up, per person, per
4 homeowner. Now what does that mean to the County? I believe that what this
5 means to the County is that the ten year tax revenue decline will be something
6 like \$8.3 million in Zone 1 and \$62 million in Zone 2. And I would like to
7 conclude by saying that my study only looked a single family homes. It did not
8 include duplexes, it did not include triplexes, it did not include any businesses
9 that are located in this community. It did not include any government buildings
10 any government facilities any state facilities. Single family homes. Thank you
11 for your time.

12 SHEEHAN: Yeah, Dr. Hutchison.

13 HUTCHISON: Yes.

14 SHEEHAN: Why would, why would the property values increase
15 at all? Shouldn't they take a direct decline over all?

16 HUTCHISON: In what context?

17 SHEEHAN: Sounds like you do show property values increase.

18 HUTCHISON: I said if all things are equal, economic analysis, all
19 things are equal, you change one variable. You analyze the impact and to do it
20 you have to be clairvoyant you have to be alive in the year 2010 and go out and
21 buy homes. Since we are not clairvoyant and we don't really know what it is
22 going to be like in the year 2010. We use the ten year history. The ten year
23 history is what have the property values done in the previous ten years, and I

1 use the County's own figures, in other words, you had nine years of calculations
2 and I took every single year for every single home and I added it up.
3 economical analysis is wonderfully boring stuff you know if you don't have
4 anything else to do. And I extrapolated by one year and I said well that's the
5 most realistic forecast of what the future is going to be like is what the previous
6 ten years were like. So the reason home values go up is because Lookout
7 Mountain is an incredibly affluent community. It's desirable, people who don't
8 like to live in the suburbs like to live on Lookout Mountain where you can buy
9 land you can see elk, you can have your kids run around and see nature. It's a
10 wonderful place, people are flocking to it they want to live on Lookout Mountain.
11 That's what drives property, it's also land locked from the context of water. I
12 other words, water controls it, if you want to take an extreme case, why is the
13 property in Hong Kong worth so much money, it's because it's a land locked
14 community and everybody wants to be there. Same thing with Lookout
15 Mountain, it's landlocked. And there is only so much water so the property just
16 keeps going up and up and up. I mean it's much higher than the national
17 average so why would the property go up at all in the next ten years because of
18 peoples demand and the limits of supply. Thank you.

19 HOLLOWAY: We may want to make your testimony as brief as
20 possible because we have got a whole list of people still left to speak from
21 CARE. We have a list of people who want to speak from this list. Next Tuesday
22 is our final hearing. It will be a long one, but it will be the final hearing. So, you
23 may want to take that into consideration so that we can get every bit of

1 testimony from every citizen that wants to speak during this time frame. So if we
2 could maybe keep this in mind.

3 RAGONETTI: Madam Chairman this is the first time we have heard
4 that next Tuesday would be your final hearing so if we are going to have any
5 meaningful opportunity to rebut we won't have our experts available. We know
6 their schedules we heard with your Planning Department that we would like to
7 have an opportunity to do that and have our experts with us.

8 HOLLOWAY: Isn't that the way it was scheduled?

9 RAGONETTI: This is the first we heard of it.

10 HOLLOWAY: Because we based this on what you all said.

11 RAGONETTI: We had understood there was an alternative of the
12 second hearing being tonight or June 1st and we understood we would have
13 time to go to a third hearing, which we would very much like.

14 HOLLOWAY: And that would be the third hearing but...we may
15 have to go into another one for a rebuttal but we have got to get this, I mean we
16 could go on forever and ever at the rate we're going we are never going to get
17 through, you know it's 8:00 and we still have probably have 20 people on this list
18 to get through before we even get to citizens. So, I just think we need to keep
19 that in mind that we were told how many hours everybody needed for their case.

20 Alright, it' Basil Katsaros, Basil you will have to tell me?

21 KATSAROS: Katsaros.

22 HOLLOWAY: Oh, okay.

Witness Testimony

Basil Katsaros

1 **KATSAROS:**

I promise not be as long as some of the prior

2 speeches. First off I would like to state that there is no collaboration between
3 the speakers and I am amazed at how some of my comments are going to echo
4 what was said before. My name is Basil Katsaros, K-A-T-S-A-R-O-S. I am a
5 Real Estate appraiser had been such since 1971. I was born and raised in
6 Edgewater, so I have been a long time resident of Jefferson County. As to
7 opening comments, I hope it's understood and this is where I echo previously
8 that value is considered to be people created the definition of value seeks what
9 a willing buyer will pay and what a willing seller will sell for property. The same
10 house and this also echoes what was said earlier, the same house for example
11 costing the same to construct will sell for more in one sub-market then in
12 another. In addition property values both residential and commercial may be
13 impacted by conditions outside of what maybe generally or typically considered.
14 The additional factors may include construction defects. Property
15 contamination, geophysical conditions due to weather and soils, crimes and
16 sickness. The topic of discussion here is what impact on residential value may a
17 communication tower impose. The principals I will discuss apply to all
18 (inaudible) that impact value. In essence do detrimental conditions cause a
19 denomination in value? For purposes of simplicity the appraisal body of
20 knowledge refers to such properties as DC properties. DC stands for
21 detrimental conditions. The appraisal industry has identified ten classifications
22 of detrimental conditions and I believe you have a hand out of those ten
23 conditions. Tonight's topic is considered to be a class five property which is an

1 imposed condition and specifically the cause of the imposed condition is a
2 neighboring issue. You can see in the asterisks the imposed neighboring
3 condition is synonymous with power plants, sewer plants, airports etc. In
4 estimating denomination and value typical valuation methodology begins with
5 current market value assuming no problems exist. When physical or functional
6 inadequacies are present, market value is adjusted downward by an estimated
7 cost to cure plus an incentive value plus a potential stigma value. Given the
8 topic of today, cost to cure is not applicable. The last component of
9 compensation is known as stigma. In essence the component compensates the
10 buyer for fear of a problem recurring in the future. There are many factors which
11 can be included in the calculation of stigma. Some of these factors are severity
12 of the damage\concern nature of the damage\concern, reputation of the
13 neighborhood after incidences\cure, consultation reports, news media, and news
14 media is a big factor, time since the incident\cure occurred etc. An additional
15 component would be at would stage has the cure occurred for example the
16 stigma factor would be higher for properties that are damaged and never cured
17 versus those that are cured and not tested. My company has conducted studies
18 of effected properties with bentonite soil problems and in such stigma in those
19 instances range from 10 to 20% of the uneffected home value. In some cases
20 stigma could range higher if there is evidence of lack of a proper cure. Such
21 may be the case where subject properties where bentonite cure has failed a
22 second time after an initial cure. An alternative term for stigma is market
23 resistance and market resistance is more in line with today's topics and there