

REGULAR MEETING PLAN COMMISSION/ZONING BOARD OF APPEALS MONDAY, JUNE 17, 2019 7:00PM VILLAGE HALL - BOARD ROOM

The Plan Commission/Zoning Board of Appeals hears all requests for zoning text amendments, rezoning, special uses, and variations and forwards recommendations to the Board of Trustees. The Commission also reviews all proposals to subdivide property and is charged with Village planning, including the updating of the Comprehensive Plan for Land Use.

I. ROLL CALL

III. APPROVAL OF PRIOR MEETING MINUTES

A. May 6, 2019 Plan Commission Regular Meeting

IV. PUBLIC HEARINGS

A. Z-04-2019: 10S110 Madison Street (Tri-State Fire Protection District); Special Use and Findings of Fact; continued from April 15, 2019 and May 20, 2019

Requests a special use as per Section IV.V of the Burr Ridge Zoning Ordinance to permit a personal wireless service facility at a property owned and used for municipal services.

V. CORRESPONDENCE

A. Board Report –May 28 and June 10, 2019

VI. OTHER PETITIONS

VII. PUBLIC COMMENT

VIII. FUTURE SCHEDULED MEETINGS

- A. July 15, 2019; The filing deadline for this meeting is June 19, 2019. At this time, there are no hearings scheduled.
- **B.** August 5, 2019; The filing deadline for this meeting is July 10, 2019

IX. ADJOURNMENT

PLEASE NOTE: All Plan Commission recommendations are advisory and are submitted to the Mayor and Board of Trustees for review and final action. Any item being voted on at this Plan Commission meeting will be forwarded to the Mayor and Board of Trustees for consideration at their June 24, 2019 Regular Meeting beginning at 7:00 P.M. Commissioner Irwin is the Plan Commission representative for the June 24, 2019 Board meeting.

PLAN COMMISSION/ZONING BOARD OF APPEALS VILLAGE OF BURR RIDGE MINUTES FOR REGULAR MEETING OF MAY 6, 2019

I. ROLL CALL

The Regular Meeting of the Plan Commission/Zoning Board of Appeals was called to order at 7:00 p.m. at the Burr Ridge Village Hall, 7660 County Line Road, Burr Ridge, Illinois by Chairman Trzupek.

ROLL CALL was noted as follows:

PRESENT: 8 – Irwin, Praxmarer, Broline, Farrell, Hoch, Stratis, Petrich, and Trzupek

ABSENT: 0 – None

Village Administrator Doug Pollock and Assistant Village Administrator Evan Walter were also present.

II. APPROVAL OF PRIOR MEETING MINUTES

Commissioner Petrich and Commissioner Irwin noted several edits to the April 15, 2019 minutes.

A **MOTION** was made by Commissioner Hoch and **SECONDED** by Commissioner Broline to approve the minutes of the April 15, 2019 Plan Commission meeting.

ROLL CALL VOTE was as follows:

AYES: 7 – Hoch, Broline, Stratis, Farrell Praxmarer, Petrich, and Trzupek

NAYS: 0 - None

ABSTAIN: 1 – Irwin

MOTION CARRIED by a vote of 7-0.

III. PUBLIC HEARINGS

Chairman Trzupek conducted the swearing in of all those wishing to speak during the public hearing on the agenda for the meeting.

Z-05-2019: 6901 Madison Street (Five Seasons); PUD Amendment and Findings of Fact; continued from April 15, 2019

As directed by Chairman Trzupek, Mr. Walter provided an overview as follows: the petitioner is Five Seasons, owner and sole tenant of the property located at 6901 Madison Street. The petitioner is requesting an amendment to Planned Unit Development Ordinance #A-834-09-99 to permit an annual, temporary accessory structure covering a pool in the rear yard of a health club in the L-I Light Industrial District. Planned Unit Developments (PUD's) are considered special uses under the Burr Ridge Zoning Ordinance, and thus any major amendments to them require a special use approval via a public hearing. The petition was continued from April 15, 2019 to allow for the petitioner to submit more accurate site plan and elevation drawings for consideration.

The dome is proposed to cover most of the pool's decking area in the rear yard of the property, measuring approximately 175 feet wide on the north and south sides and 115 feet on the east and west sides. The dome's exterior wall is proposed to be located approximately 50 feet from the

southern property line, which would otherwise exceed the minimum rear yard setback for a building of this size in the L-I Light Industrial District. The dome as shown would not exceed the proposed 33-foot height as described in the previous meeting. Three total exit points are provided; however, one primary ingress and egress site is shown on the north side of the property in the form of a combination revolving door and standard door with airlock. The inflation unit and emergency generator is shown on the southern portion of the dome, nearest the rear property line. Mr. Walter noted that several of the items that were mentioned in the staff report were later satisfied by the petitioner, including the decibel rating level and privacy screening for the mechanical units.

Chairman Trzupek asked for public comment. None was given.

Commissioner Hoch asked for clarification of the dome's exterior footing. Barb Potter, Five Seasons, identified the location on the site plan. Commissioner Hoch asked who would maintain the structure. Ms. Potter said that the club's vendor, Yeadon Domes, would erect and tear down the structure on an annual basis on behalf of the club. Commissioner Hoch asked when the dome would be erected on the property. Ms. Potter said that it was not likely that the dome would be up for more than six months at a time, stating that they have had the outdoor pool open in November in previous years.

Commissioner Petrich asked how the Building Code would govern the construction of the accessory structure. Mr. Walter said that he reviewed the concept with the Village's commercial building consultant, who informed him that while the structure may be constructed for 180 days or less (defining a temporary structure), it would still be required to be built according to the specifications that govern permanent structures. Commissioner Petrich asked who would be performing maintenance and monitoring of the structure. Ms. Potter said that these functions were automated, but that Five Seasons would be responsible for site maintenance of the facility. Commissioner Petrich said that he was concerned about safety of the structure, especially given that it was proposed to be constructed over a swimming pool, which has different structural requirements.

Chairman Trzupek said that the word "temporary" may be deceiving, in that it is designed to be built as a collapsible building but not only as a temporary structure.

Commissioner Broline asked who generated the decibel ratings in the packet. Ms. Potter said that they were projected by the manufacturer.

Commissioner Stratis said that if the insulation unit and generator were to be screened, they would not need to be moved once the dome was deflated. Commissioner Stratis supported the concept of allowing the insulation unit and generator to be installed year-round with screening. Commissioner Stratis said he was concerned about the dome being left up year round to realize cost savings.

Commissioner Irwin asked if the dome would be permitted if the subject property were not a PUD. Mr. Walter said that the underlying zoning would not permit an accessory building, and that this would be a variation and still require a public hearing.

At 7:33pm, a **MOTION** was made by Commissioner Hoch and **SECONDED** by Commissioner Praxmarer to close the public hearing.

ROLL CALL VOTE was as follows:

AYES: 7 – Hoch, Praxmarer, Irwin, Stratis, Farrell, Broline, and Trzupek

NAYS: 0 - None

MOTION CARRIED by a vote of 7-0.

A **MOTION** was made by Commissioner Hoch and **SECONDED** by Commissioner Broline to recommend that the Board of Trustees adopt the Findings of Fact and approve a request by Five Seasons for an amendment to Planned Unit Development Ordinance # A-834-09-99 to permit an annual, temporary accessory structure covering a pool in the rear yard of a health club in the L-I Light Industrial District, subject to the following conditions:

- 1. The dome shall not exceed 33 feet in peak height.
- 2. The dome's exterior shall be a gray or gray-toned.
- 3. No advertising, logos, flags, or writing of any kind shall be permitted to be written directly on or attached to the exterior of the dome.
- 4. The dome's exterior membrane shall be cleaned on an annual basis.
- 5. The dome shall be permitted to be erected from Labor Day to Memorial Day.
- 6. The dome's structural elements must be stored in an enclosed area.
- 7. The insulation unit and emergency generator shall be permitted to be present year-round, with both screened by a permanent masonry wall.

Commissioner Petrich asked if there was a need to add a condition about the structure being present for less than 180 days. Mr. Walter said that the structure would go through the permitting process as a permanent structure. Commissioner Petrich said that he was concerned about safety, with the proposed plans not showing all specifications that would be required for a permit application. Mr. Walter said the proposed plans were not intended to be construction-grade, and that such plans would be forthcoming once a permit application was filed. Mr. Walter also explained that the structure would be permitted once, but be required to be re-inspected on an annual basis once it is built by the Village's commercial building consultant.

Commissioner Petrich said that if he were voting on the matter, he would want to see a condition included in which the structure would be required to comply with all emergency and safety codes, specifically identifying the safety mechanisms to ensure that unscheduled deflation would be accounted for in an emergency situation. Chairman Trzupek said that requirements related to the building code were not the purview of the Plan Commission and felt that adding local amendments would be inappropriate.

ROLL CALL VOTE was as follows:

AYES: 6 – Hoch, Broline, Praxmarer, Farrell, Irwin, and Trzupek

NAYS: 0 - None

ABSTAIN: 1 – Stratis

MOTION CARRIED by a vote of 6-0.

Z-06-2019: 6880 North Frontage Road (Vine Academy); Text Amendment, Special Use, and Findings of Fact

As directed by Chairman Trzupek, Mr. Walter provided an overview as follows: the petitioner is Vine Academy, the proprietor of a private grade school and prospective tenant of 6880 North Frontage Road. The petitioner is requesting a text amendment to Section X.E of the Burr Ridge

Zoning Ordinance to add "private school" as a special use in the L-I Light Industrial District and a special use as per the amended Section X.E to permit a special use for a private school in the L-I Light Industrial District. At this time, the Zoning Ordinance only lists "schools, commercial or trade schools which are conducted entirely within enclosed buildings" as a permitted educational use in the L-I District. Vine Academy is a private school which has been dual-accredited through AdvancEd and the National Independent Private School Association (NIPAS). Vine Academy serves K-12 students in a full-time, small-group setting, and is in the process of relocating from their present location in Hinsdale. Vine Academy would occupy 13,671 square feet within the building and has no immediate plans to expand beyond this footprint due to the self-limiting structure of the school's educational approach. The building on the subject property is 53,731 square feet in size.

The petitioner states in their special use application that Vine Academy currently educates approximately 75 students with 16 full-time equivalent staff, including a school administrator, nurse, front-desk administrator, and teachers, and plans to grow at a rate of ten students per year, capping out at 200 students and 30 staff members. The petitioner has listed three primary components of its educational approach: class size, mixed-age groupings, and projected learning. First, class sizes are determined based on skills or content; smaller classes are employed for skills, such as literature and math, while larger classes are employed for content, such as science and languages. Second, mixed-age groupings are considered, allowing children to learn at a pace and challenge level that is appropriate for their current abilities. Finally, projected learning, which emphasizes hands-on exploration of topics through critical thinking as well as executive functioning.

The petitioner states that their hours of operation are 7:45am-4:15pm during the typical school year calendar, 8:00am-3:00pm for four weeks in the summer, as well as a few select evenings each year. These times include the drop-off and pick-up times that occur as a part of operations. Vine Academy owns and operates no buses, with transportation to and from school conveyed by parents of students or other private means, meaning that no vehicles will be stored on site. Vine Academy has proposed a one-way traffic flow around the building to more efficiently convey ingress and egress throughout the property. A specifically-designated drop-off space with access door is shown on the petitioner's plans, and has been located so as to maximize the amount of stacking space between this area and the public right-of-way. The petitioner has stated that in the rare case of stacking occurring in the street, cars would be directed to park within the lot as they wait. As part of their request, the petitioner has requested a small, 2,500-square foot outdoor play area to be used for recess and other activities for younger students be included in their special use request. This area is proposed to include a small playground designed and installed by a licensed manufacturer. No inter-school athletic programs are directly sponsored by the school; however, Vine Academy does state that a multi-purpose space is included in its proposed building design to accommodate fitness electives and other large group activities.

Chairman Trzupek asked how staff arrived at the particular context of the use. Mr. Walter said that the existing educational use was related to trade and technical colleges, and staff interpreted this use to be separate from the existing special use.

Amanda Vogel, Vine Academy, introduced herself to the Plan Commission.

Chairman Trzupek asked for public comment. None was given.

Commissioner Stratis asked for further clarification of the use as proposed. Mr. Walter said that there are certain instances in the Zoning Ordinances wherein uses are written very specifically, and in the case of the existing use listing, the use was intended to account for something like a plumbing school, but not a truck driving school, as the plumbing school was conducted entirely indoors. Mr. Pollock also explained that "schools, public or private", are commonly found uses in other zoning districts. Commissioner Stratis asked if 98 remaining spaces was sufficient. Mr. Walter said that parking is determined by individual uses, and that there would be no way to predict if the 98 remaining spaces were sufficient for the balance of the building because the types of uses that would be present was not known at the time. Commissioner Stratis asked what kind of fence would surround the outside area. Jason Shibata, representative of the petitioner, said that the fence would be an open fence, approximately 6' in height. Commissioner Stratis asked if particular classes would use the space together. Ms. Vogel said that the school would limit how many kids would be able to use the outdoor space. Commissioner Stratis asked how the Village would know if the parking were sufficient for the remaining uses. Mr. Walter explained that the Village has a process for determining zoning applicability, and if insufficient parking were available for the use, a variation would be required, at minimum.

Commissioner Farrell asked if there were other examples of schools in zoning districts. Mr. Pollock said that aside from an autistic-oriented school on Madison Street, this would be the first private school in the Village. Commissioner Farrell asked for clarification as to the size of the outdoor play area. Mr. Shibata said that the smaller area would be the only outdoor area used by the school. Mr. Walter said that the smaller play area would allow for ten additional spaces to be realized on site.

Commissioner Praxmarer asked how lunch was taken. Ms. Vogel said that no kitchen was proposed and that lunches were eaten in classrooms or outside. Commissioner Praxmarer asked in Frontage Road was a county road. Mr. Walter said that it was a county road.

Commissioner Broline asked for clarification as to how the building was separated by use. Ms. Vogel provided an updated interior build-out plan which showed such barriers.

Commissioner Irwin said he supported the petition.

Commissioner Hoch said she supported the petition but asked if some of the drop off times could be staggered. Ms. Vogel said that the drop off times naturally stagger and younger children are picked up approximately 40 minutes earlier than older children.

Chairman Trzupek asked if the traffic pattern was mandated to be one-way as shown or if that was just the natural path of the building. Ms. Vogel said that the building has a true front and back side and while not mandated by local law, the pattern does have a natural effect.

At 8:13pm, a **MOTION** was made by Commissioner Irwin and **SECONDED** by Commissioner Hoch to close the public hearing.

ROLL CALL VOTE was as follows:

AYES: 7 – Irwin, Hoch, Stratis, Praxmarer, Farrell, Broline, and Trzupek

NAYS: 0 - None

MOTION CARRIED by a vote of 7-0.

A **MOTION** was made by Commissioner Irwin and **SECONDED** by Commissioner Farrell to recommend that the Board of Trustees adopt the Findings of Fact and approve a request by Vine Academy for a text amendment to Section X.E of the Burr Ridge Zoning Ordinance to add "private school" as a special use in the L-I Light Industrial District.

ROLL CALL VOTE was as follows:

- **AYES**: 7 Irwin, Farrell, Hoch, Praxmarer, Stratis, Broline, and Trzupek
- **NAYS**: 0 None

MOTION CARRIED by a vote of 7-0.

A **MOTION** was made by Commissioner Irwin and **SECONDED** by Commissioner Farrell to recommend that the Board of Trustees adopt the Findings of Fact and approve a request by Vine Academy for a special use as per the amended Section X.E to permit a special use for a private school in the L-I Light Industrial District, with the special use subject to the following conditions:

- 1. The special use shall be limited to Vine Academy in a manner consistent with the submitted business plan.
- 2. The special use shall be null and void if Vine Academy no longer operates a private school at 6880 North Frontage Road.
- 3. The private school shall be limited to 200 total students on site, comprised of any age or grade level.
- 4. The outdoor play area shall have a single point of access and shall be surrounded by a fence, to be secured with a child-proof locking mechanism at all times.

ROLL CALL VOTE was as follows:

- AYES: 7 Irwin, Farrell, Hoch, Praxmarer, Stratis, Broline, and Trzupek
- NAYS: 0 None

MOTION CARRIED by a vote of 7-0.

IV. CORRESPONDENCE

V. OTHER CONSIDERATIONS

S-03-2019: 6901 Madison Street (Five Seasons); Conditional Sign Approvals and Sign Variation

As directed by Chairman Trzupek, Mr. Walter provided an overview as follows: the petitioner is Five Seasons Sports Club, owner and sole tenant of the property located at 6901 Madison Street. The petitioner is requesting a variation to permit a ground sign in addition to a permitted ground sign and conditional approval to permit two ground signs with more than three colors at a property in the L-I Light Industrial District. Sign #1 is proposed to be located at the entrance of the facility, measuring 4 feet in height and 12 square feet in area and double-sided, while sign #2 is proposed to be located on the corner of the property, measuring 68 inches in height and 27 square feet in area and single-sided. Both signs will have identical Five Seasons logos with a while panel field and be erected on free-standing metal posts, which is permitted by the Sign Ordinance.

No person was present to represent the petition.

Commissioner Stratis recommended that the Plan Commission deny the petition on the basis of the proposed signs being located in inappropriate locations, with one sign being proposed to be located very close to the "Burr Ridge" entryway sign on Plainfield Road. The Plan Commission generally concurred with this statement.

A **MOTION** was made by Commissioner Stratis and **SECONDED** by Commissioner Irwin to recommend that the Board of Trustees deny a request for a variation to permit a ground sign in addition to a permitted ground sign and conditional approval to permit two ground signs with more than three colors at a property in the L-I Light Industrial District.

ROLL CALL VOTE was as follows:

AYES: 7 – Stratis, Irwin, Farrell, Hoch, Broline, Praxmarer, and Trzupek

NAYS: 0 - None

MOTION CARRIED by a vote of 7-0.

Preliminary Plat of Subdivision (Mendi): Subdivision Variation and Preliminary Plat of Approval

As directed by Chairman Trzupek, Mr. Walter provided an overview as follows:

- Two single-family residential lots are proposed; each lot complies with the minimum 20,000 square foot lot area and 100' width as required in the R-3 District. The subject property has a current Grant Street address; if a subdivision were created. the western lot would receive its access via Keller Drive, while the eastern lot would receive its access via Grant Street.
- The extension of Keller Drive with a terminus at the north end is required to facilitate travel for vehicles along Keller Drive. Two properties located directly south of the subject property on either side of the street, 6081 and 6086 Keller Drive, were created via a re-subdivision in 1992 (Wildwood's 1st Addition). That subdivision was permitted without the creation of a terminus, as it was assumed that at least one more subdivision would be created north of these new lots, with the next subdivision providing the necessary turnaround infrastructure. This petition represents the next and likely final subdivision extending north on Keller Drive.
- The purpose of the required turnaround is to provide ease of access for emergency vehicles, snow plows, and other vehicles.
- To create this subdivision, the petitioner is required to provide a cul-de-sac terminus with a 90' pavement width and 120' right-of-way per the Subdivision Ordinance. A cul-de-sac terminus meeting the requirements of the Subdivision Ordinance is shown as "Alternate #2" in the petitioner's exhibits. The petitioner has requested a variation from this requirement, stating that since a standard cul-de-sac's physical presence would be located on a single parcel, a reduction in the size of the terminus would allow for greater use of the property. The petitioner has provided two options for a variation, shown as "Alternate #1" and "Alternate #3". Alternate #1 shows a reduced size cul-de-sac with 54' wide pavement and right-of-way, while Alternate #3 shows a T-type terminus with 60' wide and 24' deep pavement and right-of-way.
- The following are examples of dead end streets in the Village that were approved without compliance with the cul de sac turnaround requirements:

- There are several in the R-4 District in the vicinity of 83rd and 87th Streets. They include Wedgewood Drive and Heather Court, north of 87th Street and Windsor Court north of 83rd Street. All of these were approved in the 1980's.
- Thurlow Drive in the Madison Club Subdivision was approved in 1997 without a turnaround but with the expectation that it would be extended through at a later date.
- The Esther Court Subdivision was approved in 2016 (Drew Avenue south of 91st Street) with a reduction in the required right-of-way width (from 120 feet to 100 feet) but with compliance with the required 90 foot turn around pavement width. Drew Avenue south of 91st Street serves nine current homes. This subdivision has not yet been constructed.
- If a variation were desired, the Village's Public Works Department and Pleasantview Fire Protection District have stated that while they both prefer that the standard cul-de-sac required by the Subdivision Ordinance be constructed, a T-type terminus is preferred to a sub-standard cul-de-sac if a variation were desired, with any T-type constructed be at least 120' wide and 25' deep to permit ease in conducting three-point turns. Public Works has also requested that a covenant be placed on the property which precludes a driveway being constructed at the end of the street facing Keller Drive to allow for greater ease in pushing snow off the street.

Resham Mendi, 6100 Grant Street, said that she was the owner of the property and was seeking to create a subdivision that would reflect the character of the neighborhood.

Chairman Trzupek asked how far to the north the subdivision was proposed to reach. Mr. Pollock said that the road could conceivably reach beyond the property at 6100 Grant Street.

Commissioner Stratis asked how the property to the north could subdivide without public street access, as had occurred previously. Mr. Pollock said that while a subdivision had occurred, the lots were not buildable due to their not having public utility access.

Chairman Trzupek asked if Keller Drive could simply continue and terminate into a flat dead end to allow for the opportunity for the road to continue further north. Mr. Walter said that such a concept was possible if the Plan Commission felt that it made sense to do so. Mr. Pollock said that additional information should be brought forward to better understand the impacts of all concepts.

Commissioners Hoch and Irwin said that they did not like the aesthetic nature of the T-type concept, and expressed an interest in seeing a full cul-de-sac be built at an appropriate location to allow for further development to occur if it were possible.

The Plan Commission agreed that the petition would be reconsidered at their June 3, 2019, meeting to allow for more time to gather possible alternatives for planning in the area, with no continuance being required.

VI. PUBLIC COMMENT

VII. FUTURE SCHEDULED MEETINGS

May 20, 2019

A. Z-04-2019: 10S110 Madison Street (Tri-State Fire Protection District); Special Use and Findings of Fact; continued from April 15, 2019

Requests a special use as per Section IV.V of the Burr Ridge Zoning Ordinance to permit a personal wireless service facility at a property owned and used for municipal services.

June 3, 2019

No business is currently scheduled for this date. If no business is scheduled by May 20, 2019, staff recommends this meeting be cancelled.

VII. ADJOURNMENT

A MOTION was made by Commissioner Hoch and SECONDED by Commissioner Stratis to ADJOURN the meeting at 8:50 p.m. ALL MEMBERS VOTING AYE, the meeting was adjourned at 8:50 p.m.

Respectfully Submitted:

EVAN BWALTER

Evan Walter, Assistant to the Village Administrator



Z-04-2019: 10S110 Madison Street (Tri-State Fire Protection District); Requests a special use as per Section IV.V of the Burr Ridge Zoning Ordinance to permit a personal wireless service facility at a property owned and used for municipal services; continued from April 15, 2019

INEDR

VALLEY_

VIEWDR

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R-2

GATE

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HEARING: June 17, 2019; continued from May 20, 2019 & April 15, 2019

TO: Plan Commission/ZBA Greg Trzupek, Chairman

FROM: Evan Walter Assistant Village Administrator

PETITIONER: Chief Sam Molinaro o/b/o Tri-State Fire Protection District

PETITIONER STATUS: Property Owner

PROPERTY OWNER: Tri-State Fire Protection District

EXISTING ZONING: R-2 Residential District

LAND USE PLAN: **Recommends Residential Uses**

EXISTING LAND USE: Fire Station

SITE AREA: 2.5 Acres

SUBDIVISION: Tri-State Fire Protection District



DEVON DR

89TH ST

R-2B

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R-1

91S

90TH ST

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R-1

R-2A

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Staff Report and Summary

Z-04-2019: 10S110 Madison Street (Tri State Fire Protection District); Special Use and Findings of Fact; continued from May 20, 2019 & April 15, 2019 Page 2 of 5

The petitioner is Tri-State Fire Protection District (henceforth "Tri-State" or the "District"), owner and tenant of the property at 10S110 Madison Street. The petitioner is requesting a special use as per Section IV.V of the Burr Ridge Zoning Ordinance to permit a 100' personal wireless service facility at a property owned and used for municipal services. Tri-State is a government agency responsible for providing fire suppression, rescue, and emergency medical services for approximately 40,000 residents in Burr Ridge, Darien, Willowbrook, Willow Springs in both Cook and DuPage Counties, along with unincorporated areas of DuPage County. Tri-State currently has 57 full-time and 7 part-time personnel operating out of four fire stations:

- Station 121: 236 Sunrise Avenue; unincorporated Willowbrook
- Station 122: 419 Plainfield Road; Darien
- Station 123: 10S110 Madison Street; Burr Ridge
- Station 124: 8259 Willow Springs Road; unincorporated Willow Springs

Petition Summary

Recently, the State of Illinois passed legislation requiring consolidation of all smaller 911 dispatch centers into larger, consolidated organizations. In the wake of this legislative effort, the number of emergency dispatch centers in DuPage County has been reduced from over twenty to three, comprising the following centers:

- Addison Consolidated Dispatch Center (ACDC)
- DuPage Public Safety Communications (DU-COMM; Wheaton)
- DuPage County Sheriff's Office (Wheaton)

Tri-State currently receives their primary emergency communications from ACDC. As part of the consolidation, microwave transmission has become a standardized method for the provision of emergency communications within DuPage County. To ensure that their own internal communication network meets this regional best practice, Tri-State is requesting a special use to erect a 100' tower in the rear yard of their property at 10S110 Madison Street to act as one of their four microwave radio network towers.

Tri-State currently has equipment on an existing tower located at the Willow Springs Public Works, which is directly adjacent to Station 124. Tri-State has stated that the tower would only be built at their Madison Street station if the City of Darien and DuPage County both permit the construction of similar towers in their respective jurisdictions, as the microwave network will only function as intended if all four receivers are built. This microwave link from either County dispatch center would connect to a 315' tower at the Darien Public Works facility adjacent to Interstate 55, with the signal then distributed throughout Tri-State's internal network via Station 122 in Darien. Development of Tri-State's internal network would consist of a line-of-sight tower network connecting their four fire stations and the Darien Public Works facility (see map; red pins represent the four stations, the blue pin represents the Darien Public Works facility, and the brown pin represents the Burr Ridge Village Hall, for scale). The microwave network ring would provide efficiency and redundancy in its communications strategy, in that if one microwave connection is lost, the network continues to function with the microwave connection going in the opposite direction. The microwave ring would provide ample bandwidth in the present and additional capacity could be accessed without the need for additional physical infrastructure i.e. additional towers, as demands on Tri-State increase.

Staff Report and Summary Z-04-2019: 10S110 Madison Street (Tri State Fire Protection District); Special Use and Findings of Fact; continued from May 20, 2019 & April 15, 2019 Page 3 of 5

At this time, the City of Darien has approved an ordinance for a variation permitting the construction of a 130' tower to be built at Station 122, with DuPage County currently considering a corresponding petition for the tower at Station 121. Darien included two conditions in their ordinance: that the Fire District obtain FAA approval and that a solid fence be placed around the tower compound.



State of Illinois – Environmental

Two parcels (on one combined property; 10S060 Thurlow Street) located west of the subject property are registered in the Illinois Department of Natural Resources (IDNR) Conservation Stewardship Program as a deer sanctuary through 2028. The Conservation Stewardship Program permits property owners to submit a Conservation Management Plan for the purposes of reducing one's property tax requirements by specifying certain conservation and management practices, including uses that will be conducted to preserve and restore unimproved land.

The State of Illinois requires entities attempting to construct items near such properties to submit projects for consultation as to their impacts on natural resources. Under Chapter 17, Section 1075.40 of the Illinois Administrative Code, "local units of government are [required to evaluate], through a consultation process with the [IDNR], whether actions authorized, funded, or carried out by them, as defined in Section 1075.30, are likely to jeopardize the continued existence or recovery of Illinois listed endangered or threatened species or are likely to result in the destruction or adverse modification of the essential habitat of such species or are likely to result in the adverse modification of a Natural Area." A Natural Area is defined as "any area of land in public or private ownership that is required under the Natural Areas Act or is identified in the Illinois Natural Areas Inventory."

Section 1075.30 of the Code states the following:

"Any construction, land management or other activity authorized, funded or performed by a State agency or local unit of government that will result in a change to the existing environmental conditions and/or may have a cumulative, direct or indirect adverse impact on a listed species or its essential habitat or that otherwise jeopardizes the survival of that species and/or may have a cumulative, direct or indirect adverse impact on a Natural Area shall be evaluated through the consultation process. This includes but is not limited to the following:

Staff Report and Summary

Z-04-2019: 10S110 Madison Street (Tri State Fire Protection District); Special Use and Findings of Fact; continued from May 20, 2019 & April 15, 2019 Page 4 of 5

- 1. the alteration, removal, excavation or plowing of non-farmed, non-cultivated areas, or dredging of soil, sand, gravel, minerals, organic matter, vegetation, or naturally occurring materials of any kind;
- 2. the changing of existing drainage characteristics or sedimentation patterns;
- 3. the grading or removal of materials that would alter existing topography;
- 4. the creation of new, or the increase in existing permanent barriers to the movement of wildlife, such as dam construction;
- 5. a discharge of pollutants into the air, water, or on the land;
- 6. the application of chemicals to the air, water, or on the land;
- 7. preliminary plats, plans and permits; and
- 8. an application for rezoning from a non-urban classification to an urban classification (e.g. from agricultural to residential) or a change from one urban classification to another on land not used in its entirety for the original classification.

Tri-State has since applied for consultation via the IDNR as to the effects of the tower, and on April 24, 2019, Tri-State received a notice from the IDNR stating that "adverse effects of the proposed action are unlikely" and no specific actions were required to remediate any potential effects of the tower on neighboring properties (Exhibit C).

Federal Aviation Administration (FAA)

On April 18, 2019, the FAA issued a notice to the District stating that the proposed tower was approved, with no marking or lighting was required to be installed on the proposed tower. The District has stated that they do not plan to install such markings or lighting on a voluntary basis.

Land Use and Site Analysis

The subject property is located on the west side of Madison Street between 87th and 89th Street and is zoned R-2 Residential. The subject property is surrounded by residential properties on all sides, with properties to the north, west, and south located in unincorporated DuPage County. Photo simulations as well as a fall radius analysis of the proposed tower have been provided by the District (Exhibit A); no structures are currently located within this radius except those owned by the District. The tower is proposed to be setback 20' from the subject property's western property line and surrounded by a four-foot-tall fence and gate.

Public Hearing History

A special use was granted to Tri-State in 1991 to permit continued operations of an existing fire station upon annexation into the Village. While zoned as R-2 Residential, fire stations, among other public uses such as utility substations, police stations, and Village-owned facilities are listed as special uses in the R-2 Residential District and in all other residential districts.

Public Comment (Exhibit D)

Staff received a considerable number of objection to the petition, which have been included in the packet. In light of the impact of the petition's proposal, staff took additional precautions to extend the public notification radius from 750 feet to 1,250 feet from each corner of the property while also contacting every HOA located within the Village located within 2 miles of the property.

Applicable Zoning Ordinance Section(s)

V. REGULATIONS FOR PERSONAL WIRELESS SERVICE FACILITIES

1. Permitted Locations

Staff Report and Summary

Z-04-2019: 10S110 Madison Street (Tri State Fire Protection District); Special Use and Findings of Fact; continued from May 20, 2019 & April 15, 2019 Page 5 of 5

Placement of personal wireless service facilities in any right-of-way within the Village limits is permitted subject to compliance with the requirements of Chapter 12, Article VIII of the Village Code, a special use is required and may be requested for any public utility service use that satisfies the definition of personal wireless service facility, as defined herein, provided that the proposed location satisfies any one of the criteria listed below.

c. The proposed location of the Personal Wireless Service Facilities is located on a property owned by or used for municipal services.

2. Maximum Height for Personal Wireless Service Facilities

An applicant for approval of a Personal Wireless Facility shall demonstrate that the Personal Wireless Facilities do not exceed the minimum height required to function satisfactorily. Under any circumstances, Personal Wireless Facilities shall not exceed the following height restrictions unless otherwise specifically approved by grant of a special use permit as per Section IV.V.3, herein:

a. The maximum height of a freestanding tower shall not exceed 100 feet provided, however, that an applicant requesting a freestanding tower shall demonstrate that the tower/antenna is the minimum height required to function satisfactorily.

Findings of Fact and Recommendation

The petitioner has provided findings of fact which may be adopted if the Plan Commission is in agreement with those findings. If the Plan Commission chooses to recommend a special use for Tri-State for a personal wireless service facility at 10S110 Madison Street, staff recommends that the special use be made subject to the following conditions:

- 1. The approval of the special use shall be contingent upon the applicant (Tri-State Fire Protection District) securing all necessary approvals from the State of Illinois, DuPage County, and the City of Darien to construct all facilities and structures to complete the full communication network.
- 2. The Village of Burr Ridge shall be granted access to one pre-manufactured connection node on the tower for the purpose of co-locating wireless equipment related to providing service to its internal public service needs.
- 3. The Village of Burr Ridge shall be granted access to the entirety of the tower's fenced area for the purposes of maintaining any Village-owned equipment co-located on the tower.
- 4. No markings or lighting are permitted on the tower unless otherwise required by law or statute.

Appendix

- Exhibit A Site Plans and Photo Simulations
- Exhibit B Findings of Fact
- Exhibit C Illinois Administrative Code & IDNR Letter
- Exhibit D Public Comment Correspondence
- Exhibit E Petitioner Application and Legal Materials

EXHIBIT A



Chief S. Molinaro Tri-State Fire Protection District 419 Plainfield Rd. Darien, IL 60561

May 14, 2019

Chief Molinaro:

As the Director of the Addison Consolidated Dispatch Center, one of the three Public Answering Points (PSAP), in DuPage County I wanted to take a moment to explain that the use of microwave technology is utilized by all three PSAPs in the County. It is the primary infrastructure in which ACDC provides vital public safety resources such as, Computer Aided Dispatch and Fire Station Alerting to our police and fire member agencies. We have multiple microwave links throughout the County. The other large PSAP in the County, DU-COMM, has a vast microwave system throughout the County as well. ACDC prefers microwave technology due to its reliability, cost, and ability to transmit data over distances. Delivery of this data is crucial to the safety of the citizens of DuPage County and our first responders.

Respectfully,

Delores Temes ACDC Director

















Disclaimer: This photo simulation is an artist's depiction of a future installation. The actual construction may vary slightly in size, layout, color and texture from this simulation.





Disclaimer: This photo simulation is an artist's depiction of a fu



Burr Ridge FD - Station 123 10 S. 110 Madison St Burr Ridge, IL 60521

Facing West



SIGN GROUP, LLC.

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color and texture from this simulation.



Disclaimer: This photo simulation is an artist's depiction of a fu

Burr Ridge FD - Station 123 10 S. 110 Madison St Burr Ridge, IL 60521

Facing West

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SIGN GROUP, LLC.

color and texture from this simulation.

Burr Ridge FD - Station 123 10 S. 110 Madison St

10 S. 110 Madison St Burr Ridge, IL 60521

Facing North



Disclaimer: This photo simulation is an artist's depiction of a future installation. The actual construction may vary slightly in size, layout, color and texture from this simulation.

PROPOSED



Burr Ridge FD - Station 123 10 S. 110 Madison St

Burr Ridge, IL 60521

Facing North



Disclaimer: This photo simulation is an artist's depiction of a future installation. The actual construction may vary slightly in size, layout, color and texture from this simulation.

EXISTING



Facing East



EXISTING

artist's depiction of a future installation. The actual construction may vary slightly

Burr Ridge FD - Station 123 10 S. 110 Madison St Burr Ridge, IL 60521



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Facing East



PROPOSED

artist's depiction of a future installation. The actual construction may vary slightly

Burr Ridge FD - Station 123 10 S. 110 Madison St Burr Ridge, IL 60521



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EXHIBIT B

Finding A

The Tri-State Fire Protection District ("District") is 27 square miles and has an evening population of approximately 40,000. The District provides fire suppression, rescue and emergency medical services for four municipalities in both Cook and DuPage Counties. This municipalities include Burr Ridge, Darien, Willowbrook, Willow Springs as well as unincorporated areas of southeast DuPage County. The District currently has 57 full-time personnel and 7 part-time personnel.

The District operates out of four fire stations:

Fire Station 121	236 Sunrise Willowbrook, IL 60527
Fire Station 122	419 Plainfield Road Darien, IL 60561
Fire Station 123	10 S. 110 Madison Street Burr Ridge, IL 60527
Fire Station 124	8259 Willow Springs Road Willow Springs, IL 60480

Background

In January 2016 Illinois passed legislation requiring consolidation of 911 dispatch centers. Since that time DuPage County has gone from over twenty (20) dispatch centers to three (3):

- Addison Consolidated Dispatch Center (ACDC)
- DuPage Public Safety Communications (DU-COMM)
- DuPage County Sheriff

Along with consolidation of dispatch centers, the County and ETSB (Emergency Telephone System Board) have been working on two (2) other major projects which will be introduced in 2019:

1. New Computer Aided Dispatch (CAD) and Records Management System (RMS) Systems

This County-Wide system consists of four components and will be replacing an outdated system:

<u>Computer Aided Dispatch</u> - When a dispatcher receives a 9-1-1 call, the name, address, and

nature of the call is entered into the CAD system. The information is transmitted from CAD

directly to the first responders' in-vehicle computers.

<u>In-Vehicle Mobile Data & Mapping</u> - First responders receive information about the call on

their in-vehicle computers, including maps of the response area. Responding staff members

use this system to send and receive information to each other and the dispatch center. This

system is also used to access federal and State law enforcement databases.

<u>Field Reporting</u> - This system allows police officers to complete incident reports in their vehicles. Completed reports are automatically sent to the Records Management System.

<u>Records Management System</u> - This system stores all Police and Fire Departments reports and

the information entered into the CAD system. It is used to retrieve historical data, respond to

resident requests for information and conduct analyses.

2. Fire Station Alerting System (FSA)

In 2017, the DuPage ETSB voted to support and subsequently approve the funding for new fire station alerting systems in all fire station facilities (66 total) throughout DuPage County. The intent of the project is to capture the optimal integrated functions of the new CAD system which includes automated station notification of emergency calls to dispatch emergency requests as quickly and efficiently as possible.

The current (legacy) systems require manual activation with human interaction for operation which has

inherent delays due to the processes. Most legacy systems within DuPage County have been in

operation for over fifteen years including the equipment located in our facilities. The total costs for the

legacy equipment were borne by each of the respective agencies at the time they were installed.

Fire District's Connectivity/Communications Project Overview

To coincide with the implementation of the CAD and FSA projects mentioned above, the District is looking to not only complete work to fully implement the DuPage County Systems in our fire stations, but to also improve our internal connectivity and communications systems to bring them to current standards.

It is important to note that the DuPage County projects referenced above <u>do not</u> address connectivity between our four (4) fire stations.

The DuPage County CAD and FSA systems are connected to our agency via <u>one</u> connection provided by our dispatch center Addison Consolidated Dispatch Center (ACDC). We will receive that connection at our Fire Station 122, 419 Plainfield Road, Darien by means of a microwave link between Fire Station 122 and a microwave located on the 315' radio tower. (Tower B) at the Darien Public Works facility located at Cass Avenue & I-55.

The responsibility of then connecting Fire Station 122 and the DuPage CAD and FSA systems to our remaining fire stations falls upon the Tri-State Fire District, not DuPage County or ACDC. The proposed project described within this document accomplishes this goal.

The District has been working with the following consultants/agencies in evaluating current infrastructure in place and upgrades that are needed to not only meet the current connectivity requirements of the DuPage County CAD and FSA systems but also communications and connectivity needs of the Fire District for the next 10-20 years:

Addison Consolidated Dispatch Center 1 Friendship Plaza Addison, IL 60101 Michael Sampey

A-Beep, LLC	452 N. Chicago Street Joliet, IL 60432	John Sullivan
Mid America Towers, Inc.	2300 Bethelview Drive, Suite 110- 434 Cumming, GA 30040	Jay Panozzo
Class Computing	566 W. Adams, Suite 260 Chicago, IL 60661	Dale Schwer

Based on recommendations from these consultants/agencies the District seeks to build a selfmaintained microwave radio network ring that connects all four (4) fire stations (see Figure 1). Not shown in Figure 1 is the microwave link from Fire Station 122 to the ACDC microwave at I-55 & Cass Avenue. This microwave radio network would replace the District's current outdated technology consisting of analog circuits, copper phone lines, T-1 lines and coax cable data connections.

The microwave radio network ring will ensure redundancy in that if one microwave connection is lost the ring continues to function from the microwave connection going in the opposite direction. The microwave ring would provide ample bandwidth today and will be upgradeable in the future to continue to meet the growing demands of the District.

In the scope of this project, the District will also be looking at the feasibility of improving VHF radio coverage through the addition of radio antennas so that in-building radio communications are improved.

(Figure 1 on following page)

Finding B

Approval of this communications tower will provide for the District to seamlessly adapt to the new DuPage County ETSB state of the art fire station alerting & computer aided dispatch systems which are coming on line this year. Without this tower project, the District will need to rely on the current outdated copper lines, RTNC circuits, T-1 lines and coax cable data connections as primary and backup IP connections, which are required for these new systems to function.

These outdated technologies are more costly, and less reliable than the proposed microwave project. The other option is to run dedicated fiber optic lines from station to station, which is financially not feasible, and still requires the district to rely on outside service providers.

Approval of this project will not be detrimental to or endanger public health, safety, morals, comfort or the general welfare. This project will be beneficial to citizens served by the District, as it will ensure that the District will meet the current technology needs regarding emergency communications and dispatch. It will also ensure that the district will more easily meet future communication needs by providing its own infrastructure in a financially responsible manner independent of outside service providers and the monthly fees associated with having to rely on them.

Finding C

Since this proposed 100 foot communications tower site will be located entirely on District owned property, it is the opinion of the District that it will not be injurious to the uses and enjoyment of properties in the immediate vicinity. The tower as proposed is the minimum height which will allow microwave signals to transmit station to station. By design, a monopole is less obstructive to a community than lattice and guyed wire type towers, both of which have much larger footprints and a much larger overhead "air presence".

Multiple research papers have been written which address whether or not property values are substantially diminished by nearby communications / cellular towers. A study conducted in a North Carolina residential area follows this finding.

Impact of Cell Tower on Surrounding Properties

By Tom J. Keith & Associates, Inc.

The following pages illustrate how to quantify the impact of a cell tower on surrounding properties. Property values surrounding several towers are studied in order to quantify impact,

Tower #306527



Address:

City: State: Zip Code: Latitude: Longitude: 5409 Spence Farm Rd.

Holly Springs North Carolina 27540 35 - 36 - 22.6 N 35.60627 78 - 49 - 33.2 W -78.8259

	SITE SPECS	
MTA:	Charlotte-Raleigh	
BTA:	Raleigh-Durham, NC	
MSA/RSA:	Raleigh, NC	
Ground Elevation AMSL:	0.0 ft.	
Datum:	NAD83	
County:	WAKE	
Region:	USA	
Comments:		
Driving Instructions:	Take US1 South to exit 95. Make left @ stop light. Go 9 miles make right on to Old Powell Road for 1 mile. Turn left onto Spencer Farm	

road for 1 mile. Furn left onto Spencer Farm Road, @ intersection of Spencer Farm Road and Commission make left (infront of brick house) site is behind hous .3m UTILITY INFORMATION

Telco Provider:	
Power Provider:	No Business Entered
	TOWER DATA
Tower Number:	306527
Structure Height (AGL):	285 ft.
Structure Height (AMSL):	285 ft.
Clearance:	10 ft.
Total Height (AMSL):	295 ft.
Туре:	Self Support
FAA #:	2003-ASO-5007-OE
FCC #:	1046859
Tower Status:	Active



Subdivision Sales Analyzed From Tower Site





As you will note we have averaged the price per square foot for dwellings located within each of the buffer rings.

\$ 90.24
\$ 94.61
\$ 90.96
\$ 92.09
\$ 92.13
\$ \$ \$ \$ \$

As you can observe from the charts and data above for tower #306527, there does not appear to be any significant or consistent change in value from the properties located in each buffer ring. Buffer ring one had a value of 90.24, which rises in buffer ring two to \$94.61. This rise could be of consideration until the fall in value of buffer ring three with \$90.96. Buffer ring four has a slight increase in value to \$92.09. The values rise and fall as you move out from ring one to ring five, concluding that the tower does not affect the value of the properties as distance increases from tower.
		WA AVE	KE (Ra(COUNT Ge sal	y t Es	ower # Price	#30 PEF	6527 R SF				
Buff 1/ from 1	er Ring 1 10 Mile Fower Site	Buffer Ring 2 2/10 Mile from Tower Site		Buffe 3/10 from To	r Rin) Mil	ng 3 le r Site		Buffe 4/10 from To	r Ri D Mi owe	ing 4 ile er Site	B	uffer Ring 5 5/10 Mile m Tower Site
\$	95.96	\$ 89.42	\$	79.29	\$	92.24	\$	85.76	\$	104.17	\$	81.56
\$	84.51	\$ 89.63	\$	85.82	\$	92.45	\$	94.14	\$	101.85	\$	85.54
		\$ 92.82	\$	97.39	\$	86.46	\$	93.01	\$	89.81	\$	111.33
		\$ 79.99	\$	85.05	\$	85.99	\$	113.36	\$	86.08	\$	90.76
		\$ 87.83	\$	86.18	\$	84.85	\$	93.49	\$	85.96	\$	96.15
		\$ 126.17	\$	96.57	\$	85.36	\$	97.50	\$	87.83	\$	109.97
		\$ 81.71	\$	97.47	\$	85.47	\$	91.99	\$	80.65	\$	87.75
		\$ 107.91	\$	94.80	\$	101.63	\$	88.48	\$	87.80	\$	89.59
	6	\$ 95.98	\$	114.09	\$	87.61	\$	81.27	\$	96.72	\$	90.49
		Contraction of	\$	94.30	\$	89.51	\$	108.16	\$	82.49	\$	86.24
		1 10 10 K	\$	87.27	\$	87.08	\$	85.55	\$	89.82	\$	87.53
		1. 18 Mar 19	\$	91.58	\$	94.59					\$	88.64
\$	90.24	\$94.61		\$9	0.96			\$9	2.0	9		\$92.13

Finding D

Since the proposed tower sits entirely on property owned by the District, if approved it will in no way impeded the normal use or development of surrounding properties, primarily because most of the surrounding parcels are already developed.

<u>Finding E</u>

All the requirements stated in this finding are currently in place or will be provided for in the scope of the communication tower project.

Finding F

Ingress and Egress methods to the proposed tower are currently in place / provided for by existing parking lots at Station 123 on Madison Street on District property.

Finding G

The facility is presently used for emergency services, and the granting of a special use will not change the character or use of the subject property nor the neighborhood.

<u>Finding H</u>

Agreed. This facility currently acts as a provider of emergency services, and has been a longstanding use in this area. The proposed special use will increase the Fire District's communications reliability and thus provide an essential, unique service to its residents.

District Fire Station Connectivity/Communication Project



Information Packet February 2019

Sam Molinaro, Fire Chief smolinaro@tristatefd.com

Patrick Brenn, Deputy Chief pbrenn@tristatefd.com

Tri-State Fire Protection District 419 Plainfield Road Darien, IL 60561

Fire District

The Tri-State Fire Protection District ("District") is 27 square miles and has a population of approximately 50,000. The District provides fire suppression, rescue and emergency medical services for four municipalities in both Cook and DuPage Counties. This municipalities include Burr Ridge, Darien, Willowbrook, Willow Springs as well as unincorporated areas of southeast DuPage County. The District has 56 full-time personnel and 7 part-time personnel.

The District operates out of four fire stations:

Fire Station 121	236 Sunrise Willowbrook, IL 60527	
Fire Station 122	419 Plainfield Road Darien, IL 60561	
Fire Station 123	10 S. 110 Madison Street Burr Ridge, IL 60527	
Fire Station 124	8259 Willow Springs Road Willow Springs, IL 60480	

Background

In January 2016 Illinois passed legislation requiring consolidation of 911 dispatch centers. Since that time DuPage County has gone from over twenty (20) dispatch centers to three (3):

- Addison Consolidated Dispatch Center (ACDC)
- DuPage Public Safety Communications (DU-COMM)
- DuPage County Sheriff

Along with consolidation of dispatch centers, the County and ETSB (Emergency Telephone System Board) have been working on two (2) other major projects which will be introduced in 2019:

1. New Computer Aided Dispatch (CAD) and Records Management System (RMS) Systems

This County-Wide system consists of four components and will be replacing an outdated system:

<u>Computer Aided Dispatch</u> - When a dispatcher receives a 9-1-1 call, the name, address, and nature of the call is entered into the CAD system. The information is transmitted from CAD directly to the first responders' in-vehicle computers.

<u>In-Vehicle Mobile Data & Mapping</u> - First responders receive information about the call on their in-vehicle computers, including maps of the response area. Responding staff members use this system to send and receive information to each other and the dispatch center. This system is also used to access federal and State law enforcement databases.

<u>Field Reporting</u> - This system allows police officers to complete incident reports in their vehicles. Completed reports are automatically sent to the Records Management System.

<u>Records Management System</u> - This system stores all Police and Fire Departments reports and the information entered into the CAD system. It is used to retrieve historical data, respond to resident requests for information and conduct analyses.

2. Fire Station Alerting System (FSA)

In 2017, the DuPage ETSB voted to support and subsequently approve the funding for new fire station alerting systems in all fire station facilities (66 total) throughout DuPage County. The intent of the project is to capture the optimal integrated functions of the new CAD system which includes automated station notification of emergency calls to dispatch emergency requests as quickly and efficiently as possible.

The current (legacy) systems require manual activation with human interaction for operation which has inherent delays due to the processes. Most legacy systems within DuPage County have been in operation for over fifteen years including the equipment located in our facilities. The total costs for the legacy equipment were borne by each of the respective agencies at the time they were installed.

Fire District's Connectivity/Communications Project Overview

To coincide with the implementation of the CAD and FSA projects mentioned above, the District is looking to not only complete work to fully implement the DuPage County Systems in our fire stations, but to also improve our internal connectivity and communications systems to bring them to current standards.

It is important to note that the DuPage County projects referenced above <u>do not</u> address connectivity between our four (4) fire stations.

The DuPage County CAD and FSA systems are connected to our agency via <u>one</u> connection provided by our dispatch center Addison Consolidated Dispatch Center (ACDC). We will receive that connection at our Fire Station 122, 419 Plainfield Road, Darien by means of a microwave link between Fire Station 122 and a microwave located on the 315' radio tower (Tower B) at the Darien Public Works facility located at Cass Avenue & I-55.

The responsibility of then connecting Fire Station 122 and the DuPage CAD and FSA systems to our remaining fire stations falls upon the Tri-State Fire District, not DuPage County or ACDC. The proposed project described within this document accomplishes this goal.

The District has been working with the following consultants/agencies in evaluating current infrastructure in place and upgrades that are needed to not only meet the current connectivity requirements of the DuPage County CAD and FSA systems but also communications and connectivity needs of the Fire District for the next 10-20 years:

Addison Consolidated Dispatch Center	1 Friendship Plaza Addison, IL 60101	Michael Sampey
A-Beep, LLC	452 N. Chicago Street Joliet, IL 60432	John Sullivan
Mid America Towers, Inc.	2300 Bethelview Drive, Suite 110-434 Cumming, GA 30040	Jay Panozzo
Class Computing	566 W. Adams, Suite 260 Chicago, IL 60661	Dale Schwer

Based on recommendations from these consultants/agencies the District seeks to build a self-maintained microwave radio network ring that connects all four (4) fire stations (see Figure 1). Not shown in Figure 1 is the microwave link from Fire Station 122 to the ACDC microwave at I-55 & Cass Avenue. This microwave radio network would replace the District's current outdated technology consisting of analog circuits, copper phone lines, T-1 lines and coax cable data connections.

The microwave radio network ring will ensure redundancy in that if one microwave connection is lost the ring continues to function from the microwave connection going in the opposite direction. The microwave ring would provide ample bandwidth today and will be upgradeable in the future to continue to meet the growing demands of the District.

In the scope of this project, the District will also be looking at the feasibility of improving VHF radio coverage through the addition of radio antennas so that in-building radio communications are improved. **3** | P a g e



Figure 1-Microwave Ring

Scope of Work

For this microwave radio network the District would construct monopoles at the fire stations located in Darien, Burr Ridge and unincorporated Willowbrook. At the fire station located in Willow Springs there is an existing lattice-type radio tower adjacent to the building. We would use this existing tower to install the microwave equipment on. The microwaves would be installed at varying heights at each location to meet minimum line-ofsight requirements between the different fire stations.

Station 122 - Darien

- 1 4' microwave dish at 130' pointed towards Station 124 in Willow Springs
- 1 2' microwave dish at 75' pointed towards Station 121 in unincorporated Willowbrook
- Monopole minimum height required is 130'
- · Future addition of an antenna at top of monopole for improved VHF radio/portable coverage

Station 121 - unincorporated Willowbrook

- 1 2' microwave dish at 134' pointed towards Station 123 in Burr Ridge
- 1 2' microwave dish at 70' pointed towards Station 122 in Darien
- Monopole minimum height required is 134'
- The District is seeking the tower to be at 140'
- Future addition of an antenna at top of monopole for improved VHF radio/portable coverage

Station 123 – Burr Ridge

- 1 3' microwave dish at 100' pointed towards Station 124 in Willow Springs
- 1 2' microwave dish at 75' pointed towards Station 121 in unincorporated Willowbrook
- Monopole minimum height required is 100'
- Future addition of an antenna at top of monopole for improved VHF radio/portable coverage

Station 124 – Willow Springs

- 1 3' microwave dish at 130' pointed towards Station 122 in Darien
- 1 2' microwave dish at 100' pointed towards Station 123 Burr Ridge
- Existing tower is in place with microwave equipment on it and feed into the fire station from the former Willow Springs FD and SEDCERN

The microwave radio network design calls for all equipment to be located on Fire District property and power will be backed up by emergency generators already in place at each fire station.

Included in this packet are the following:

- 1. Letter from the Village of Addison IT Manager
- 2. Letter from A-Beep LLC the consultant and contractor for the microwave equipment/towers
- 3. Microwave Path Studies
- 4. VHF Radio Coverage Study
- 5. Letter from the Fire District's IT Firm Class Computing
- 6. Tower Plans for each fire station site from W-T Communications Design Group, LLC

Letter from Class Computing Fire District's IT Firm



566 W. Adams Suite 260 Chicago, IL 60661 312-262-3930

Tristate Fire Protection District February 15, 2019

Overview

The Tristate Fire Protection District is looking to implement a single microwave tower at each of their four stations to expand network services for the agency. The expansion of the network services will allow for much improved communications for Fire, Rescue, and Emergency Medical Services for the district and the residents that the districts personnel serve. The current network support has had numerous downtime issues which causes the Tri-State Fire agency to now work at peak ability. The DuPage County ETSB is in the process of installing a new state of the art IP based Fire Station alerting system. To be compliant with the NFPA standards, redundant and reliable IP paths to each station must be provided. Comcast is not reliable enough to serve as the primary IP path but will serve as a secondary IP path. Microwave will be the primary path.

Technology Summary Evaluation

- Each Station currently has Comcast internet lines that provide outside connectivity
- Tri-State Station 122 is the main network hub housing all servers, the network database, and core equipment
- Stations 121, 123, and 124 currently house a router/firewall with a secured site to site VPN connection to Station 122. This allows each station access to all necessary data for the agency
- Comcast's unstable internet connection at the stations causes the loss of the ability for each station to access necessary data when needed.
- Currently there is not backup internet for each station so when an internet outage occurs the network is unavailable. Tri-State is currently looking at backup internet solutions as required to by NFPA standards for fire station alerting.

Recommendation

Class Computing recommends moving the Tristate network to a microwave network. This will allow for secure and stable connections for each station to connect to the main network server room. It will also allow Tristate to use Comcast as a backup internet provider for the fire agency network

Class Computing will configure Tristate's microwave network in a mesh configuration thus allowing a more stable and secure connection to the agency network along with the ability to use any fire stations Comcast internet connection as a conduit to the internet

Each station would maintain a microwave tower thus providing a network ring (mesh network) capable of routing network traffic through multiple routes if there are issues at any network point. This will allow Class Computing to create a highly secure network that uses no outside company for primary use.

Class Computing has researched numerous connection types and the most viable option is a microwave tower due to the limit of speed and cost choices available to the fire agency. Though the initial cost may be high, the return on investment of the microwave network will be seen in 5 years.

Microwave is the chosen primary network option by many fire agency networks, due to its stability and speed. The microwave towers will enable the Fire District to install a microwave link between two or more sites in the geographic area providing reliable redundant connectivity for their Fire and EMS needs.

Letter from the Village of Addison/ACDC IT Manager



Village of Addison

February 1, 2019

Dear City of Darien,

The Addison Consolidated Dispatch Center is currently working with the City of Darien to bring the DuPage County ETSB network to Tri-State Fire Protection District Station 2, and to increase the coverage for the Addison Consolidated Dispatch Center's backup public safety radio systems.

This project is completely independent from the Tri-State Fire Protection District's project for network connectivity between the Fire Stations. The DuPage County ETSB will be moving to new Computer Aided Dispatch and Fire Station Alerting systems in 2019; both of these systems will require network connectivity between all of the Tri-State Fire Protection District's fire stations. The network connectivity is the responsibility of the individual fire agencies and not the responsibility of DuPage County or the Addison Consolidated Dispatch Center.

The Addison Consolidated Dispatch Center technical team will work to ensure that the DuPage County connection to Tri-State Fire Protection Station 2 is functional and stable. The Addison Consolidated Dispatch Center will also be looking at a backup IP connection to one Tri-State Fire Protection District station through a VPN tunnel as a secondary connection. The connection to all of the other stations should meet the standards required for Computer Aided Dispatch and Fire Station Alerting systems in 2019. The responsibility to meet these standards is at the individual agency level.

As a point of reference, the Addison Consolidated Dispatch Center will be installing one microwave connection which will be installed at Tri-State Fire Protection Station 2 back to the Addison Consolidated Dispatch Center located in Addison, for access to the DuPage County ETSB system. The Addison Consolidated Dispatch Center has had success with the use of a private microwave network. The microwave network has the security required to help ensure reliable communications for public safety. The negative aspects of these systems include the initial capital cost and design costs compared to using public lines provided by Concast or AT&T, weather related issues, and replacement costs. The positive aspects of utilizing this system include the elimination of ongoing usage charges, controlled maintenance windows for equipment, and built in redundancy on equipment or in design.

Please feel free to contact me with any questions or concerns.

Thank you,

Michael Sampey Information Technology Manager Village of Addison 1 Friendship Plaza Addison, IL 60101-2786 Phone: 630-693-7514 Email: msampey@addison-il.org

Friendship Plaza Addison, IL 60101-2786 Tel. (630) 543-4100 Fax (630) 543-5593 www.AddisonAdvantage.org

Letter from A-Beep LLC Consultant & Contractor for the Project



Background:

The Tri-State Fire Protection District operates out of four fire stations to provide Fire, Rescue, and Emergency Medical Services to residents and business in the communities of Darien, Willowbrook, Burr Ridge, Willow Springs, and unincorporated DuPage and Cook Counties.

Communications and Networking between the stations are vital to the District's daily operations and prompt responses to emergencies. The ability for Fire and EMS personnel to communicate and share data is expected on a daily basis as well as in times of great disasters and emergencies. The fire stations serve as hubs to provide field communications between units as well as communications back to the Public Safety Answering Point, Addison Consolidated Dispatch Center (ACDC), where 9-1-1 calls are processed and dispatched to the stations.

Currently the district operates its network on out dated and end of life copper technology including copper phone lines, RTNC circuits, T1 lines and coax cable data connections. These lines have become unstable and unreliable. These circuits are no longer able to provide the bandwidth and redundancy required for the daily operations of a modern Fire and EMS provider and will not support the new Computer Aided Dispatch and Fire Station Alerting Systems required by the DuPage County Emergency Telephone Systems Board. Alternative fiber solutions are not an option due the expense and logistics to install dedicated fiber to each building. These alternatives have many drawbacks, including an inability to withstand power outages and rely on 3rd party providers.

In addition to networking, the Fire District seeks to improve its radio coverage and to provide in building penetration for its portable radios. These radios are the lifeline for firefighters and paramedics to communicate with the PSAP as well as each other. Modern building construction and the abundance of large industrial, commercial, and residential structures within the district require additional receive sites to assist in providing the much-needed coverage.

The DuPage County ETSB is in the process of installing a new state of the art IPbased Fire Station Alerting system. This system will not operate reliably on the District's current technology. To be compliant with the NFPA standards redundant IP connections to each station must be provided.

Microwave is the chosen primary network option by ACDC. Construction of the towers will enable the Fire District to install a microwave link between two or more sites in the geographic area providing reliable redundant connectivity for dispatch. ACDC currently provides connectivity and radio coverage to the

geographic areas they serve from the I55/Cass tower located at the Darien Public Works facility. It is, however the responsibility of each agency to provide the last-mile connectivity between their own locations. Additionally, ACDC provides outside mobile level coverage on the VHF radio network and it is the responsibility of each agency to provide additional enhanced in building portable radio level coverage.

Project Plan

After reviewing several options we feel the best means to meet the goals and needs of the Tri-State Fire Protection District would be to construct a selfmaintained microwave radio network ring between the four Fire District locations. The towers would link to the ACDC equipment located at the I-55/Cass tower and then complete connectivity of the DuPage County systems to the remaining fire stations.

This microwave ring will provide ample bandwidth today and be upgradeable in the future to continue to meet the growing demands of the Fire District. Providing direct connections to each station eliminates third-party locations and failures making the network much more reliable. For this reason the use of surrounding towers would be prohibited, with the exception of the District's station in Willow Springs which has an existing radio tower with microwave equipment adjacent to the building.

The microwave ring technology provides the redundancy needed to meet industry standards. The design calls for all items to be located on Fire District property and power will be backed up by the already in place public safety grade emergency generators. The towers needed to achieve line of site for the microwave paths will also be able to host VHF antennas to provide much improved radio receive coverage for Fire District communications.

These towers will be designed with expansion and co-location in mind. This means that in the future other public safety entities or commercial service providers may be able to take advantage of these existing sites. The tower heights vary at each location based on line-of-site requirements between the four locations for the microwave technology to network the stations in a reliable ring configuration. These towers are also designed to provide for VHF radio antennas to enhance coverage into the area surrounding each tower. Due to the expense in constructing this network, care is being taken to ensure the towers are designed to meet the current and future needs of the Fire District.

The use of nearby stealth towers is not an option for the Fire District. The use of off-site facilities greatly reduces the reliability of the network design as well as adds tremendous expense. In most cases the off-site location was not designed or intended for public safety use and does not have the required floor space for equipment or tower space for the required antennas and microwave dishes to be installed. AC power requirements and generators would be required to be added to the sites for public safety. Additional microwave direct connections back to the fire stations would be required and may still require the construction of towers on the fire station property. These sites would also require expensive contracts and rental expenses. Multiple stealth sites will be needed in the future due to lack of single stealth capacity and stealth sites are four times the cost of a regular tower.

Respectfully Submitted,

John K. Sullivan

Microwave Path Studies:

- 1. Cielo Networks
- 2. Cambium Networks



Budgetary Path Analysis

Microwave Project: 18 GHz - Tri State Fire

Notes:

Operation at 18 GHz with provides greater than 99.998% link availability.

Maps:









Microwave Link Profile:











Microwave Worksheet:

	TRIS Station 1	Tri State 2
Elevation (ft)	729.76	744.67
Latitude	41 44 19.46 N	41 45 20.40 N
Longitude	087 56 50.76 W	087 57 23.61 W
True azimuth (°)	338.02	158.01
Vertical angle (°)	0.16	-0.18
Antenna model	VHLP1-18-RC1	VHLP1-18-RC1
Antenna height (ft)	70.00	75.00
Antenna gain (dBi)	34.20	34.20
Frequency (MHz)	18000	.00
Polarization	Ver	tical
Path length (mi)	1	.26
Free space loss (dB)	123	.71
Atmospheric absorption loss (dB)	0	.11
Net path loss (dB)	55.42	55.42
Radio model	AON18_80_512Q	AON18_80_512Q
TX power (watts)	0.12	0.12
TX power (dBm)	20.70	20.70
EIRP (dBm)	54.90	54.90
Emission designator	80M0D7W	80M0D7W
RX threshold criteria	BER 10-6	BER 10-6
RX threshold level (dBm)	-59.50	-59.50
Maximum receive signal (dBm)	-25.00	-25.00
RX signal (dBm)	-34.72	-34.72
Thermal fade margin (dB)	24.78	24.78
Climatic factor	1	.00
Terrain roughness (ft)	20	.00
C factor	3	.29
Fade occurrence factor (Po)	2.96E	-04
Average annual temperature (°F)	75	.00
Worst month - multipath (%)	99.99990	99.99990
(sec)	2.59	2.59
Annual - multipath (%)	99.99996	99.99996
(sec)	11.66	11.66
(% - sec)	99.9999	3 - 23.31
Rain region	ITU Re	egion K
0.01% rain rate (mm/hr)	42	.00
Flat fade margin - rain (dB)	24	.78
Rain rate (mm/hr)	185	.17
Rain attenuation (dB)	24	.78
Annual rain (%-sec)	99.9999	6 - 13.94
Annual multipath + rain (%-sec)	99.9998	8 - 37.25

Wed, Feb 06 2019 TRIS Station 1-Tri State 2.pl4 Reliability Method - Vigants - Barnett Rain - ITU-R P530-7



	Tri State 2	TRIS 4 (Tower)
Elevation (ft)	744.67	609.3 ⁻
Latitude	41 45 20.40 N	41 44 22.07 N
Longitude	087 57 23.61 W	087 53 05.47 W
True azimuth (°)	106.77	286.8 ⁻
Vertical angle (°)	-0.40	0.36
Antenna model	VHLP3-18-RC1	VHLP3-18-RC1
Antenna height (ft)	130.00	130.00
Antenna gain (dBi)	43.50	43.50
Frequency (MHz)	18000	.00
Polarization	Ver	tical
Path length (mi)	3	.87
Free space loss (dB)	133	.46
Atmospheric absorption loss (dB)	0	.34
Net path loss (dB)	46.80	46.80
Radio model	AON18_80_512Q	AON18_80_5120
TX power (watts)	0.12	0.12
TX power (dBm)	20.70	20.70
EIRP (dBm)	64.20	64.20
Emission designator	80M0D7W	80M0D7W
RX threshold criteria	BER 10-6	BER 10-6
RX threshold level (dBm)	-59.50	-59.50
Maximum receive signal (dBm)	-25.00	-25.00
RX signal (dBm)	-26.10	-26.10
Thermal fade margin (dB)	33.40	33.40
Climatic factor	1	00
Terrain roughness (ft)	20	00
C factor	3	29
Fade occurrence factor (Po)	8.59E-	03
Average annual temperature (°F)	75	00
Worst month - multipath (%)	99.99961	99.99961
(sec)	10.32	10.32
Annual - multipath (%)	99.99985	99.99985
(sec)	46.43	46.43
(% - sec)	99.9997	1 - 92.86
Rain region	ITU Re	gion K
0.01% rain rate (mm/hr)	42.	00
Flat fade margin - rain (dB)	33.	40
Rain rate (mm/hr)	107.	51
Rain attenuation (dB)	33.	40
Annual rain (%-sec)	99.99924	- 239.56
Annual multipath + rain (%-sec)	99.99895	- 332.42

Wed, Feb 06 2019 Tri State 2-TRIS 4 Tower.pl4 Reliability Method - Vigants - Barnett Rain - ITU-R P530-7



	TRIS 3	TRIS Station 1
Elevation (ft)	737.27	729.76
Latitude	41 43 42.32 N	41 44 19.46 N
Longitude	087 56 05.88 W	087 56 50.76 W
True azimuth (°)	317.85	137.85
Vertical angle (°)	0.58	-0.59
Antenna model	VHLP1-18-RC1	VHLP1-18-RC1
Antenna height (ft)	75.00	134.00
Antenna gain (dBi)	34.20	34.20
Frequency (MHz)	18000	.00
Polarization	Ver	tical
Path length (mi)	0	.96
Free space loss (dB)	121	.35
Atmospheric absorption loss (dB)	0	.08
Net path loss (dB)	53.04	53.04
Radio model	AON18_80_512Q	AON18_80_512Q
TX power (watts)	0.12	0.12
TX power (dBm)	20.70	20.70
EIRP (dBm)	54.90	54.90
Emission designator	80M0D7W	80M0D7W
RX threshold criteria	BER 10-6	BER 10-6
RX threshold level (dBm)	-59.50	-59.50
Maximum receive signal (dBm)	-25.00	-25.00
RX signal (dBm)	-32.34	-32.34
Thermal fade margin (dB)	27.16	27.16
Climatic factor	1	.00
Terrain roughness (ft)	20	.00
C factor	3	.29
Fade occurrence factor (Po)	1.31E	-04
Average annual temperature (°F)	75	.00
Worst month - multipath (%)	99.99997	99.99997
(sec)	0.66	0.66
Annual - multipath (%)	99.99999	99.99999
(sec)	2.98	2.98
(% - sec)	99.9999	2.98
Rain region	ITU Re	egion K
0.01% rain rate (mm/hr)	42	.00
Flat fade margin - rain (dB)	27	.16
Rain rate (mm/hr)	264	.09
Rain attenuation (dB)	27	.16
Annual rain (%-sec)	100.000	00 - 0.77
Annual multipath + rain (%-sec)	99.9999	98 - 6.74

Wed, Feb 06 2019 TRIS 3-TRIS Station 1.pl4 Reliability Method - Vigants - Barnett Rain - ITU-R P530-7



	TRIS 4 (Tower)	TRIS 3
Elevation (ft)	609.31	737.2
Latitude	41 44 22.07 N	41 43 42.32 M
Longitude	087 53 05.47 W	087 56 05.88 W
True azimuth (°)	253.63	73.59
Vertical angle (°)	0.50	-0.5
Antenna model	VHLP2-18-RC1	VHLP2-18-RC1
Antenna height (ft)	100.00	100.00
Antenna gain (dBi)	38.70	38.70
Frequency (MHz)	18000	.00
Polarization	Ver	tical
Path length (mi)	2	.70
Free space loss (dB)	130	.33
Atmospheric absorption loss (dB)	0	.24
Net path loss (dB)	53.17	53.17
Radio model	AON18_80_512Q	AON18_80_5120
TX power (watts)	0.12	0.12
TX power (dBm)	20.70	20.70
EIRP (dBm)	59.40	59.40
Emission designator	80M0D7W	80M0D7W
RX threshold criteria	BER 10-6	BER 10-6
RX threshold level (dBm)	-59.50	-59.50
Maximum receive signal (dBm)	-25.00	-25.00
RX signal (dBm)	-32.47	-32.47
Thermal fade margin (dB)	27.03	27.03
Climatic factor	1	.00
Terrain roughness (ft)	20	.00
C factor	3	.29
Fade occurrence factor (Po)	2.92E-	.03
Average annual temperature (°F)	75	.00
Worst month - multipath (%)	99.99942	99.99942
(sec)	15.18	15.18
Annual - multipath (%)	99.99978	99.99978
(sec)	68.33	68.33
(% - sec)	99.99957	- 136.66
Rain region	ITU Re	gion K
0.01% rain rate (mm/hr)	42	00
Flat fade margin - rain (dB)	27	03
Rain rate (mm/hr)	114	49
Rain attenuation (dB)	27	03
Annual rain (%-sec)	99.99941	- 185.54
Annual multipath + rain (%-sec)	99.99898	- 322.20

Wed, Feb 06 2019 TRIS 4 Tower-TRIS 3.pl4 Reliability Method - Vigants - Barnett Rain - ITU-R P530-7 Cambium Networks"

Project Abeep PTP820G Revised Heights LINKPlanner Proposal Report

07 February 2019







Cambium Networks

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Cambium Networks"

1. Project Summary

Project:	Abeep PTP	820G Revised Heights
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Description: 1Gbps Ring External Protection

a second s	General Information	
Customer Name	John Sullivan	
Company Name	Abeep	_
Address	452 N. Chicago Street Joliet, IL 60432	
Phone	815-740-1780 Ext. 207	
Cell Phone	815-693-9900	
Email	john@abeep.com	



Project Abeep PTP820G Revised Heights - 1. Project Summary

Network Map



4

Cambium Networks"

Project Abeep PTP820G Revised Heights - 1. Project Summary

Link name	Product	Primary Local antenna	Primary Remote antenna	Max aggregate IP throughput
Tri State 2 to TRIS 4	PTP18820G with RFU-C	Cambium Networks 4ft Single Pol (NA & CALA Only) N180082D054 - Direct	Cambium Networks 3ft Single Pol (NA & CALA Only) N180082D053 - Direct	2124.22 Mbps
TRIS 3 to TRIS Station 1	PTP18820G with RFU-C	Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct	Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct	2096.68 Mbps
TRIS 4 to TRIS 3	PTP18820G with RFU-C	Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct	Cambium Networks 3ft Single Pol (NA & CALA Only) N180082D053 - Direct	2107.84 Mbps
TRIS Station 1 to Tri State 2	PTP18820G with RFU-C	Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct	Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct	2107.87 Mbps

		Bill of Materials : PTP Network
Part Number	Qty	Description
01010419001	10	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
07009304001	16	Hoisting Grip for CNT-400 cable
30010194001	13	50 Ohm Braided Coaxial Cable - 75 meter
C000082M004	8	PTP 820G, Dual Modem, Eth Only
C180082R029	8	PTP 820 RFU-C,18GHz,TR1560,ChF,Hi,19259-19710MHz. Please select a TX frequency
C180082R030	8	PTP 820 RFU-C,18GHz,TR1560,ChF,Lo,17699-18150MHz. Please select a TX frequency
EW-E4PT82M2-WW	8	PTP 820G IDU (Dual Modem) Extended Warranty, 4 Addl Years
EW-E4PT82RC-WW	16	PTP820G RFU-C Extended Warranty, 4 Additional Years
N000081L006	16	TNC Male Right Angle for CNT-400 braided cable
N000082L028	8	PTP 820G Act.Key - 2nd Modem Activation
N000082L043	4	PTP 820 Act.Key - Header De-Dup, per Tx Chan
N000082L083	16	PTP 820G Act.Key - Capacity 500M with ACM Enabled, per Tx Chan
N180082D052	5	PTP 820 2' ANT, SP, 18GHz, RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions
N180082D053	2	PTP 820 3' ANT, SP, 18GHz, RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions
N180082D054	1	PTP 820 4' ANT, SP, 18GHz, RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions
N180082L047	8	PTP 820 RFU-C 18GHz OMT DM KIT
N180082L056	8	PTP 820 RFU-C 18GHz OMT Interface-Radiowave



Bill of Materials : PTP Network (continued)				
Part Number	Qty Description			
WB3616	16	Coaxial Cable Installation Assembly Kit (W/O LPU End Kit)		
WB3657	16	LPU End Kit PTP 800/820		



Equipment: Cambium Networks PTP18820G with RFU-C - 2+0 Cross-Polar (ACAP)

Cambium Networks 4ft Single Pol (NA & CALA Only) N180082D054 - Direct @ 130 ft Cambium Networks 3ft Single Pol (NA & CALA Only) N180082D053 - Direct @ 130 ft



	Aggregate Performance to Tri State 2	Aggregate Performance to TRIS 4	
Mean IP	1062.1 Mbps	1062.1 Mbps	
IP Availability	99.9983 % for 500.0 Mbps	99.9983 % for 500.0 Mbps	

Link Summary (Aggregated)					
Link Length	3.871 mi.	Mean Aggregate Data Rate	2124.2 Mbps		
Band	18 GHz	Annual Link Availability	99.9996 %		
Regulation	FCC	Annual Link Unavailability	2.1 mins/year		
Modulation	Adaptive	Frame Size	1518 Bytes		
Bandwidth	80 MHz	T1 Channels	0		
Total Path Loss	134.28 dB	TDM Availability	99.9996%		
System Gain	189.00 dB	TDM Annual Unavailability	2.1 mins/year		
System Gain Margin	54.72 dB	Prediction Model	Vigants-Barnett		




Climatic Factors, Losses and Standards (Aggregated)			
Terrain Roughness	33.73 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.5	Annual 2-way Availability	100.0000 %
C Factor	2.50	Annual 2-way Unavailability	1 secs/year
Temperature	48.8° F	Rain Availability	99.9996 %
Value of K Exceeded for 99.99% (ke)	0.40	Rain Unavailability	2.1 mins/year
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	41.64 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	133.78 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.50 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

	-	Bill of Materials
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
07009304001	4	Hoisting Grip for CNT-400 cable
30010194001	4	50 Ohm Braided Coaxial Cable - 75 meter
C000082M004	2	PTP 820G, Dual Modem, Eth Only
C180082R029	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Hi,19259-19710MHz. Please select a TX frequency
C180082R030	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Lo,17699-18150MHz. Please select a TX frequency
EW-E4PT82M2-WW	2	PTP 820G IDU (Dual Modem) Extended Warranty, 4 Addl Years
EW-E4PT82RC-WW	4	PTP820G RFU-C Extended Warranty, 4 Additional Years
N000081L006	4	TNC Male Right Angle for CNT-400 braided cable



		Bill of Materials (continued)
Part Number	Qty	Description
N000082L028	2	PTP 820G Act.Key - 2nd Modem Activation
N000082L043	4	PTP 820 Act.Key - Header De-Dup, per Tx Chan
N000082L083	4	PTP 820G Act.Key - Capacity 500M with ACM Enabled, per Tx Chan
N180082D053	1	PTP 820 3' ANT,SP,18GHz,RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions
N180082D054	1	PTP 820 4' ANT,SP,18GHz,RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions
N180082L047	2	PTP 820 RFU-C 18GHz OMT DM KIT
N180082L056	2	PTP 820 RFU-C 18GHz OMT Interface-Radiowave
WB3616	4	Coaxial Cable Installation Assembly Kit (W/O LPU End Kit)
WB3657	4	LPU End Kit PTP 800/820





Equipment: Cambium Networks PTP18820G with RFU-C - 2+0 Cross-Polar (ACAP)

Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct @ 75 ft

Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct @ 134 ft



	Aggregate Performance to TRIS 3	Aggregate Performance to TRIS Station 1
Mean IP	1048.3 Mbps	1048.3 Mbps
IP Availability	100.0000 % for 500.0 Mbps	100.0000 % for 500.0 Mbps

Link Summary (Aggregated)			
Link Length	0.960 mi.	Mean Aggregate Data Rate	2096.7 Mbps
Band	18 GHz	Annual Link Availability	100.0000 %
Regulation	FCC	Annual Link Unavailability	0 secs/year
Modulation	Adaptive	Frame Size	Tolly Mix
Bandwidth	80 MHz	T1 Channels	0
Total Path Loss	121.79 dB	TDM Availability	100.0000%
System Gain	176.20 dB	TDM Annual Unavailability	0 secs/year
System Gain Margin	54.41 dB	Prediction Model	Vigants-Barnet





Climatic Factors, Losses and Standards (Aggregated)			
Terrain Roughness	20.00 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.5	Annual 2-way Availability	100.0000 %
C Factor	4.94	Annual 2-way Unavailability	0 secs/year
Temperature	48.8° F	Rain Availability	100.0000 %
Value of K Exceeded for 99.99% (ke)	0.40	Rain Unavailability	0 secs/year
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	41.68 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	121.66 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.12 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

		Bill of Materials
Part Number	Qty	Description
1010419001	2	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
7009304001	4	Hoisting Grip for CNT-400 cable
0010194001	3	50 Ohm Braided Coaxial Cable - 75 meter
C000082M004	2	PTP 820G, Dual Modem, Eth Only
180082R029	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Hi,19259-19710MHz. Please select a TX frequency
180082R030	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Lo,17699-18150MHz. Please select a TX frequency
W-E4PT82M2-WW	2	PTP 820G IDU (Dual Modem) Extended Warranty, 4 Addl Years
W-E4PT82RC-WW	4	PTP820G RFU-C Extended Warranty, 4 Additional Years
000081L006	4	TNC Male Right Angle for CNT-400 braided cable



Project Abeep PTP820G Revised Heights - 3. TRIS 3 to TRIS Station 1

		Bill of Materials (continued)
Part Number	Qty	Description
N000082L028	2	PTP 820G Act.Key - 2nd Modem Activation
N000082L083	4	PTP 820G Act.Key - Capacity 500M with ACM Enabled, per Tx Chan
N180082D052	2	PTP 820 2' ANT,SP,18GHz,RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions
N180082L047	2	PTP 820 RFU-C 18GHz OMT DM KIT
N180082L056	2	PTP 820 RFU-C 18GHz OMT Interface-Radiowave
WB3616	4	Coaxial Cable Installation Assembly Kit (W/O LPU End Kit)
WB3657	4	LPU End Kit PTP 800/820



Equipment: Cambium Networks PTP18820G with RFU-C - 2+0 Cross-Polar (ACAP)

Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct @ 120 ft Cambium Networks 3ft Single Pol (NA & CALA Only) N180082D053 - Direct @ 100 ft



	Aggregate Performance to TRIS 4	Aggregate Performance to TRIS 3
Mean IP	1053.9 Mbps	1053.9 Mbps
IP Availability	99.9993 % for 500.0 Mbps	99.9993 % for 500.0 Mbps

Link Summary (Aggregated)			
Link Length	2.701 mi.	Mean Aggregate Data Rate	2107.8 Mbps
Band	18 GHz	Annual Link Availability	99.9999 %
Regulation	FCC	Annual Link Unavailability	39 secs/year
Modulation	Adaptive	Frame Size	1518 Bytes
Bandwidth	80 MHz	T1 Channels	0
Total Path Loss	131.00 dB	TDM Availability	99.9999%
System Gain	185.10 dB	TDM Annual Unavailability	39 secs/year
System Gain Margin	54.10 dB	Prediction Model	Vigants-Barnett





Climatic Factors, Losses and Standards (Aggregated)			
Terrain Roughness	37.93 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.5	Annual 2-way Availability	100.0000 %
C Factor	2.15	Annual 2-way Unavailability	0 secs/year
Temperature	48.8° F	Rain Availability	99.9999 %
Value of K Exceeded for 99.99% (ke)	0.40	Rain Unavailability	39 secs/year
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	41.66 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	130.65 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.35 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

	-	Bill of Materials
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
07009304001	4	Hoisting Grip for CNT-400 cable
30010194001	4	50 Ohm Braided Coaxial Cable - 75 meter
C000082M004	2	PTP 820G, Dual Modem, Eth Only
C180082R029	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Hi,19259-19710MHz. Please select a TX frequency
C180082R030	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Lo,17699-18150MHz. Please select a TX frequency
EW-E4PT82M2-WW	2	PTP 820G IDU (Dual Modem) Extended Warranty, 4 Addl Years
EW-E4PT82RC-WW	4	PTP820G RFU-C Extended Warranty, 4 Additional Years
N000081L006	4	TNC Male Right Angle for CNT-400 braided cable



Bill of Materials (continued)			
Part Number	Qty	Description	
N000082L028	2	PTP 820G Act.Key - 2nd Modem Activation	
N000082L083	4	PTP 820G Act.Key - Capacity 500M with ACM Enabled, per Tx Chan	
N180082D052	1	PTP 820 2' ANT, SP, 18GHz, RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions	
N180082D053	1	PTP 820 3' ANT,SP,18GHz,RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions	
N180082L047	2	PTP 820 RFU-C 18GHz OMT DM KIT	
N180082L056	2	PTP 820 RFU-C 18GHz OMT Interface-Radiowave	
WB3616	4	Coaxial Cable Installation Assembly Kit (W/O LPU End Kit)	
WB3657	4	LPU End Kit PTP 800/820	



Equipment: Cambium Networks PTP18820G with RFU-C - 2+0 Cross-Polar (ACAP)

Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct @ 70 ft

Cambium Networks 2ft Single Pol (NA & CALA Only) N180082D052 - Direct @ 75 ft



ALC: NO.	Aggregate Performance to TRIS Station 1	Aggregate Performance to Tri State 2
Mean IP	1053.9 Mbps	1053.9 Mbps
IP Availability	100.0000 % for 500.0 Mbps	100.0000 % for 500.0 Mbps

Link Summary (Aggregated)				
Link Length	1.260 mi.	Mean Aggregate Data Rate	2107.9 Mbps	
Band	18 GHz	Annual Link Availability	100.0000 %	
Regulation	FCC	Annual Link Unavailability	0 secs/year	
Modulation	Adaptive	Frame Size	1518 Bytes	
Bandwidth	80 MHz	T1 Channels	0	
Total Path Loss	124.19 dB	TDM Availability	100.0000%	
System Gain	179.20 dB	TDM Annual Unavailability	0 secs/year	
System Gain Margin	55.01 dB	Prediction Model	Vigants-Barnet	





Climatic Factors, Losses and Standards (Aggregated)				
Terrain Roughness	20.00 feet	Excess Path Loss	0.00 dB	
Climatic Factor	1.5	Annual 2-way Availability	100.0000 %	
C Factor	4.94	Annual 2-way Unavailability	0 secs/year	
Temperature	48.8° F	Rain Availability	100.0000 %	
Value of K Exceeded for 99.99% (ke)	0.40	Rain Unavailability	0 secs/year	
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4	
0.01% Rain rate	41.66 mm/hr	Diffraction Loss	ITU-R P.526-10	
Free Space Path Loss	124.03 dB	Propagation	Vigants-Barnett	
Gaseous Absorption Loss	0.16 dB	Rain Rate	ITU-R P.837-5	
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9	

		Bill of Materials
Part Number	Qty	Description
07009304001	4	Hoisting Grip for CNT-400 cable
30010194001	2	50 Ohm Braided Coaxial Cable - 75 meter
2000082M004	2	PTP 820G, Dual Modem, Eth Only
C180082R029	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Hi,19259-19710MHz.
		Please select a TX frequency
180082R030	2	PTP 820 RFU-C,18GHz,TR1560,ChF,Lo,17699-18150MHz.
		Please select a TX frequency
W-E4PT82M2-WW	2	PTP 820G IDU (Dual Modem) Extended Warranty, 4 Addl Years
W-E4PT82RC-WW	4	PTP820G RFU-C Extended Warranty, 4 Additional Years
1000081L006	4	TNC Male Right Angle for CNT-400 braided cable
1000082L028	2	PTP 820G Act.Key - 2nd Modem Activation



Project Abeep PTP820G Revised Heights - 5. TRIS Station 1 to Tri State 2

Bill of Materials (continued)			
Part Number	Qty	Description	
N000082L083	4	PTP 820G Act.Key - Capacity 500M with ACM Enabled, per Tx Chan	
N180082D052	2	PTP 820 2' ANT, SP, 18GHz, RFU-C TYPE&UBR220 - Radiowave. Only available for order in North America and CALA regions	
N180082L047	2	PTP 820 RFU-C 18GHz OMT DM KIT	
N180082L056	2	PTP 820 RFU-C 18GHz OMT Interface-Radiowave	
WB3616	4	Coaxial Cable Installation Assembly Kit (W/O LPU End Kit)	
WB3657	4	LPU End Kit PTP 800/820	



Disclaimer

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VHF Radio / Portable Radio Coverage Maps 1. Current VHF Coverage 2. Coverage with Addition of VHF Antennas in the Future

TRI-STATE FIRE PROTECTION DISTRICT

VHF RADIO COVERAGE



Figure 1-Current VHF Radio Coverage



Figure 2- VHF Coverage with New Antennas on Towers

EXHIBIT C

JULY 5, 2013

17 ILL. ADM. CODE

CH. I, SEC. 1075

TITLE 17: CONSERVATION CHAPTER I: DEPARTMENT OF NATURAL RESOURCES SUBCHAPTER c: ENDANGERED SPECIES

PART 1075

CONSULTATION PROCEDURES FOR ASSESSING IMPACTS OF AGENCY ACTIONS ON ENDANGERED AND THREATENED SPECIES AND NATURAL AREAS

Section

1075.10	Purpose
1075.20	Definitions
1075.30	Actions Reviewed and Exempted
1075.40	Consultation Process
1075.50	Special Circumstances
1075.60	Emergencies
1075.70	Public Involvement
1075.80	Alternative Action Guidelines
1075.90	Consultation Fee

AUTHORITY: Implementing and authorized by Section 11(b) of the Illinois Endangered Species Protection Act [520 ILCS 10/11] and Section 17 of the Illinois Natural Areas Preservation Act [525 ILCS 30/17].

SOURCE: Adopted at 14 Ill. Reg. 19839, effective December 3, 1990; amended at 19 Ill. Reg. 594, effective January 9, 1995; recodified by changing the agency name from Department of Conservation to Department of Natural Resources at 20 Ill. Reg. 9389; amended at 37 Ill. Reg. 11359, effective July 5, 2013.

Section 1075.10 Purpose

The purpose of this Part is:

- a) To establish a consultation process between the Department and agencies of State and local governments of Illinois concerning impacts on State endangered and threatened species and Natural Areas by actions authorized, funded, or carried out by those agencies which are authorized by Section 11(b) of the Illinois Endangered Species Protection Act [520 ILCS 10/11] and Section 17 of the Illinois Natural Areas Preservation Act [525 ILCS 30/17].
- b) To provide a consultation procedure designed to assist agencies of State and local governments in the evaluation of proposed actions for the purpose of addressing the adverse impacts to endangered or threatened flora or fauna as listed by the Illinois Endangered Species Protection Board, or to the essential habitat of such

species or to Natural Areas.

- c) To promote the conservation of threatened and endangered species and Natural Areas by establishing the following policy: the avoidance of adverse impacts is a priority of action; when avoidance is not practicable, adverse impacts should be minimized; and when practicable alternatives do not exist and an adverse impact is likely to occur, compensation shall be requested.
- d) This Part provides details for the following:
 - 1) actions requiring review and those exempted;
 - 2) filing of the Agency Action Report;
 - 3) filing of the Detailed Action Report;
 - 4) preparation of the biological opinion;
 - 5) emergencies;
 - 6) public involvement opportunities; and
 - 7) alternative action guidelines.

(Source: Amended at 19 Ill. Reg. 594, effective January 9, 1995)

Section 1075.20 Definitions

The following terms will be used throughout this Part:

"Act" – the Illinois Endangered Species Protection Act [520 ILCS 10].

"Action" – construction, land management or other activities that are authorized, funded or performed in whole or in part by agencies of State and local governments and that will result in a change to the existing environmental conditions or may affect listed endangered or threatened species or their essential habitat or natural areas.

"Adverse Impact" – a direct or indirect alteration of the physical or biological features of the air, land or water that may affect the survival, reproduction or recovery of a listed species or that may diminish the viability of a natural area.

"Agency" - all State agencies and units of local government and their political

subdivisions, agencies, boards, committees and commissions.

"Agency Action Report" – a report submitted to the Department by agencies proposing actions requiring consultation. The information required to be submitted shall be sufficient to determine the presence or absence of a threatened or endangered species or natural area in the vicinity of the proposed action.

"Applicant" – the agency or third party consulting with the Department. A thirdparty applicant is a non-governmental party consulting with the Department on behalf of an agency because the third-party is seeking financial support, funding, authorization or other approval from the agency.

"Authorized" or "Authorization" – any permitting, licensing, zoning or other administrative approval provided by an agency.

"Biological Opinion" – the component of the Detailed Action Report prepared by the Department, when a valid record of an occurrence for a threatened or endangered species or natural area exists within the vicinity of a proposed action. This opinion will conclude whether the action will jeopardize the listed species present, destroy or adversely modify their essential habitat, or adversely modify a natural area.

"Carried Out" – conducted by, or on behalf of, an agency or its agents through contract, agreement or other legal arrangement.

"Conservation" – utilization of all methods and procedures necessary to bring any endangered or threatened species to the point at which the protection provided by the Act are no longer necessary. These methods and procedures include, but are not limited to, all activities associated with scientific resources management, such as research, census, habitat acquisition, habitat management restoration, and maintenance and propagation.

"Consultation" – process of review of actions of governmental and third party actions pursuant to Section 11(b) of the Act and Section 17 of the Natural Areas Act.

"Cumulative Effects" – direct and indirect effects of a proposed action, together with the identifiable effects of actions that are interrelated or interdependent with the action. Indirect effects are those that are caused by the action but are later in time or farther in distance. Interrelated actions are those that are a part of a larger action. Interdependent actions are those that have independent utility apart from the action. "Department" – means the Department of Natural Resources.

"Detailed Action Report" – a written report that is prepared by an agency when a threatened or endangered species or natural area has been identified within the vicinity of a proposed action. This report shall contain sufficient information to make a judgement regarding the potential adverse impacts to a listed species or its essential habitat or a natural area.

"EcoCAT" – the Department's on-line consultation application process.

"Essential Habitat" – the physical and biological environment that is required to maintain viable populations of a listed species in order to ensure the survival and recovery of that species.

"Funded" – receipt of any grant, loan, loan guarantee, bond or other public financing provided by an agency.

"Jeopardize" – to engage in an action that would reduce the likelihood of the survival or recovery of a listed species or would result in the destruction or adverse modification of the essential habitat of such a species or would result in the destruction or adverse modification of a natural area.

"Listed Species" – any species of plant or animal that has been listed as endangered or threatened by the Illinois Endangered Species Protection Board or the U.S. Fish and Wildlife Service.

"Natural Area" – any area of land in public or private ownership that is registered under the Natural Areas Act or is identified in the Illinois Natural Areas Inventory.

"Natural Areas Act – Illinois Natural Areas Preservation Act [525 ILCS 30].

"Vicinity" – the area surrounding the action, as determined by the life history requirements of the species of concern or proximity to a natural area.

(Source: Amended at 37 Ill. Reg. 11359, effective July 5, 2013)

Section 1075.30 Actions Reviewed and Exempted

a) Actions Requiring Review for Consultation - Any construction, land management or other activity authorized, funded or performed by a State agency or local unit of government that will result in a change to the existing environmental conditions and/or may have a cumulative, direct or indirect adverse impact on a listed species or its essential habitat or that otherwise jeopardizes the survival of that species and/or may have a cumulative, direct or indirect adverse impact on a Natural Area shall be evaluated through the consultation process. This includes but is not limited to the following:

- the alteration, removal, excavation or plowing of non-farmed, noncultivated areas, or dredging of soil, sand, gravel, minerals, organic matter, vegetation, or naturally occurring materials of any kind;
- 2) the changing of existing drainage characteristics or sedimentation patterns;
- 3) the grading or removal of materials that would alter existing topography;
- 4) the creation of new, or the increase in existing permanent barriers to the movement of wildlife, such as dam construction;
- 5) a discharge of pollutants into the air, water, or on the land;
- 6) the application of chemicals to the air, water, or on the land;
- 7) preliminary plats, plans and permits; and
- 8) an application for rezoning from a non-urban classification to an urban classification (e.g. from agricultural to residential) or a change from one urban classification to another on land not used in its entirety for the original classification.
- b) Actions Not Requiring Review Actions authorized, funded or performed by State agencies or local units of government not resulting in a land-disturbing activity or not directly or indirectly affecting an endangered or threatened species or a Natural Area are not required to be evaluated by the consultation process. Such actions shall involve activities not listed in Section 1075.30(a) (e.g. acquisition of equipment or rehabilitation of an existing structure).
- c) Actions Exempted The following actions are exempt from the consultation process unless it is evident that there will be an adverse impact to a listed species or its essential habitat or to a Natural Area:
 - 1) mowing within maintained highway rights-of-way;
 - 2) routine resurfacing and application of oil and gravel to existing roads and highways that do not require widening of the road or shoulder;

- 3) construction activities required for the maintenance or repair of existing structures;
- 4) actions in those areas with a Department-approved management plan, where the proposed actions are consistent with the Plan and are undertaken to maintain or improve natural ecosystem conditions or to reestablish pre-settlement vegetation conditions. This includes such actions as prescribed burns, spot application of herbicides, brush clearing and other appropriate natural resource management activities. Where a listed species is known to be present, management for its survival and recovery shall be a priority;
- 5) actions within highway rights-of-way, unless specifically notified by the Department, that adjoin land used for agricultural or urban purposes, except those portions of the right-of-way adjacent to borrow pits, railroads, streams, wetlands, lakes, or other natural areas and open space;
- 6) maintenance of existing lawns, yards and ornamental plantings;
- 7) annual, routine cultivation of existing agricultural lands; and
- 8) change of zoning requests for land currently zoned, developed, and used in its entirety for commercial, industrial or residential purposes.
- d) Memorandums of Understanding the Department may enter into an agreement with an agency, referred to as a Memorandum of Understanding (MOU) which allows the development of an expedited review process, the review of comprehensive plans and natural resource ordinances, or exempts from the consultation process those actions commonly performed by that agency and that have no adverse impact to a listed species or its essential habitat or a Natural Area.
 - 1) The Memorandum of Understanding shall expire in 1 to 3 years, based on the type of activity or the frequency with which it is performed. At the time of renewal, the agency shall submit a report evaluating the following:
 - A) whether the actions exempted avoided, minimized or created an adverse impact to a listed species and its essential habitat or a Natural Area; and
 - B) if the technology of the exempted action has changed to such an extent that the action should no longer be exempted.

- 2) The Memorandum of Understanding shall be available for review from the Department upon request.
- e) If more than two years elapses between the review and approval of the proposed action and implementation, the Department shall have an opportunity to review the Agency Action Report again to determine whether a listed species or Natural Area is present.
- f) Compliance with this Part does not relieve the agency from applicable state or federal laws or regulations.

(Source: Amended at 19 Ill. Reg. 594, effective January 9, 1995)

Section 1075.40 Consultation Process

As authorized by Section 11(a) of the Illinois Endangered Species Protection Act [520 ILCS 10/11] and by Section 17 of the Illinois Natural Areas Preservation Act [525 ILCS 30/17], state and local units of government shall evaluate, through a consultation process with the Department, whether actions authorized, funded, or carried out by them, as defined in Section 1075.30, are likely to jeopardize the continued existence or recovery of Illinois listed endangered or threatened species or are likely to result in the destruction or adverse modification of the essential habitat of such species or are likely to result in the adverse modification of a Natural Area. The proposed action shall not commence until the completion of the consultation process. This consultation process shall consist of the following:

- a) After identifying a specific action included in Section 1075.30, an agency shall complete and submit the Agency Action Report to the Department. This shall be submitted as early in the planning process as may be practicable and prior to approval of preliminary plat, design, permit, plan, or project approval. The purpose of this report is to identify the specific location of the project in order to determine if a listed species or Natural Area is located within the vicinity of the proposed action. The Agency Action Report shall include but not be limited to the following:
 - 1) name and address of agency proposing the action;
 - 2) the responsible person within that agency;
 - 3) the precise location of the proposed action in sufficient detail to determine the presence or absence of a listed species or Natural Area;
 - 4) a brief description of the proposed action; and

- 5) the starting and ending dates of the proposed action.
- b) The Department shall review the Agency Action Report and determine whether a valid record of occurrence for a listed species or a Natural Area exists within the vicinity of the proposed action. The agency shall receive one of two responses from the Department within 30 calendar days of receipt of the Agency Action Report:
 - 1) If no listed species or their essential habitat or Natural Areas have been identified in the vicinity of the proposed action, a letter will be sent indicating that further consultation is not necessary.
 - 2) If a listed species or a Natural Area is identified within the vicinity of the project, the agency will be sent a letter explaining the continuation of the consultation process and a Detailed Action Report.
- c) The agency shall complete the Detailed Action Report, and submit it to the Department. Sufficient information must be provided about the proposed action to determine the potential indirect, direct and cumulative adverse impacts to the listed species present or its essential habitat or to the Natural Area. The Detailed Action Report shall include, but is not limited to the following components:
 - 1) name and address of agency proposing the action;
 - 2) responsible person within the agency;
 - 3) a detailed map indicating the precise location of the proposed action;
 - 4) a detailed description of the proposed action, including any direct or indirect alteration or destruction of the vegetation, changes anticipated to air or water quality, alteration of the topography, or any other detail that might jeopardize the listed species or its essential habitat or cause adverse modification of the Natural Area;
 - 5) starting and ending dates of the proposed project; and
 - 6) discussion of alternatives which were considered.
- d) Upon completing the portion of the Detailed Action Report involving the proposed project, the agency shall provide background information on the listed species or Natural Area present. The direct and indirect effects of the proposed action on the listed species and its essential habitat or on the Natural Area

including cumulative effects shall be analyzed by the agency. The Department shall assist units of local government, upon request, if the unit of local government does not have the expertise to provide the required data and does not have the resources to procure outside experts.

- e) Upon completion, the agency shall submit the Detailed Action Report to the Department for the formulation of a biological opinion as to whether the proposed action, taken with its cumulative effects, will jeopardize the listed species present or have an adverse impact on its essential habitat or cause adverse modification of the Natural Area. The biological opinion shall be completed within 60 calendar days of receipt of a completed Detailed Action Report. The biological opinion shall result in one of the following conclusions:
 - 1) the action may promote the conservation of a listed species or its essential habitat or enhance the protection of the Natural Area, in which case the consultation process is terminated;
 - 2) the action is not likely to jeopardize a listed species or its essential habitat or cause adverse modification of the Natural Area, in which case the consultation process is terminated; or
 - 3) the proposed action is likely to jeopardize a listed species or its essential habitat or cause adverse modification of the Natural Area, in which case the consultation process shall continue.
- f) If the biological opinion concludes that the proposed action is likely to have an adverse impact, recommendations to avoid these impacts shall be provided to the agency by the Department.
- g) A meeting shall be scheduled with representatives of the agency and the Department to discuss practicable alternatives to the proposed action that would avoid, minimize, or compensate for the impacts.
- h) After the consultation meetings have taken place to discuss practicable alternatives, the agency shall notify the Department in writing, stating its decision to proceed, modify, or forgo the action, and which, if any, of the alternatives included in the Detailed Action Report it is adopting.
- i) If the Department disagrees with the agency's decision, it shall notify the agency in writing within 10 days.
- j) It is desirable that disagreements which arise over an agency's response or procedural questions be resolved quickly and at the lowest possible level of

agency involvement. For most actions, areas of disagreement should be resolved by middle and upper level management of the Department and agency involved. However, where there is failure to reach agreement, it may be necessary to refer the matter to the agency head for resolution.

(Source: Amended at 19 Ill. Reg. 594, effective January 9, 1995)

Section 1075.50 Special Circumstances

- a) When a particular action involves more than one agency, these agencies may, upon notification to the Department, fulfill their consultation requirements through a single lead agency. Factors relevant in determining appropriate lead agency include the time sequence in which agencies would become involved in the action, the magnitude of their respective involvement, and their relative expertise with respect to the environmental effects of the action.
- b) In the case of complex actions, where the Department and the agency determine that additional information is needed concerning the listed species or Natural Area and/or the action, the period for the agency to prepare the Detailed Action Report, and the Department to formulate the biological opinion, may be extended by mutual agreement. During this extension, an agency shall make no irreversible or irretrievable commitments of resources that would foreclose implementation of any reasonable and prudent alternative prior to issuance of a biological opinion.
- c) The consultation process shall be modified for the review of rezoning applications (See Section 1075.30(a)(8)):
 - 1) The Agency Action Report shall be submitted for review as required in Section 1075.40(a).
 - 2) If no listed species or Natural Area is known to be present, a letter of notification of the termination of the consultation process shall be sent within thirty days.
 - 3) If a listed species or Natural Area is identified, the information shall be provided for consideration in the decision to grant the request for rezoning. This information shall be made a matter of public record.
 - 4) The consultation process shall not proceed until development of that parcel is under consideration. At that time, the agency shall submit to the Department a Detailed Action Report and continue the consultation process as defined in Section 1075.40(c) through (j).

JULY 5, 2013

- d) The consultation process shall be initiated or a terminated consultation process shall be reopened by the Department or the agency if:
 - 1) New information reveals effects of the identified action that may adversely affect a listed species or its essential habitat or a Natural Area in a manner not previously considered; or
 - 2) The proposed action is subsequently modified such that it may adversely affect a listed species or its essential habitat or a Natural Area in a manner which was not considered in the consultation process; or
 - 3) Additional listed species or their essential habitat or Natural Areas are identified within the vicinity of the action.

(Source: Amended at 19 Ill. Reg. 594, effective January 9, 1995)

Section 1075.60 Emergencies

Two types of emergency conditions may exist that require special treatment:

- a) Where emergency circumstances pose an immediate threat to human life, or severe loss of property is imminent from situations involving acts of God, disasters, casualties, or national defense or security emergencies, and action must be taken immediately, the agency can proceed without notifying the Department prior to taking action. The consultation process shall be initiated as soon as practicable after the emergency is under control, but not to exceed 30 calendar days. The agency shall submit a Detailed Action Report, which shall include information on the nature of the emergency actions, the justification for requiring immediate action, and any adverse impacts to a listed species or its essential habitat or a Natural Area that may have resulted. The Department shall evaluate such information and issue a biological opinion, including the information and recommendations given during the emergency consultation.
- b) Where emergency circumstances pose a threat to human life or loss of property and the action must commence within 30 days, the agency may request permission to commence the action without undergoing the consultation process prior to the action. The agency shall contact the Department prior to commencing the action and explain the nature of the problem. The Department shall determine whether a listed species or Natural Area is present within the vicinity of the action and notify the agency in writing. One of two courses of action shall then be taken:
 - 1) if no listed species or their essential habitats or Natural Areas are present,

the action may commence and the consultation process is terminated; or

2) if a listed species or its essential habitat or a Natural Area is present within the vicinity of the project, alternatives shall be discussed to avoid or minimize the adverse impacts prior to commencement of the action.

(Source: Amended at 19 Ill. Reg. 594, effective January 9, 1995)

Section 1075.70 Public Involvement

Provisions shall be made to inform the public of the actions of the Department under this Part and to consider public comment. This may include, but is not limited to maintaining a list, as funds permit, by the Department for those persons wishing to receive notification of those projects involved in the consultation process under Section 1075.40(b)(2).

Section 1075.80 Alternative Action Guidelines

Alternative Action Guidelines - In order to assist state and local agencies in evaluating and selecting alternatives to proposed actions that adversely affect listed species or their habitat or Natural Areas, the Department may prepare Alternative Action Guidelines for alternatives to a range of actions common to these agencies. These Guidelines shall propose practicable alternatives to actions affecting a listed species or Natural Area, while at the same time maintaining the project purpose to the greatest extent possible. These Guidelines shall serve to encourage the consideration of alternatives prior to initiation of the consultation process. They shall be made available upon request to all units of government as they are prepared.

(Source: Amended at 19 Ill. Reg. 594, effective January 9, 1995)

Section 1075.90 Consultation Fee

The purpose of this Section is to establish procedures for collecting fees from applicants for consultation services in accordance with Section 805-555 of the Department of Natural Resources (Conservation) Law [20 ILCS 805/805-555].

- a) Applicability. This Section applies to each application for consultation services submitted to the Department pursuant to Section 11(b) of the Act and Section 17 of the Natural Areas Act, except for those applications for consultation services submitted by, or on behalf of, an agency of State or federal government.
- b) Amount of Fee. Each application for consultation services must include a fee in the amount of \$500.
- c) Manner of Payment

- 1) Applicants must pay the consultation fee when initiating the consultation request.
- 2) For consultation requests submitted through the Department's EcoCAT system, the fee must be paid using credit card or electronic funds transfer through the EcoCAT system in the manner identified by the EcoCAT system.
- 3) Applicants unable to use a credit card or electronic funds transfer to pay the fee using the EcoCAT system must submit a certified check, cashier's check or money order to the Department before the consultation request will be completed.
- 4) Applicants submitting consultation requests in any manner other than through the Department's EcoCAT online evaluation system must pay the fee using a certified check, cashier's check or money order.
- 5) Payment shall not include any other fees or payments due to the Department for any purpose other than the fee due under this Section.
- d) Prohibition Against Refund. Except as provided in subsection (e), no fee remitted to the Department under this Section shall be refunded in whole or in part at any time or for any reason.
- e) Applications Not Containing the Entire Fee. Applications not containing the entire fee will be considered incomplete and the Department will not undertake the requested consultation. Any partial payment will not be deposited or processed by the Department and will be returned to the applicant.

(Source: Added at 37 Ill. Reg. 11359, effective July 5, 2013)



ILLINOIS DEPARTMENT OF NATURAL RESOURCES



CONSERVATION STEWARDSHIP PLAN CERTIFICATION

ID NUMBER: 13493 EFFECTIVE DATE: 12/31/2018 EXPIRATION DATE: 12/31/2028 LANDOWNER: BRIAN SCHUCHMAN CORPORATION: ADDRESS: 8403 N EL MARO CIRCLE., PARADISE VALLEY, AZ 85253 UNIMPROVED ACRES: 7.37 PROPERTY TAX NUMBER: 10-02-202-008, 10-02-202-009

LEGAL LOCATION:

COUNTY: DuPage

SEC: 2

TOWNSHIP: 37N

NO

RANGE: 11E

DATE: 12-18-18

I am the owner or legal agent of the property for which this plan has been prepared. The plan has been prepared in accordance with the Conservation Stewardship Law (35 ILCS, 200/10-520) and meets the requirements. I will follow the plan to the best of my ability. If any change in ownership or condition of the unimproved land occurs, I will notify the Department of Natural Resources, Office of Resource Conservation in writing within 30 days.

An approved conservation management plan guarantees an equalized assessed valuation at 5% its fair cash value for the land enrolled in the Conservation Stewardship Program if certification is forwarded to the Illinois Department of Revenue.

YES

SHALL THIS CERTIFICATION BE FORWARDED TO THE ILLINOIS DEPARTMENT OF REVENUE FOR PREFERENTIAL TAX TREATMENT?

(Illinois Department of Natural Resources will forward if "YES" is checked)

LANDOWNER ACCEPTANCE:

(*Please make photocopy of this letter after signing for your records. SEND TO: IDNR, Office of Resource Conservation, Conservation Stewardship Program, One Natural Resources Way, Springfield, IL 62702-1271)



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271 http://dnr.state.il.us

JB Pritzker, Governor

Colleen Callahan, Director

April 24, 2019

Ben Youra G2 Consulting Group LLC 1186 Heather Drive Lake Zurich, IL 60047

RE: Burr Ridge FD Project Number(s): 1909944 **County: DuPage**

Dear Applicant:

This letter is in reference to the project you recently submitted for consultation. The natural resource review provided by EcoCAT identified protected resources that may be in the vicinity of the proposed action. The Department has evaluated this information and concluded that adverse effects are unlikely. Therefore, consultation under 17 Ill. Adm. Code Part 1075 is terminated.

This consultation is valid for two years unless new information becomes available that was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the project has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, you must comply with the applicable statutes and regulations. Also, note that termination does not imply IDNR's authorization or endorsement of the proposed action.

Please contact me if you have questions regarding this review.

Bradley Haye

Bradley Hayes Division of Ecosystems and Environment 217-785-5500



5. 31. - 3 WEDNESDAY 4/10/19

TO: ALL THE MEMBERS OF THE: PLAN COMMISSION /ZONING BOARD OF APPEALS OF BURR RIDGE

FROM: RESIDENTS OF BURR RIDGE

RE: SIGNED PETITIONS TO OPPOSE SPECIAL USE BEING SOUGHT BY TRISTATE FIRE PROTECTION DISTRICT PETITION NUMBER: 2-04-2019 105110 MADISON STREET

SUBMITTED By: By Quelien 105125 Madian Street

PETITION HAS 4 PALES

We, the undersigned are concerned citizens who **oppose** the special use being sought by Tristate Fire Protection District. This special use permitting a personal wireless service facility at the property commonly known as 10 S 110 Madison Street, Burr Ridge is a danger or even nuisance is coming to us; we are not coming to the danger.

Our primary concern as, residents, is the negative health affects that long-term microwave rays have upon individuals. They can be as simple as sleep disturbances to as devastating as an increased cancer risk. The FCC already agrees that cell tower workers may be injured by these field because of proximity.

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Clinabeth C. Calm	ELIZABETH C. OENZE	S IDSIDS MADISON ST.
Seller Cer	EdwAND DEDZES	10 S.ILT MADISON ST
Physeis M. Frozich	PHYLLIS M. GROZICH	16W 184 - 89th ST.
Bonboge Carson	BARBARA PEARSON	105.000Thurklow St.
Mappo Recession	Wayne teansor	105.060TheMan 5
Dona Rogers	DOWNA ROGENS	105053 THELOW ST.
Sallerne Schuste	LAVERNE Schieseler	8900 S. MADISON ST.
Caussa Means	Carissa J Means	108180 Madison St
Pamelia, Ingerhofer	Pameliah, Angerholes	105 180 Medigon St.
Doniel Rongichof	DONALD R. Angerhosen	10 5 180 madine s.
MAN-	Seffrey D. Muans	105180 Madison St
Shurn Zaleyti	sharon Zalwski	8712 Polo findage of
Patricia & Cation Shine	Patricia Kladis-Schiggs	8750 Polo Ridge Ct., Building
Jonly Massallo	Roj MASCARELLO	8704 POLO RIDCE CT.
oten M Johich	PETER M. Jokich	901 PRAIRIE RIDGE CT.

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SIGNATURE	PRINTED NAME	ADDRESS
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Patricia Doyle	PATRICIA DOYLE	SE14 ANDTRE LANE BURNER
Carol Sawett	CAROL FANDET	8802 AINTREE REAS
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Jen	JAMIE JANISZ	105215 MADISON
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SIGNATURE	PRINTED NAME	ADDRESS
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April 9, 2019

Mr. Evan Walter Assistant Village Administrator Village of Burr Ridge 7660 County Line Road Burr Ridge, Illinois 60527

RE: Public Hearing - Petition Z-04-2019; 10S110 Madison Street, Burr Ridge, Illinois

Dear Mr. Walter:

I am the owner of a property located at 9359 S. Madison – Burr Ridge, IL 60527. I am writing to address my concerns and objections to the proposed cell tower which is to be located on the Fire Department property on Madison Street.

As a property owner, I must vehemently object to the construction of a tower, which will certainly have a negative impact on local property values. As a new father, I must object to the construction of a tower, which may have a negative impact on the health and welfare of my child. The necessary studies on the safety concerns for this type of construction have not been adequately done, and I do not want my son to pay for hastily implemented plans with his future health twenty years from now.

Unfortunately, I will be out of town on the date of the meeting, and I request that my Grandfather's representative, Genie Rafferty, be allowed to address the meeting on my behalf on Monday evening. As he is one of the most nearly affected property owner's, she will be also requesting to speak on his behalf.

Thank you for your consideration.

10000

Ryan F. Collins 9359 S. Madison

Burr Ridge, IL 60527

COLLINS 10 S. 055 Thurlow Burr Ridge, IL 60527

April 10, 2019

Mr. Evan Walter Assistant Village Administrator Village of Burr Ridge 7660 South County Line Road Burr Ridge, IL 60527

RE: Public Hearing - Petition Z-04-2019; 10S110 Madison Street, Burr Ridge, Illinois

Dear Mr. Walter:

I am the owner of approximately 13 acres located adjacent to the fire station at 10S110 Madison Street, in Burr Ridge. This letter is being submitted to object to the request for a special use permit (pursuant to Section IV.V of the Burr Ridge Zoning Ordinance) outlined in the above referenced petition. The requested special use permit would allow the construction of an approximately 100 foot tall microwave tower on the fire station property.

In order to be granted a special use permit the Zoning Ordinance requires that an applicant, in this case the Tri-State Fire Protection District (the "District"), establish, and the Plan Commission find, that each of eight standards articulated in the ordinance are satisfied. At least three of those standards are clearly not satisfied. Therefore, the petition for the special use permit should not be granted.

First, the construction and use of the microwave tower will have a detrimental effect on the public health (Standard b). The detrimental effect of microwave exposure on people and animals living near microwave towers, like the proposed tower at the fire station, has been widely discussed in credible scientific papers. Numerous studies have found significantly higher incidence of neurological disorders incurred by firemen (who spend a significant amount of time, on a daily basis, directly below the microwave tower and within the immediate area of the microwave transmissions), and others who work or reside in close proximity to these towers. If the petition is approved by the Village of Burr Ridge, the Village will be endangering the health and well-being of residents and first responders who live and work in proximity of the proposed tower. It would be highly inappropriate for the Village, by approving the petition, to impose this significant health risk when an alternative method is available to provide the same improved communications that the microwave tower would
Mr. Evan Walter Page Two April 10, 2019

provide. A fiber optic cable could serve the same purpose as the proposed tower with none of the adverse health consequences.

Second, granting the special use application will also violate Standard c of the Zoning Ordinance. Contrary to the applicant's conclusion, the 100 foot tall microwave tower will be injurious to the use and enjoyment of property in the vicinity of the tower and will substantially diminish or impair property values. The notion that a 100 foot tall monopole will somehow fit right in to the neighborhood is not credible. The proposed tower would be visible from the surrounding vacant and developed (with homes) properties. The purported study that claims the values of properties closer to a microwave tower are no more affected than those further away, says nothing about the impact of the microwave tower but merely suggests that the tower had an adverse impact on all of the properties in the study. The study does not reveal the before and after impact of the tower on property values. The proposed tower will clearly have an adverse impact on the value of the surrounding properties and on other properties located in line of sight of the tower. This is the strong view of myself and the surrounding property owners. Any potential buyer of our property will think the same thing. The result will be that the value of the properties in proximity to the proposed tower will be substantially diminished.

Third, Standard d of the Zoning Ordinance will also be violated by the granting of the requested special use. Finding D in the applicant's petition includes the assertion that normal use and development will not be affected because most of the property is already developed. That assertion is simply not supported by the facts. My property is to a large extent vacant as are several of the other adjacent or nearby properties (including a large parcel currently maintained as an animal preserve). But each of these properties is likely to be developed in the future. The construction of a 100 foot tall tower on the fire department property will be visible from and will loom over the improved and unimproved properties surrounding the fire station. The idea that this looming tower will not affect the development of our properties is not logical. The detrimental impact from the proposed tower is obvious and apparent.

In summary, the construction, maintenance, and use of the tower will have significantly negative effects on the value of surrounding properties, most particularly my property. Because of the reduction in property values which will result from the proposed tower, a granting of the petitioner's request for a special use permit may indeed constitute an unconstitutional taking of property without just compensation in violation of the Fifth Amendment to the Constitution. The microwave transmissions from the 100 foot tall microwave tower pose significant negative health risks to the Collins Family, people who live on nearby properties and the firemen who spend significant amounts of time in the fire station directly below the microwave tower. It is possible to Mr. Evan Walter Page Three April 10, 2019

locate the proposed tower in another location away from residential areas and away from the first responders who would live and work under the proposed tower. An additional alternative, as noted in the petition, would be to install a fiber optic cable rather than a tower. Using fiber optic cable would eliminate the diminution of the value of this property and other impacted properties and would eliminate *all* health risks that would otherwise be present if the 100 foot tall microwave tower is constructed as proposed. Since the alternatives of either a fiber optic cable or another location for the tower would avoid the detriments to the property owners and each of these alternatives would achieve the improved communications capabilities which the petitioner claims as the justification for the proposed tower, it would be highly inappropriate to approve the petition for the special use permit.

Accordingly, I strongly oppose the granting of the special use and respectfully request that the Plan Commission deny the special use application.

Additionally, I request that my representative, Genie Rafferty, be permitted to speak on my behalf at any and all planning meetings on this project, including the one scheduled for this coming Monday, April 15, 2019 at 7:00 p.m. Due to ill health, I am unable to attend in person. If you wish to contact us prior to this meeting, please contact Ms. Rafferty at 630/258-8200.

Best regards, Olhur

J. Robert Collins

GOTTSCHALK

628 Camelot Drive

Burr Ridge, IL 60527

April 9, 2019

Mr. Evan Walter Assistant Village Administrator Village of Burr Ridge 7660 County Line Road Burr Ridge, Illinois 60527

RE: Public Hearing – Petition Z-04-2019; 10S110 Madison Street, Burr Ridge, Illinois

Dear Mr. Walter:

I am a resident of Burr Ridge and am writing in objection to the communications tower proposed to be constructed on the fire department property on Madison. My property values have already suffered from the poor decisions of the administration of Willowbrook with the Sterigenics plant, and now I again will be the unfortunate bearer of the burden of this decision by the Burr Ridge administration. There have not been adequate studies of cell towers in the 4G to 5G range to even adequately discuss the potential dangers that may occur in the years to come, let alone anyone addressing the way that the administration will handle the costs that will occur in the likely class action lawsuits that will result when these health risks present themselves. Also, there is the perfectly adequate option of using fiber optics to handle this communication need. I feel that this proposal addresses short term cost savings at the cost of future health and liability concerns.

I look forward to speaking to the meeting at the Village Hall on Monday, April 15, 2019.

Sincerely

harm Sottsbalk

Sharon Gottschalk

Jamie and Lawrence Janusz 10S215 Madison Street Burr Ridge, IL 60527

April 8, 2019

To: Village of Burr Ridge Plan Commission/ Zoning Board of Appeals Z-04-2019

RE: Wireless Service Facility – Tri State Fire Protection District 10S110 Madison

Please consider this writing as opposition for the construction of a wireless facility at the Tri State Fire Protection District on south Madison in Burr Ridge. We reside at the southeast corner of 89th & Madison, across from the fire station and 4 properties to the south.

Consideration should be given that the south Madison corridor is considered to be an entryway into the Village of Burr Ridge and a wireless facility does not belong in a high end residential area, nor do we know of such a facility built in a residential area.

In the 35 years we have lived at this location, we have witnessed over 100 oak trees removed on the northeast corner of 89th & Madison in behalf of a development for 3 homes (prior to McNaughton). We believe that thought needs to be given for the aesthetics of this corridor even if the wireless facility is camouflaged.

Most importantly, research shows that there are probable health hazards for a wireless facility in a residential area and I believe that the Village has already had enough with the Sterigenics issue, let alone add to the fire.

We ask that a different location in a commercial area be chosen and understand the need of such a facility.

Thank You,

Jamie and Lawrence Janusz

Carissa Means 10S180 Madison Street Burr Ridge, IL 60527

April 9, 2019

To: Village of Burr Ridge Plan Commission/ Zoning Board of Appeals Z-04-2019

RE: Wireless Service Facility - Tri State Fire Protection District

As one of the closest residents to the Tri State Fire Protection District, I have serious concerns about the proposed wireless facility at the Madison Street firehouse. Six years ago, as my husband and I were moving back to his home community of Burr Ridge, I painstakingly searched for a house located in open space that was not close to any power lines, highways, or other manmade facilities that would be hazardous to our two young children. Our goal was to purchase a property that would allow us to host our friends, family, and neighbors.

Every year, we host multiple parties, wedding and baby showers, and church meetings for people who need a big, open space. We have hundreds of adults and children at our house every year. This quiet place is used regularly by our church for meetings and youth events. Our goal was to be a blessing to people and open our house to others.

The construction of the proposed tower destroys our clean, peaceful property. How can I send my children and their friends out to play knowing there is such a hazard next door? How can I invite our church members over to enjoy our yard when they have to look at a giant, lighted tower?

This does not belong in a beautiful residential area. Please do not allow the construction of this facility. Please do not risk our health and property values.

Thank you,

Carissa Means

Carissa J. Means

Barbara Pearson 10S060 Thurlow Street Burr Ridge, IL 60527 April 8, 2019

Evan Walter Assistant Village Administrator Village of Burr Ridge 7660 County Line Road Burr Ridge, IL 60527

Dear Mr. Walter,

I object to the personal wireless service facility proposed at 10S110 Madison Street. I object for the following reasons:

- BAS properties parcel number 10-02-202-009 and 10-02-202-008 is enrolled in the Conservation Stewardship Program with the Department of Natural Resources since 2008. The property has provided the deer in Burr Ridge a Sanctuary for the past 11 years. The impact of the proposed 100' tower would greatly negatively impact the wildlife that the property has been providing. We are located directly across the street from the proposed tower.
- 2. The deer frequently cross from the Fire Station to our property. The property has provided a habitat for the deer which has been properly managed specifically to enhance their environment. The deer also move through the property to the Waterfall Glen Preserve. The tower will very much disturb the path that the deer currently take and disrupt the conservation that has been provided.
- Other options exist. There is no need for a microwave tower when a fiber option exists or another location for the tower can be found. To locate this tower in a residential neighborhood is in violation of current zoning ordinance.
- 4. The Fire Department did not follow proper procedure and has not contacted the Department of Natural Resources regarding Administrative Rule CH.1, SEC. 1075. There are consultation procedures for assessing the impacts of agency actions on endangered and threatened species. It is my belief that the due diligence required for this project have been overlooked without regard to the wildlife or existing residents.

Recipient Name April 8, 2019 Page 2

Sincerely,

Barbara Pearson

From:	editor@hdcn.net
To:	Evan Walter
Subject:	Upcoming planning commission meeting on microwave cell tower on Thurlow Street
Date:	Monday, May 13, 2019 10:34:09 PM
Attachments:	2004 • ZERO5G.pdf
	IAFF-Firefighters-Health and Safety Fact Sheets.pdf

hi Evan,

I'm a Burr Ridge resident, and live several blocks away from the proposed microwave tower on Thurlow Street.

I am very concerned that the purpose of the microwave tower goes beyond the needs of the fire department, and on doing some very preliminary research, it appears that local firefighter organizations are AGAINST the placement of such towers at fire stations.

Is there any way I can get a list of emails of the members of the planning commission to send them some materials that I found on this topic?

Will these cell towers be used exclusively for Fire Department purposes, or are cell phone companies going to be using these also to carry their signals? It seemds like there is no bona fide need for these towers (to me, anyway) to accomplish the fire protection mission of the Fire Department.

Thanks!

John Daugirdas, MD 15W560 89th Street tel: 630-325-3276







INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS

DIVISION OF OCCUPATIONAL HEALTH, SAFETY AND MEDICINE

Position on the Health Effects from Radio Frequency/Microwave (RF/MW) Radiation in Fire Department Facilities from Base Stations for Antennas and Towers for the Conduction of Cell Phone Transmissions

The International Association of Fire Fighters' position on locating cell towers commercial wireless infrastructure on fire department facilities, as adopted by its membership in August 2004 ⁽¹⁾, is that the IAFF oppose the use of fire stations as base stations for towers and/or antennas for the conduction of cell phone transmissions until a study with the highest scientific merit and integrity on health effects of exposure to low-intensity RF/MW radiation is conducted and it is proven that such sitings are not hazardous to the health of our members.

Further, the IAFF is investigating funding for a U.S. and Canadian study that would characterize exposures from RF/MW radiation in fire houses with and without cellular antennae, and examine the health status of the fire fighters as a function of their assignment in exposed or unexposed fire houses. Specifically, there is concern for the effects of radio frequency radiation on the central nervous system (CNS) and the immune system, as well as other metabolic effects observed in preliminary studies.

It is the belief of some international governments and regulatory bodies and of the wireless telecommunications industry that no consistent increases in health risk exist from exposure to RF/MW radiation unless the intensity of the radiation is sufficient to heat body tissue. However, it is important to note that these positions are based on non-continuous exposures to the general public to low intensity RF/MW radiation emitted from wireless telecommunications base stations. Furthermore, most studies that are the basis of this position are at least five years old and generally look at the safety of the phone itself. IAFF members are concerned about the effects of living directly under these antenna base stations for a considerable stationary period of time and on a daily basis. There are established biological effects from exposure to low-level RF/MW radiation. Such biological effects are recognized as markers of adverse health effects when they arise from exposure to toxic chemicals for example. The IAFF's efforts will attempt to establish whether there is a correlation between such biological effects and a health risk to fire fighters and emergency medical personnel due to the siting of cell phone antennas and base stations at fire stations and facilities where they work.

Background

Critical questions concerning the health effects and safety of RF/MW radiation remain. Accordingly, should we allow exposure of our fire fighters and emergency medical personnel to this radiation to continue for the next twenty years when there is ongoing controversy over many aspects of RF/MW health effects? While no one disagrees that serious health hazards occur when living cells in the body are heated, as happens with high intensity RF/MW exposure (just like in a microwave oven), scientists are currently investigating the health hazards of low intensity RF/MW exposure. Low intensity RF/MW exposure is exposure which does not raise the temperature of the living cells in the body.

Additionally, a National Institute of Environmental Health Sciences panel designated power frequency electromagnetic fields (ELF/EMF) as "possible human carcinogens." ⁽²⁾ In March 2002 The International Association on Research on Cancer of the World Health Organization also assigned this designation to ELF/EMF in Volume 80 of its *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*. ⁽³⁾

Fixed antennas used for wireless telecommunications are referred to as cellular base stations, cell stations, PCS ("Personal Communications Service") stations or telephone transmission towers. These base stations consist of antennas and electronic equipment. Because the antennas need to be high in the air, they are often located on towers, poles, water tanks, or rooftops. Typical heights for freestanding base station towers are 50-200 feet.

Some base stations use antennas that look like poles, 10 to 15 feet in length, that are referred to as "omni-directional" antennas. These types of antennas are usually found in rural areas. In urban and suburban areas, wireless providers now more commonly use panel or sector antennas for their base stations. These antennas consist of rectangular panels, about 1 by 4 feet in dimension. The antennas are usually arranged in three groups of three antennas each. One antenna in each group is used to transmit signals to wireless phones, and the other two antennas in each group are used to receive signals from wireless phones.

At any base station site, the amount of RF/MW radiation produced depends on the number of radio channels (transmitters) per antenna and the power of each transmitter. Typically, 21 channels per antenna sector are available. For a typical cell site using sector antennas, each of the three transmitting antennas could be connected to up to 21 transmitters for a total of 63 transmitters. When omni-directional antennas are used, a cellular base station could theoretically use up to 96 transmitters. Base stations used for PCS communications generally require fewer transmitters than those used for cellular radio transmissions, since PCS carriers usually have a higher density of base station antenna sites.

The electromagnetic RF/MW radiation transmitted from base station antennas travel toward the horizon in relatively narrow paths. The individual pattern for a single array of sector antennas is wedge-shaped, like a piece of pie. Cellular and PCS base stations in the United States are required to comply with limits for exposure recommended by expert organizations and endorsed by government agencies responsible for health and safety. When cellular and PCS antennas are mounted on rooftops, RF/MW radiation levels on that roof or on others near by would be greater than those typically encountered on the ground.

The telecommunications industry claims cellular antennas are safe because the RF/MW radiation they produce is too weak to cause heating, i.e., a "thermal effect." They point to "safety standards" from groups such as ANSI/IEEE or ICNIRP to support their claims. But these groups have explicitly stated that their claims of "safe RF/MW radiation exposure is harmless" rest on the fact that it is too weak to produce a rise in body temperature, a "thermal effect.".⁽⁴⁾

There is a large body of internationally accepted scientific evidence which points to the existence of non-thermal effects of RF/MW radiation. The issue at the present time is not whether such evidence exists, but rather what weight to give it.

Internationally acknowledged experts in the field of RF/MW radiation research have shown that RF/MW transmissions of the type used in digital cellular antennas and phones can have critical effects on cell cultures, animals, and people in laboratories and have also found epidemiological evidence (studies of communities, not in the laboratory) of serious health effects at "non-thermal levels," where the intensity of the RF/MW radiation was too low to cause heating. They have found:

- A doubling of the rate of lymphoma in mice ⁽⁶⁾
- Changes in tumor growth in rats ⁽⁷⁾
- An increased number of tumors in rats ⁽⁸⁾
- Increased single- and double-strand breaks in DNA, our genetic material ⁽⁹⁾
- 2 to 4 times as many cancers in Polish soldiers exposed to RF ⁽¹⁰⁾
- More childhood leukemia in children exposed to RF (11)
- Changes in sleep patterns and REM type sleep (12)
- Headaches caused by RF/MW radiation exposure ⁽¹³⁾
- Neurologic changes ⁽¹⁴⁾ including:
 - Changes in the blood-brain-barrier (15)
 - Changes in cellular morphology (including cell death) (16)
 - Changes in neural electrophysiology (EEG) (17)
 - Changes in neurotransmitters (which affect motivation and pain perception) (18)
 - Metabolic changes (of calcium ions, for instance) (19)
 - Cytogenetic effects (which can affect cancer, Alzheimer's, neurodegenerative diseases) (20)
- Decreased memory, attention, and slower reaction time in school children ⁽²¹⁾
- Retarded learning in rats indicating a deficit in spatial "working memory" (22)
- Increased blood pressure in healthy men ⁽²³⁾
- Damage to eye cells when combined with commonly used glaucoma medications ⁽²⁴⁾

Many national and international organizations have recognized the need to define the true risk of low intensity, non-thermal RF/MW radiation exposure, calling for intensive scientific investigation to answer the open questions. These include:

- The World Health Organization, noting reports of "cancer, reduced fertility, memory loss, and adverse changes in the behavior and development of children." ⁽²⁵⁾
- The U. S. Food and Drug Administration (FDA) (26)
- The International Agency for Research on Cancer (IARC) (27)
- The Swedish Work Environmental Fund ⁽²⁸⁾
- The National Cancer Institute (NCI) (29)
- The European Commission (EC) ⁽³⁰⁾
- New Zealand's Ministry of Health ⁽³¹⁾
- National Health and Medical Research Council of Australia ⁽³²⁾
- Commonwealth Scientific Industrial Research Organization of Australia (CSIRO) ⁽³³⁾
- The Royal Society of Canada expert group report prepared for Health Canada ⁽³⁴⁾
- European Union's REFLEX Project (Risk Evaluation of Potential Environmental Hazards from Low Frequency Electromagnetic Field Exposure Using Sensitive *in vitro* Methods) ⁽³⁵⁾
- The Independent Group on Electromagnetic Fields of the Swedish Radiation Protection Board (SSI) ⁽³⁶⁾
- The United Kingdom's National Radiological Protection Board (NRPB) ⁽³⁷⁾
- The EMF-Team Finland's Helsinki Appeal 2005 (38)

Non-thermal effects are recognized by experts on RF/MW radiation and health to be potential health hazards. Safe levels of RF/MW exposure for these low intensity, non-thermal effects have not yet been established.

The FDA has explicitly rejected claims that cellular phones are "safe." (39)

The Environmental Protection Agency (EPA) has stated repeatedly that the current (ANSI/IEEE) RF/MW safety standards protect only against thermal effects. ⁽⁴⁰⁾

Many scientists and physicians question the safety of exposure to RF/MW radiation. The CSIRO study, for example, notes that there are no clear cutoff levels at which low intensity RF/MW exposure has no effect, and that the results of ongoing studies will take years to analyze. ⁽⁴¹⁾

Internationally, researchers and physicians have issued statements that biological effects from low-intensity RF/MW radiation exposure are scientifically established:

- The 1998 Vienna-EMF Resolution ⁽⁴²⁾
- The 2000 Salzburg Resolution on Mobile Telecommunication Base Stations (43)
- The 2002 Catania Resolution (45)
- The 2002 Freiburger Appeal ⁽⁴⁵⁾
- The 2004 Report of the European Union's REFLEX Project (Risk Evaluation of Potential Environmental Hazards from Low Frequency Electromagnetic Field Exposure Using Sensitive *in vitro* Methods) ⁽⁴⁶⁾
- The 2004 Second Annual Report from Sweden's Radiation Protection Board (SSI) Independent Expert Group on Electromagnetic Fields Recent Research on Mobile Telephony and Health Risks ⁽⁴⁷⁾
- Mobile Phones and Health 2004: Report by the Board of NRPB (The UK's National Radiological Protection Board) (48)

The county of Palm Beach, Florida, the City of Los Angeles, California, and the country of New Zealand have all prohibited cell phone base stations and antennas near schools due to safety concerns. The British Columbia Confederation of Parent Advisory Councils [BCCPAC] passed a resolution in 2003 banning cellular antennae from schools and school grounds. This organization is comparable to the Parent Teachers Association (PTA) in the United States. The resolution was directed to B.C. Ministry of Education, B.C. Ministry of Children and Family Development, B.C. School Trustees Association, and B.C. Association of Municipalities.

US Government Information

In the United States, the Federal Communications Commission (FCC) has used safety guidelines for RF/MW radiation environmental exposure since 1985.

The FCC guidelines for human exposure to RF/MW radiation are derived from the recommendations of two organizations, the National Council on Radiation Protection and Measurements (NCRP) and the Institute of Electrical and Electronics Engineers (IEEE). In both cases, the recommendations were developed

by scientific and engineering experts drawn from industry, government, and academia after extensive reviews of the scientific literature related to the biological effects of RF/MW radiation.

Many countries in Europe and elsewhere use exposure guidelines developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The ICNIRP safety limits are generally similar to those of the NCRP and IEEE, with a few exceptions. For example, ICNIRP recommends different exposure levels in the lower and upper frequency ranges and for localized exposure from certain products such as hand-held wireless telephones. Currently, the World Health Organization is working to provide a framework for international harmonization of RF/MW radiation safety standards.

In order to affirm conformity to standards regarding heating of tissue, measurements are time averaged over 0.1 hours [6 minutes]. This method eliminates any spikes in the readings. Computer power bars have surge protectors to prevent damage to computers. Fire fighters and emergency medical personnel do not!

The NCRP, IEEE, and ICNIRP all have identified a whole-body Specific Absorption Rate (SAR) value of 4 watts per kilogram (4 W/kg) as a threshold level of exposure at which harmful biological thermal effects due to tissue heating may occur. Exposure guidelines in terms of field strength, power density and localized SAR were then derived from this threshold value. In addition, the NCRP, IEEE, and ICNIRP guidelines vary depending on the frequency of the RF/MW radiation exposure. This is due to the finding that whole-body human absorption of RF/MW radiation varies with the frequency of the RF signal. The most restrictive limits on whole-body exposure are in the frequency range of 30-300 MHz where the human body absorbs RF/MW energy most efficiently. For products that only expose part of the body, such as wireless phones, exposure limits in terms of SAR only are specified.

Similarly, the exposure limits used by the FCC are expressed in terms of SAR, electric and magnetic field strength, and power density for transmitters operating at frequencies from 300 kHz to 100 GHz. The specific values can be found in two FCC bulletins, OET Bulletins 56 and 65.

OET Bulletin 56, "Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields" was designed to provide factual information to the public by answering some of the most commonly asked questions. It includes the latest information on FCC guidelines for human RF/MW radiation. Further information and a downloadable version of Bulletin 56 can exposure to be found at: http://new.iaff.org/HS/PDF/FCC%20Bulletin%2056%20-%20EMF.pdf

OET Bulletin 65, "Evaluating Compliance With FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" was prepared to provide assistance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to RF/MW radiation adopted by the Federal Communications Commission (FCC). Further information and a downloadable version of Bulletin 65 can be found at: http://new.iaff.org/HS/PDF/FCC%20Bulletin%2065%20-%20Cell%20Towers.pdf

The FCC authorizes and licenses products, transmitters, and facilities that generate RF and microwave radiation. It has jurisdiction over all transmitting services in the U.S. except those specifically operated by the Federal Government. Under the National Environmental Policy Act of 1969 (NEPA), the FCC has certain responsibilities to consider whether its actions will significantly affect the quality of the human environment. Therefore, FCC approval and licensing of transmitters and facilities must be evaluated for significant impact on the environment. Human exposure to RF radiation emitted by FCC-regulated transmitters is one of several factors that must be considered in such environmental evaluations. In 1996, the FCC revised its guidelines for RF/MW radiation exposure as a result of a multi-year proceeding and as required by the Telecommunications Act of 1996.

For further information and answers to questions about the safety of RF/MW radiation from transmitters and facilities regulated by the FCC go to http://www.fcc.gov/oet/rfsafety/rf-faqs.html.

Canadian Government Information

Industry Canada is the organization that sets regulatory requirements for electromagnetic spectrum management and radio equipment in Canada. Industry Canada establishes standards for equipment certification and, as part of these standards, developed RSS-102, which specifies permissible radiofrequency RF/MW radiation levels. For this purpose, Industry Canada adopted the limits outlined in Health Canada's Safety-Code 6, which is a guideline document for limiting RF exposure. A downloadable version of "RSS-102 - Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields", as well as additional information can be found at: http://new.iaff.org/HS/PDF/Safety%20Code%206.pdf

Safety Code 6 specifies the requirements for the use of radiation emitting devices. This Code replaces the previous Safety Code 6 - EHD-TR-160. A downloadable version of "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz TO 300 GHz – Safety Code 6", as well as further detailed information can be found at .http://new.iaff.org/HS/PDF/Non-Ionizing%20Radiation%20Volume%2080.pdf

US and Canadian Legal Issues

Although some local and state governments have enacted rules and regulations about human exposure to RF/MW radiation in the past, the Telecommunications Act of 1996 requires the United States Federal Government to control human exposure to RF/MW radiation. In particular, Section 704 of the Act states that, "No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions." Further information on federal authority and FCC policy is available in a fact sheet from the FCC's Wireless Telecommunications Bureau at www.fcc.gov/wtb.

In a recent opinion filed by Senior Circuit Judge Stephen F. Williams, No. 03-1336 *EMR Network v. Federal Communications Commission and United States of America*, the Court upheld the FCC's decision not to initiate an inquiry on the need to revise its regulations to address non-thermal effects of radiofrequency (RF) radiation from the facilities and products subject to FCC regulation as EMR Network had requested in its September 2001 Petition for Inquiry.

At the request of the EMR Network, the EMR Policy Institute provided legal and research support for this appeal. On January 13, 2005, a Petition for Rehearing *en banc* by the full panel of judges at the DC Circuit Court of Appeals was filed. Briefs, background documents and the DC Circuit decision are found at: http://www.emrpolicy.org/litigation/case_law/index.htm.

The Toronto Medical Officer of Health for the Toronto Board of Health recommended to Health Canada that public exposure limits for RF/MW radiation be made 100 times stricter; however the recommendation was not allowed, since, as in the US, only the Canadian federal government can regulate RF/MW radiation exposure level.

World Health Organization Efforts

In 1996, the World Health Organization (WHO) established the International EMF Project to review the scientific literature and work towards resolution of health concerns over the use of RF/MW technology. WHO maintains a Web site that provides addition information on this project and about RF/MW biological effects and research. For further information go to http://www.who.int/peh-emf/en/.

Conclusion

For decades, the International Association of Fire Fighters has been directly involved in protecting and promoting the health and safety of our membership. However, we simply don't know at this time what the possible health consequences of long-term-exposure to low-intensity RF/MW radiation of the type used by the cell phone base stations and antennas will be. No one knows--the data just aren't there. The chairman of the International Commission on Non-Ionizing Radiation Protection ICNIRP), one of the leading international organizations which formulated the current RF/MW radiation exposure guidelines, has stated that the guidelines include "no consideration regarding prudent avoidance" for health effects for which evidence is less than conclusive ⁽⁴⁹⁾

Again, fire department facilities, where fire fighters and emergency response personnel live and work are not the proper place for a technology which could endanger their health and safety

The only reasonable and responsible course is to conduct a study of the highest scientific merit and integrity on the RF/MW radiation health effects to our membership and, in the interim, oppose the use of fire stations as base stations for towers and/or antennas for the conduction of cell phone transmissions until it is proven that such sitings are not hazardous to the health of our members.

Footnotes

[back] 1. Revised and Amended IAFF Resolution No. 15; August 2004

Study of Firefighters Exposed to Radio Frequency (RF) Radiation from Cell Towers/Masts

WHEREAS, fire stations across the United States and Canada are being sought by wireless companies as base stations for the antennas and towers for the conduction of cell phone transmissions; and

WHEREAS, many firefighters who are living with cell towers on or adjacent to their stations are paying a substantial price in terms of physical and mental health. As first responders and protectors of the general public, it is crucial that firefighters are functioning at optimal cognitive and physical capacity at all times; and

WHEREAS, the brain is the first organ to be affected by RF radiation and symptoms manifest in a multitude of neurological conditions including migraine headaches, extreme fatigue, disorientation, slowed reaction time, vertigo, vital memory loss and attention deficit amidst life threatening emergencies; and

WHEREAS, most of the firefighters who are experiencing symptoms can attribute the onset to the first week(s) these towers/antennas were activated; and

WHEREAS, RF radiation is emitted by these cellular antennas and RF radiation can penetrate every living cell, including plants, animals and humans; and

WHEREAS, both the U. S. and Canadian governments established regulatory limits for RF radiation based on thermal (heat) measurements with no regard for the adverse health effects from non-thermal radiation which is proven to harm the human brain and immune system; and

WHEREAS, the U. S. Environmental Protection Agency stated in a July 16, 2002, letter, "Federal health and safety agencies have not yet developed policies concerning possible risk from long-term, non-thermal exposures. The FCC's exposure guideline is considered protective of effects arising from a thermal mechanism (RF radiation from cell towers is non-thermal) but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protecting human beings from harm by any or all mechanisms is not justified"; and

WHEREAS, an Expert Panel Report requested by the Royal Society of Canada prepared for Health Canada (1999) stated that, "Exposure to RF fields at intensities far less than levels required to produce measurable heating can cause effects in cells and tissues. These biological effects include alterations in the activity of the enzyme ornithine decarboxylase, in calcium regulation, and in the permeability of the blood-brain barrier. Some of these biological effects brought about by non-thermal exposure levels of RF could potentially be associated with adverse health effects"; and

WHEREAS, based on concerns over growing scientific evidence of dangers from RF radiation, an international conference was convened in Salzburg, Austria, in the summer of 2000 where renowned scientists declared the upper-most RF radiation exposure limit from a tower-mast should be 1/10th of 1 microwatt (Note that 1/10th of 1 microwatt is 10,000 times lower than the uppermost limit allowed by the U. S. or Canada.); and it should be noted this limit was set because of study results showing brain wave changes at 1/10th of 1 microwatt; and

WHEREAS, in a recently cleared paper by Dr. Richard A. Albanese of the U. S. Air Force, a highly recognized physician in the area of the impact of radiation on the human body, Dr. Albanese states, "I would ask a good faith effort in achieving as low exposure rates as are possible within reasonable financial constraints. Also I would fund targeted studies using animal subjects and human groups living or working in high radiation settings or heavy cellular phone users, emphasizing disease causations. I urge acceptance of the ideal that there should be no unmonitored occupational or environmental exposures whose associated disease rates are unknown." (The opinions expressed herein are those of Dr. Albanese, and do not reflect the policies of the United States Air Force.); and

WHEREAS, recently a study, not affiliated with the wireless industry, was conducted of firefighters exposed to RF radiation from cell towers/antennas affixed to their stations.** The study revealed brain damage that can be differentiated from chemical causation (such as inhalation of toxic smoke) suggesting RF radiation as the cause of the brain damage found on SPECT scans; and

WHEREAS, firefighters are the protectors of people and property and should be protected under the Precautionary Principle of Science and therefore, unless radiation is proven safe and harmless, cellular antennas should not be placed on or near fire stations; therefore be it

RESOLVED, That the IAFF shall seek funding for an initial U. S. and Canadian study with the highest scientific merit and integrity, contrasting firefighters with residence in stations with towers to firefighters without similar exposure; and be it further

RESOLVED, That in accordance with the results of the study, the IAFF will establish protective policy measures with the health and safety of all firefighters as the paramount objective; and be it further

RESOLVED, That the IAFF oppose the use of fire stations as base stations for antennas and towers for the conduction of cell phone transmissions until such installations are proven not to be hazardous to the health of our members.

**Note: A pilot study was conducted in 2004 of six California fire fighters working and sleeping in stations with towers. The study, conducted by Gunnar Heuser, M.D., PhD. of Agoura Hills, CA, focused on neurological symptoms of six fire fighters who had been working for up to five years in stations with cell towers. Those symptoms included slowed reaction time, lack of focus, lack of impulse control, severe headaches, anesthesia-like sleep, sleep deprivation, depression, and tremors. Dr. Heuser used functional brain scans - SPECT scans - to assess any changes in the brains of the six fire fighters as compared to healthy brains of men of the same age. Computerized psychological testing known as TOVA was used to study reaction time, impulse control, and attention span. The SPECT scans revealed a pattern of abnormal change which was concentrated over a wider area than would normally be seen in brains of individuals exposed to toxic inhalation, as might be expected from fighting fires. Dr. Heuser concluded the only plausible explanation at this time would be RF radiation exposure. Additionally, the TOVA testing revealed among the six fire fighters delayed reaction time, lack of impulse control, and difficulty in maintaining mental focus.

[back] 2. An international blue ribbon panel assembled by the National Institute of Environmental Health Sciences (NIEHS) designated power frequency electromagnetic fields (EMF) as "possible human carcinogens" on June 24, 1998. The panel's decision was based largely on the results of epidemiological studies of children exposed at home and workers exposed on the job. The evaluation of the EMF literature followed procedures developed by the International Agency for Research on Cancer (IARC), based in Lyon, France. The working group's report will be the basis for the NIEHS report to Congress on the EMF Research and Public Information Dissemination program (EMF RAPID). The National Radiological Protection Board (NRPB) of the United Kingdom noted that the views of its Advisory Group on Non-Ionizing Radiation are "consistent with those of the NIEHS expert panel."

June 26, 1998 statement of the National Radiological Protection Board, sited in Microwave News, July/August 1998

[back] 3. World Health Organization; International Agency for Research on Cancer; IARC Monographs on the Evaluation of Carcinogenic Risks to Humans; Volume 80 Non-Ionizing Radiation, Part 1: Static and Extremely Low-Frequency (ELF) Electric and Magnetic Fields; 2002; 429 pages; ISBN 92 832 1280 0; See http://monographs.iarc.fr/ENG/Monographs/vol80/volume80.pdf This IARC Monograph provides the rationale for its designation of ELF/EMF as a possible human carcinogen. It states that:

A few studies on genetic effects have examined chromosomal aberrations and micronuclei in lymphocytes from workers exposed to ELF electric and magnetic fields. In these studies, confounding by genotoxic agents (tobacco, solvents) and comparability between the exposed and control groups are of concern. Thus, the studies reporting an increased frequency of chromosomal aberrations and micronuclei are difficult to interpret.

Many studies have been conducted to investigate the effects of ELF magnetic fields on various genetic end-points. Although increased DNA strand breaks have been reported in brain cells of exposed rodents, the results are inconclusive; most of the studies show no effects in mammalian cells exposed to magnetic fields alone at levels below 50 μ T. However, extremely strong ELF magnetic fields have caused adverse genetic effects in some studies. In addition, several groups have reported that ELF magnetic fields enhance the effects of known DNA- and chromosome-damaging agents such as ionizing radiation.

The few animal studies on cancer-related non-genetic effects are inconclusive. Results on the effects on in-vitro cell proliferation and malignant transformation are inconsistent, but some studies suggest that ELF magnetic fields affect cell proliferation and modify cellular responses to other factors such as melatonin. An increase in apoptosis following exposure of various cell lines to ELF electric and magnetic fields has been reported in several studies with different exposure conditions. Numerous studies have investigated effects of ELF magnetic fields on cellular end-points associated with signal transduction,

[back] 4. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) statement "Health Issues Related to the Use of Hand-Held Radiotelephones and Base Transmitters" of 1996 reads:

"Thermally mediated effects of RF fields have been studied in animals, including primates. These data suggest effects that will probably occur in humans subjected to whole body or localized heating sufficient to increase tissue temperatures by greater than 1C. They include the induction of opacities of the lens of the eye, possible effects on development and male fertility, various physiological and thermoregulatory responses to heat, and a decreased ability to perform mental tasks as body temperature increases. Similar effects have been reported in people subject to heat stress, for example while working in hot environments or by fever. The various effects are well established and form the biological basis for restricting occupational and public exposure to radiofrequency fields. In contrast, non-thermal effects are not well established and currently do not form a scientifically acceptable basis for restricting human exposure for frequencies used by hand-held radiotelephones and base stations."

International Commission on Non-Ionizing Radiation Protection, "Health Issues Related to the Use of Hand-Held Radiotelephones and Base Transmitters," Health Physics 70:587-593, 1996

The ANSI/IEEE Standard for Safety Levels of 1992 similarly states:

"An extensive review of the literature revealed once again that the most sensitive measurements of potentially harmful biological effects were based on the disruption of ongoing behavior associated with an increase of body temperature in the presence of electromagnetic fields. Because of the paucity of reliable data on chronic exposures, IEEE Subcommittee IV focused on evidence of behavioral disruption under acute exposures, even disruption of a transient and fully reversible nature."

IEEE Standards Coordinating committee 28 on Non-Ionizing Radiation Hazards: Standard for Safe Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 KHz to 300 GHz (ANSI/IEEE C95.1-1991), The Institute of Electrical and Electronics Engineers, New York, 1992.

[back] 5. Drs. Czerska, Casamento, Ning, and Davis (working for the Food and Drug Administration in 1997) using "a waveform identical to that used in digital cellular phones" at a power level within our current standards (SAR of 1.6 W/Kg, the maximum spatial peak exposure level recommended for the general population in the ANSI C95.1-1991 standard) found increases in cellular proliferation in human glioblastoma cells. This shows that "acceptable" levels of radiation can cause human cancer cells to multiply faster. The authors note that "because of reported associations between cellular phone exposure and the occurrence of a brain tumor, glioblastoma, a human glioblastoma cell line was used" in their research.

E.M. Czerska, J. Casamento, J. T. Ning, and C. Davis, "Effects of Radiofrequency Electromagnetic Radiation on Cell Proliferation," [Abstract presented on February 7, 1997 at the workshop 'Physical Characteristics and Possible Biological Effects of Microwaves Applied in Wireless Communication, Rockville, MD] E. M. Czerska, J. Casamento Centers for Devices and Radiological Health, Food and Drug Administration, Rockville, Maryland 20857, USA; H. T. Ning, Indian Health Service, Rockville, Maryland 20857, USA; C. Davis, Electrical Engineering Dept., Univ. of Maryland, College Park, Maryland 20742, USA

[back] 6. Dr. Michael Repacholi (in 1997, currently the director of the International Electromagnetic Fields Project at the World Health Organization) took one hundred transgenic mice and exposed some to radiation for two 30 minute periods a day for up to 18 months. He found that the exposed mice developed lymphomas (a type of cancer) at twice the rate of the unexposed mice. While telecommunications industry spokespersons criticized the experiment for using mice with a mutation which predisposed them to cancer (transgenic) the researchers pointed out that "some individuals inherit mutations in other genes...that predispose them to develop cancer, and these individuals may comprise a subpopulation at special risk from agents that would pose an otherwise insignificant risk of cancer."

Dr. Repacholi stated "I believe this is the first animal study showing a true non-thermal effect." He repeated the experiment in 1998 using 50 Hz fields instead of the 900 MHz pulsed radiation (the type used by cellular phones) used in the original experiment and found no cancer risk. He stated that this new data had implications for his original cellular phone study: "the control groups for both our RF and 50 Hz field studies showed no statistical differences, which lessens the possibility that the RF/MW radiation study result was a chance event or due to errors in methodology."

It is extremely important to note that Dr. Michael Repacholi was Chairman of the ICNIRP at the time its Statement on Health Issues Related to the Use of Hand-Held Radiotelephones and Base Transmitters was developed in 1996.

M. Repacholi et al., "Lymphomas in Eµ-Pim1 Transgenic Mice Exposed to Pulsed 900 MHz Electromagnetic Fields," Radiation Research, 147, pp.631-640, May 1997

[back] 7. Dr. Ross Adey (Veterans Administration Hospital at Loma Linda University in 1996) found what appeared to be a protective effect in rats exposed to the type of radiation used in digital cellular phones. The rats were exposed to an SAR of 0.58-0.75 W/Kg 836 MHz pulsed radiation of the TDMA type two hours a day, four days a week for 23 months, with the signals turned on and off every 7.5 minutes, so total exposure was 4 hours a week. Interestingly this effect was not present when a non-digital, analog signal was used. Rats exposed developed cancer less often. This study shows that low power fields of the digital cellular frequency can influence cancer development. Whether they would protect or promote in our children is a question for further study.

Ross Adey of the Veterans Administration Hospital at Loma Linda University, CA presented the results of pulsed (digital cellular) radiation on June 13, 1996 at the 18th Annual Meeting of the Bioelectromagnetics Society in Victoria, Canada. He presented the findings of the analog cellular phone radiation effect at the June 1997 2nd World Congress for Electricity and Magnetism in Biology and Medicine in Bologna, Italy. Reviews can be found in Microwave News issues July/August, 1996 and March/April 1997.

In recognition of his more than three decades of "fundamental contributions to the emerging science of the biological effects of electromagnetic fields," the authors of the November 2004 Report of the European Union's REFLEX Project (*Risk Evaluation of Potential Environmental Hazards From Low Frequency Electromagnetic Field Exposure Using Sensitive in vitro Methods*) chose to include Dr. Adey's personal views on Electromagnetic Field Exposure research as the Foreword to that report. To view the entire report, see: REFLEX Final Report.pdf

The following is taken from Dr. Adey's Foreword found on pages 1-3 of the REFLEX Report:

The Future of Fundamental Research in a Society Seeking Categoric Answers to Health Risks of New Technologies

In summary, we have become superstitious users of an ever-growing range of technologies, but we are now unable to escape the web that they have woven around us.

Media reporters in general are no better informed. Lacking either responsibility or accountability, they have created feeding frenzies from the tiniest snippets of information gleaned from scientific meetings or from their own inaccurate interpretation of published research. In consequence, the public has turned with pleading voices to government legislatures and bureaucracies for guidance . . .

We face the problem brought on by the blind leading the blind. Because of public pressure for rapid answers to very complex biological and physical issues, short-term research programs have been funded to answer specific questions about certain health risks.

In many countries, and particularly in the USA, the effects of such harassing and troublesome tactics on independent, careful fundamental research have been near tragic. Beguiled by health hazard research as the only source of funding, accomplished basic scientists have diverted from a completely new frontier in physical regulation of biological mechanisms at the atomic level. Not only have governments permitted corporate interests in the communications industry to fund this research, they have even permitted them to determine the research questions to be addressed and to select the institutions performing the research.

[back] 8. Dr. A. W. Guy reported an extensive investigation on rats chronically exposed from 2 up to 27 months of age to low-level pulsed microwaves at SARs up to 0.4 W/Kg. The exposed group was found to have a significantly higher incidence of primary cancers.

A. W. Guy, C. K. Chou, L. Kunz, L, Crowley, and J. Krupp, "Effects of Long-Term Low-Level Radiofrequency Radiation Exposure on Rats." Volume 9. Summary. Brooks Air Force Base, Texas, USAF School of Aerospace Medicine, USF-SAM-TR-85-11; 1985

[back] 9. Drs. Henry Lai and N. P. Singh of the University of Washington in Seattle have reported both single- and double-strand DNA breaks in the brains of rats exposed to radiofrequency electromagnetic radiation at an SAR of 1.2 W/Kg. DNA is the carrier of the genetic information in all living cells. Cumulated

DNA strand breaks in brain cells can lead to cancer or neurodegenerative diseases.

H. Lai and N. P. Singh, "Single- and Double-Strand DNA Breaks in Rat Brain Cells After Acute Exposure to Radiofrequency Electromagnetic Radiation," International Journal of Radiation Biology, Vol 69, No. 4, 513-521, 1996

[back] 10. Dr. Stanislaw Szmigielski has studied many thousands of Polish soldiers. He has found that those exposed to radiofrequency and microwave radiation in the workplace had more than double the cancer rate of the unexposed servicemen analyzing data from 1971-1985. He has presented further data suggesting a dose-response relationship with soldiers exposed to 100-200 W/cm² suffering 1.69 times as many cancers as the unexposed, and those exposed to 600-1000 W/cm² suffering 4.63 times as many cancers. The level considered safe for the public according to FCC regulations is 1000 W/cm². Occupational exposure up to 5000 W/cm² is allowed.

S. Szmigielski, "Cancer Morbidity in Subjects Occupationally Exposed to High Frequency (Radiofrequency and Microwave) Electromagnetic Radiation," The Science of the Total Environment 180:9-17, 1996

[back] 11. Dr. Bruce Hocking found an association between increased childhood leukemia incidence and mortality in the proximity of television towers. The power density ranged from 0.2-8.0 W/cm² nearer and 0.02 W/cm² farther from the towers.

B. Hocking, I. R. Gordon, H. L. Grain, and G. E. Hatfield, "Cancer Incidence and Mortality and Proximity to TV Towers," Medical Journal of Australia 165: 601-605; 1996

[back] 12. Drs. Mann and Röschke investigated the influence of pulsed high-frequency RF/MW radiation of digital mobile radio telephones on sleep in healthy humans. They found a hypnotic effect with shortening of sleep onset latency and a REM (Rapid Eye Movement) suppressive effect with reduction of duration and percentage of REM sleep. "REM sleep plays a special physiological role for information processing in the brain, especially concerning consolidation of new experiences. Thus the effects observed possibly could be associated with alterations of memory and learning functions."

K. Mann and J. Röschke, "Effects of Pulsed High-Frequency Electromagnetic Fields on Human Sleep," Neuropsychobiology 33:41-47, 1996

[back] 13. Dr. Allen Frey has been researching RF/MW radiation for over 3 decades. Here is the abstract on a paper concerning headaches and cellular phone radiation. "There have been numerous recent reports of headaches occurring in association with the use of hand-held cellular telephones. Are these reported headaches real? Are they due to emissions from telephones? There is reason to believe that the answer is "yes" to both questions. There are several lines of evidence to support this conclusion. First, headaches as a consequence of exposure to low intensity microwaves were reported in the literature 30 years ago. These were observed during the course of microwave hearing research before there were cellular telephones. Second, the bloodbrain barrier appears to be involved in headaches, and low intensity microwave energy exposure affects the barrier. Third, the dopamine-opiate systems of the brain appear to be involved in headaches, and low intensity electromagnetic energy exposure affects those systems. In all three lines of research, the microwave energy used was approximately the same--in frequencies, modulations, and incident energies--as those emitted by present day cellular telephones, Could the current reports of headaches be the canary in the coal mine, warning of biologically significant effects?"

A. H. Frey, "Headaches from Cellular Telephones: Are they Real and What Are the Implications?" Environmental Health Perspectives Volume 106, Number 3, pp.101-103, March 1998

[back] 14. Henry Lai's review of the literature concerning neurological effects of RF/MW radiation: Existing data indicate that RF/MW radiation of relatively low intensity can affect the nervous system. Changes in blood-brain barrier, morphology, electrophysiology, neurotransmitter functions, cellular metabolism, and calcium efflux, and genetic effects have been reported in the brain of animals after exposure to RF. These changes can lead to functional changes in the nervous system. Behavioral changes in animals after exposure to RR have been reported.

Even a temporary change in neural functions after RF/MW radiation exposure could lead to adverse consequences. For example, a transient loss of memory function or concentration could result in an accident when a person is driving. Loss of short term working memory has indeed been observed in rats after acute exposure to RF/MW radiation.

Research has also shown that the effects of RF/MW radiation on the nervous system can cumulate with repeated exposure. The important question is, after repeated exposure, will the nervous system adapt to the perturbation and when will homeostasis break down? Related to this is that various lines of evidence suggest that responses of the central nervous system to RF/MW radiation could be a stress response. Stress effects are well known to cumulate over time and involve first adaptation and then an eventual break down of homeostatic processes.

H. Lai, "Neurological Effects of Radiofrequency Electromagnetic Radiation Relating to Wireless Communication Technology," Paper presentation at the IBC-UK Conference: "Mobile Phones-Is There a Health Risk?" September 16-17, 1997, Brussels, Belgium

[back] 15. Blood-Brain-Barrier: The blood-brain-barrier (BBB) is primarily a continuous layer of cells lining the blood vessels of the brain. It is critical for regulation of the brain's activity. Lai notes that "Even though most studies indicate that changes in the BBB occurs only after exposure to RF/MW radiation of high intensities with significant increase in tissue temperature, several studies have reported increases in permeability after exposure to RF/MW radiation of relatively low intensities...Pulsed RF seems to be more potent than continuous wave RF." Pulsed RF/MW is the type used in digital cellular systems. Effects on the BBB were noted at the 0.2 W/cm² level, and even at SAR of 0.016-5 W/kg. These effects could lead to local changes in brain function.

H. Lai, Ibid

[back] 16. Cellular Morphology: RF/MW radiation induced morphological changes of the central nervous system cells and tissues have been shown to occur under relatively high intensity or prolonged exposure to the RF/MW radiation. However, there are several studies which show that repeated exposure at relatively low power intensities caused morphological changes in the central nervous system. Again here pulsed (as in digital phone use) RF/MW radiation produced more pronounced effects. Certain drugs given to nonhuman primates sensitized them, for instance allowing eye damage to occur at very low power intensities. Dr Lai notes "Changes in morphology, especially cell death, could have an important implication on health. Injury-induced cell proliferation has been hypothesized as a cause of cancer." Some of these experiments were in the range of SAR 0.53 W/kg or even 0.26 W/kg.

H. Lai, Ibid

[back] 17. Neural Electrophysiology: Changes in neuronal electrophysiology, evoked potentials, and EEG have been reported. Some effects were observed at low intensities and after repeated exposure, suggesting cumulative effect. Energy density levels were as low as 50 W/cm².

H. Lai, Ibid

[back] 18. Neurotransmitters: Neurotransmitters are molecules which transmit information from one nerve cell to another. Early studies have reported changes in various neurotransmitters (catecholamines, serotonin, and acetylcholine) in the brain of animals only after exposure to high intensities of RF/MW radiation. However, there are more recent studies that show changes in neurotransmitter functions after exposure to low intensities of RF radiation. For example, effects were seen at 50 μ W/cm² in one experiment. U.S. and Canadian RF/MW radiation safety policies allow exposures of 1000 μ W/cm² at that frequency.

RF/MW radiation activates endogenous opioids in the brain. Endogenous opioids are neurotransmitters with morphine-like properties and are involved in many important physiological and behavioral functions, such as pain perception and motivation.

The response to RF/MW radiation depends on the area of the brain studied and on the duration of exposure. Exposure to RF/MW radiation has been shown to affect the behavioral actions of benzodiazepines (these are drugs such as Valium).

H. Lai, Ibid

[back] 19. Metabolic Changes in Neural Tissue: Several studies investigated the effects of RF/MW radiation exposure on energy metabolism in the rat brain. Surprisingly, changes were reported after exposure to relatively low intensity RF/MW radiation for a short duration of time (minutes). The effects depended on the frequency and modulation characteristics of the RF/MW radiation and did not seem to be related to temperature changes in the tissue.

Calcium ions play important roles in the functions of the nervous system, such as the release of neurotransmitters and the actions of some neurotransmitter receptors. Thus changes in calcium ion concentration could lead to alterations in neural functions. This is an area of considerable controversy because some

researchers have also reported no significant effects of RF/MW radiation exposure on calcium efflux. However, when positive effects were observed, they occurred after exposure to RF/MW radiation of relatively low intensities and were dependent on the modulation and intensity of the RF/MW radiation studied (window effects). Some studies had SARs as low as 0.05-0.005 W/Kg.

H. Lai, Ibid

[back] 20. Cytogenetic effects have been reported in various types of cells after exposure to RF/MW radiation. Recently, several studies have reported cytogenetic changes in brain cells by RF/MW radiation, and these results could have important implication for the health effects of RF/MW radiation. Genetic damage to glial cells can result in carcinogenesis. However, since neurons do not undergo mitosis, a more likely consequence of neuronal genetic damage is changes in functions and cell death, which could either lead to or accelerate the development of neurodegenerative diseases. Power densities of 1 mW/cm² were employed, a level considered safe for the public by the FCC.

RF/MW radiation -induced increases in single and double strand DNA breaks in rats can be blocked by treating the rats with melatonin or the spin-trap compound N-t-butyl--phenylnitrone. Since both compounds are potent free radical scavengers, these data suggest that free radicals may play a role in the genetic effect of RF. If free radicals are involved in the RF-induced DNA strand breaks in brain cells, results from this study could have an important implication on the health effects of RF exposure. Involvement of free radicals in human diseases, such as cancer and atherosclerosis, has been suggested. Free radicals also play an important role in the aging process, which has been ascribed to be a consequence of accumulated oxidative damage to body tissues, and involvement of free radicals in neurodegenerative diseases, such as Alzheimer's, Huntington, and Parkinson, has also been suggested. One can also speculate that some individuals may be more susceptible to the effects of RF/MW radiation exposure.

H. Lai, Ibid

[back] 21. Dr. A. A. Kolodynski and V. V. Kolodynska of the Institute of Biology, Latvian Academy of Sciences, presented the results of experiments on school children living in the area of the Skrunda Radio Location Station in Latvia. Motor function, memory, and attention significantly differed between the exposed and control groups. The children living in front of the station had less developed memory and attention and their reaction time was slower.

A. A. Kolodynski, V. V. Kolodynska, "Motor and Psychological Functions of School Children Living in the Area of the Skrunda Radio Location Station in Latvia," The Science of the Total Environment 180:87-93, 1996

[back] 22. Dr. H. Lai and colleagues in 1993 exposed rats to 45 minutes of pulsed high frequency RF/MW radiation at low intensity and found that the rats showed retarded learning, indicating a deficit in spatial "working memory" function.

H Lai, A. Horita, and A. W. Guy, "Microwave Irradiation Affects Radial-Arm Maze Performance in the Rat," Bioelectromagnetics 15:95-104, 1994

NOTE: Dr. Lai's January 2005 compilation of published RF/MW radiation studies demonstrating biological effects of exposure to low-intensity RF/MW radiation is included as a Reference section at the end of this report.

[back] 23. Dr. Stefan Braune reported a 5-10 mm Hg resting blood pressure rise during exposure to RF/MW radiation of the sort used by cellular phones in Europe. The Lancet, the British medical journal where the report appeared, stated that "Such an increase could have adverse effects on people with high blood pressure."

S. Braune, "Resting Blood Pressure Increase During Exposure to a Radio-Frequency Electromagnetic Field," The Lancet 351, pp. 1,857-1,858, 1998

[back] 24. Dr. Kues and colleagues (of Johns Hopkins University and the Food and Drug Administration) found that placing timolol and pilocarpine into the eyes of monkeys and then exposing them to low power density pulsed RF/MW radiation caused a significant reduction in the power-density threshold for causing damage to the cells covering the eye and the iris. In fact the power was reduced by a factor of 10, so that it entered the "acceptable, safe" level of the FCC, 1 mW/cm²! Timolol and pilocarpine are commonly used by people suffering from glaucoma. This is a very important study, as it points to the fact that laboratory experiments under "ideal" conditions are rarely what one finds in real life. The "safe" level of RF/MW radiation exposure for healthy people is likely to be very different than for those of us who suffer from illness, take medications, or are perhaps simply younger or older than those in the experiments.

H. A. Kues, J. C. Monahan, S. A. D'Anna, D. S. McLeod, G. A. Lutty, and S. Koslov, "Increased Sensitivity of the Non-Human Primate Eye to Microwave Radiation Following Ophthalmic Drug Pretreatment," Bioelectromagnetics 13:379-393, 1992

[back] 25. The World Health Organization states that "concerns have been raised about the safety of cellular mobile telephones, electric power lines and police speed-control 'radar guns.' Scientific reports have suggested that exposure to electromagnetic fields emitted from these devices could have adverse health effects, such as cancer, reduced fertility, memory loss, and adverse changes in the behaviour and development of children." Therefore, "In May 1996, in response to growing public health concerns in many Member States over possible health effects from exposure to an ever-increasing number and diversity of EMF sources, the World Health Organization launched an international project to assess health and environmental effects of exposure to electric and magnetic fields, which became known as the International EMF Project. The International EMF Project will last for five years." "A number of studies at [frequencies above about 1 MHz] suggest that exposure to RF fields too weak to cause heating may have adverse health consequences, including cancer and memory loss. Identifying and encouraging coordinated research into these open questions is one of the major objectives of the International EMF Project."

World Health Organization Fact Sheet N181, "Electromagnetic Fields and Public Health, The International EMF Project," reviewed May 1998 and World Health Organization Fact Sheet N182, "Electromagnetic Fields and Public Health, Physical Properties and Effects on Biological Systems," reviewed May 1998,

[back] 26. The U. S. Food and Drug Administration in a January 14, 1998 letter to the House Telecommunications Subcommittee stated it "believes additional research in the area of RF is needed." In 1997 the FDA established the following priorities:

- Chronic (lifetime) animal exposures should be given the highest priority.
- Chronic animal exposures should be performed both with and without the application of chemical initiating agents to investigate tumor promotion in addition to tumorigenesis.
- Identification of potential risks should include end points other than brain cancer (e.g. ocular effects of RF radiation exposure).
- Replication of prior studies demonstrating positive biological effects work is needed. A careful replication of the Chou and Guy study (*Bioelectromagnetics*, 13, pp.469-496, 1992) which suggests that chronic exposure of rats to microwaves is associated with an increase in tumors, would contribute a great deal to the risk identification process for wireless communication products.
- Genetic toxicology studies should focus on single cell gel studies of DNA strand breakage and on induction of micronuclei.
- Epidemiology studies focused on approaches optimized for hazard identification are warranted.

Food and Drug Administration Recommendations quoted in Microwave News, March/April, 1997

[back] 27. The International Agency for Research on Cancer (IARC) is planning a multi-country, multi-million dollar study of cancer among users of wireless phones, beginning 1998. *Microwave News, January/February, 1998*

[back] 28. The Swedish Work Environmental Fund initiated a new epidemiological study on cellular phone radiation and brain tumors in 1997. *Microwave News, November/December, 1997*

[back] 29. The National Cancer Institute announced plans for a 5 year study of brain tumors and RF/MW radiation in 1993. *Microwave News, January/February*, 1993

[back] 30. The European Commission (EC) Expert Group on health effects of wireless phones called for a 5 year research program with a \$20 million

budget, reported 1997. Microwave News , January/February, 1997

[back] 31. A report commissioned by New Zealand's Ministry of Health stated that "It is imperative that the scientific issues be clarified as soon as possible, as there is much at stake." It called for more research to examine the potential health effects of RF radiation. *Microwave News, November/December, 1996*

[back] 32. The National Health and Medical Research Council of Australia announced its sponsorship of a 5 year, \$3.5 million project on potential health effects of mobile phone technology in 1996. *Microwave News, November/December, 1996*

[back] 33. The Commonwealth Scientific Industrial Research Organization (CSIRO) of Australia concluded in 1995 that the safety of cellular telephones cannot be resolved "in the near future." Dr. Stan Barnett, a principal researcher of CSIRO, states that "My goal is to establish a national committee to approach this problem by coordinating relevant and focused research." He estimated a budget of \$3 million over a 3 year period would be necessary.

Commonwealth Scientific Industrial Research Organization, "Status of Research on Biological Effects and Safety of Electromagnetic Radiation: Telecommunications Frequencies," a report prepared by Dr. Stan Barnett, as sited in Microwave News, September/October, 1995

[back] 34. In Canada, Expert Panels are formed in response to requests from governments and other organizations for guidance on public policy issues where specialized knowledge is required. The Royal Society of Canada (RSC) is the only national academic organization, encompassing all fields of study in the sciences, arts and humanities that provides, through its Committee on Expert Panels, a service to Canadians by convening Expert Panels that produce publicly disseminated, arms-length, third party reviews. The most recent Expert Panel report addressing RF/MW radiation examines new data on dosimetry and exposure assessment, thermoregulation, biological effects such as enzyme induction, and toxicological effects, including genotoxicity, carcinogenicity, and testicular and reproductive outcomes. Epidemiological studies of mobile phone users and occupationally exposed populations are examined, along with human and animal studies of neurological affects. All of the authoritative reviews completed within the last two years have supported the need for further research to clarify the possible associations between RF fields and adverse health outcomes that have appeared in some reports. See: http://www.rsc.cal/index.php?lang_id=1&page_id=120.

Recent Advances in Research on Radiofrequency Fields and Health: 2001-2003; A Follow-up to The Royal Society of Canada, Report on the Potential Health Risks of Radiofrequency Fields from Wireless Telecommunication Devices, 1999

[back] 35. The European Union effort to address this issue is in the study *Risk Evaluation of Potential Environmental Hazards from Low Energy Electromagnetic Field Exposure Using Sensitive in vitro Methods* (REFLEX). Exposure to electromagnetic fields (EMF) in relation to health is a controversial topic throughout the industrial world. So far epidemiological and animal studies have generated conflicting data and thus uncertainty regarding possible adverse health effects. This situation has triggered controversies in communities especially in Europe with its high density of population and industry and the omnipresence of EMF in infrastructures and consumer products. These controversies are affecting the siting of facilities, leading people to relocate, schools to close or power lines to be re-sited, all at great expense. The European Union believes that causality between EMF exposure and disease can never be regarded as proven without knowledge and understanding of the basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF. To search for those basic mechanisms possibly triggered by EMF.

The REFLEX data have made a substantial addition to the data base relating to genotoxic and phenotypic effects of both ELF-EMF and RF-EMF on *in vitro* cellular systems. While the data neither precludes nor confirms a health risk due to EMF exposure nor was the project designed for this purpose, the value lies in providing new data that will enable mechanisms of EMF effects to be studied more effectively than in the past. Furthermore, the REFLEX data provide new information that will be used for risk evaluation by WHO, IARC and ICNIRP. For further information on REFLEX see: http://europa.eu.int/comm/research/quality-of-life/ka4/ka4_electromagnetic_en.html

[back] 36. The Swedish Radiation Protections Institute (SSI) endeavors to ensure that human beings and the environment are protected from the harmful effects of radiation, both in the present and in the future. SSI has focused on epidemiological research on cancer and exposure from mobile phones and transmitters as well as experimental cancer research. In addition three selected topics were also discussed, namely blood-brain barrier, heat shock proteins, and precautionary framework. For further information on SSI see: http://www.ssi.se/forfattling/eng_forfattlista.html

[back] 37. In the United Kingdom, the National Radiological Protection Board (NRPB) was created by the Radiological Protection Act 1970. The statutory functions of NRPB are to advance the acquisition of knowledge about the protection of mankind from radiation hazards through research and to provide information and advice to persons (including Government Departments) with responsibilities in the United Kingdom in relation to the protection from radiation hazards either of the community as a whole or of particular sections of the community. The NFPB believes that there is a need for better occupational studies rather than simply for more. In particular, the studies need to be of occupational groups for whom measurements show that there is genuinely a substantially raised exposure to RF fields. If the studies are to be more informative than those so far, a key requirement will be for improved exposure measurement (or improved estimation of RF field exposures, and also that they should include some assessment of major RF field exposures from sources other than the current occupation. Ideally, exposure assessment needs to be anatomical site (organ)-specific, because some sources result in greatly differing doses to different parts of the body. It is a difficulty in these prescriptions, of course, that the appropriate exposure metric is unknown. For further information on NRPB see: http://www.hpa.org.uk/radiation/

[back] 38. On January 5, 2005, the EMF-Team Finland issued the Helsinki Appeal 2005 to members of the European Parliament. In it physicians and researchers call on the European Parliament to apply the Precautionary Principle to electromagnetic fields, especially in the radio- and microwave- frequency bands. They criticize the present RF/MW radiation safety standards that do not recognize the biological effects caused by non-thermal exposures to non-ionizing radiation [i.e., RF/MW radiation.] They also call for continued refunding of the REFLEX EMF research program. The text of the Helsinke Appeal 2005 is found at: http://www.emrpolicy.org/news/headlines/index.htm

[back] 39. On July 19, 1993 Dr. Elizabeth Jacobson, Deputy Director for Science, Center for Devices and Radiological Health, Food and Drug Administration criticized Thomas Wheeler, President of the Cellular Telecommunications Industry Association:

"I am writing to let you know that we were concerned about two important aspects of your press conference of July 16 concerning the safety of cellular phones, and to ask that you carefully consider the following comments when you make future statements to the press. First, both the written press statements and your verbal comments during the conference seemed to display an unwarranted confidence that these products will be found absolutely safe. In fact, the unremittingly upbeat tone of the press packet strongly implies that there can be no hazard, leading the reader to wonder why any further research would be needed at all.....More specifically, your press packet selectively quotes from our Talk Paper of February 4 in order to imply that FDA believes that cellular phones are "safe." ("There is no proof at this point that cellular phones are harmful.") In fact, the same Talk Paper also states, "There is not enough evidence to know for sure, either way." Our position, as we have stated it before, is this: Although there is no direct evidence linking cellular phones with harmful effects in humans, a few animal studies suggest that such effects could exist. It is simply too soon to assume that cellular phones are perfectly safe, or that they are hazardous--either assumption would be premature. This is precisely why more research is needed."

Full text of letter can be found in Microwave News, July/August, 1993

[back] 40. In 1993 the Director of the Office of Radiation and Indoor Air of the Environmental Protection Agency suggested that the FCC not adopt the 1992 ANSI/IEEE standard "due to serious flaws," among them (1) "the ANSI/IEEE conclusion that there is no scientific data indicating that certain subgroups of the population are more at risk than others is not supported by NCRP and EPA reports" and (2) "the thesis that ANSI/IEEE recommendations are protective of all mechanisms of interaction is unwarranted because the adverse effects level in the 1992 ANSI/IEEE standard are based on a thermal effect."

Letter from Margo T. Oge, Director, Office of Radiation and Indoor Air to Thomas Stanley, Chief Engineer, Office of engineering and Technology, FCC, dated Nov 9, 1993

[back] 41. A brief sampling of the CSIRO report:

Problems in studies of human populations published to date include imprecise estimates of exposure. As a result, such epidemiological studies may underestimate any real risk. The likelihood of epidemiological studies providing useful information is questionable, particularly if the biological end point cannot be predicted. Its value in the short term (less than 10 years) must be negligible unless there was an enormous increase in the rate of cancer growth. Interestingly, the incidence of brain tumors in the EC countries has increased substantially in recent years.

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RF safety cannot be assessed in the absence of reported serious effects when so little research has been almed at the problem. It is somewhat surprising, and rather disappointing, to find that although the literature contains many hundreds of publications, there are very few areas of consensus....At low levels the absence of clear thresholds and [the] presence of intensity and frequency windows have created questions rather than provided answers.

There is no doubt that the interpretation of bioeffects data has been clouded by a preoccupation with thermally mediated processes. In fact, development of the ANSI/IEEE standard is based only on well-established thermal effects, and ignores the more subtle non-thermal processes that are more difficult to interpret and apply to human health.

Commonwealth Scientific Industrial Research Organization, "Status of Research on Biological Effects and Safety of Electromagnetic Radiation: Telecommunications Frequencies," a report prepared by Dr. Stan Barnett, as sited in Microwave News, September/October, 1995

[back] 42. Statement from the October 25-28, 1998 "Symposium of Mobile Phones and Health - Workshop on Possible Biological and Health Effects of RF Electromagnetic Fields" held at the University of Vienna, Austria.

The preferred terminology to be used in public communication: Instead of using the terms "athermal", "non-thermal" or "microthermal" effects, the term "low intensity biological effects" is more appropriate.

Preamble: The participants agreed that biological effects from low-intensity exposures are scientifically established. However, the current state of scientific consensus is inadequate to derive reliable exposure standards. The existing evidence demands an increase in the research efforts on the possible health impact and on an adequate exposure and dose assessment.

Base stations: How could satisfactory Public Participation be ensured: The public should be given timely participation in the process. This should include information on technical and exposure data as well as information on the status of the health debate. Public participation in the decision (limits, siting, etc.) should be enabled.

Cellular phones: How could the situation of the users be improved: Technical data should be made available to the users to allow comparison with respect to EMF-exposure. In order to promote prudent usage, sufficient information on the health debate should be provided. This procedure should offer opportunities for the users to manage reduction in EMF-exposure. In addition, this process could stimulate further developments of low-intensity emission devices.

[back] 43. Statement from the June 7-8, 2000 International Conference on Cell Tower Siting Linking Science and Public Health, Salzburg, Austria. The full report can be found at: http://new.iaff.org/HS/PDF/cell_tower_measurements.pdf

It is recommended that development rights for the erection and for operation of a base station should be subject to a permission procedure. The protocol should include the following aspects:

- o Information ahead and active involvement of the local public
- o Inspection of alternative locations for the siting
- o Protection of health and wellbeing
- o Considerations on conservation of land- and townscape
- o Computation and measurement of exposure
- o Considerations on existing sources of HF-EMF exposure
- o Inspection and monitoring after installation
- It is recommended that a national database be set up on a governmental level giving details of all base stations and their emissions.
- It is recommended for existing and new base stations to exploit all technical possibilities to ensure exposure is as low as achievable (ALATAprinciple) and that new base stations are planned to guarantee that the exposure at places where people spend longer periods of time is as low as possible, but within the strict public health guidelines.
- Presently the assessment of biological effects of exposures from base stations in the low-dose range is difficult but indispensable for protection of public health. There is at present evidence of no threshold for adverse health effects.
 - Recommendations of specific exposure limits are prone to considerable uncertainties and should be considered preliminary. For the total of all high frequency irradiation a limit value of 100 mW/m² (10 μW/cm²) is recommended.
 - o For preventive public health protection a preliminary guideline level for the sum total of exposures from all ELF pulse modulated high-frequency facilities such as GSM base stations of 1 mW/m² (0.1 μ W/cm²) is recommended.

[back] 44. Scientists attending the September 13-14, 2002 International Conference "State of the Research on Electromagnetic Fields – Scientific and Legal Issues," organized by ISPESL (National Institute for Prevention and Work Safety, Italy), the University of Vienna, and the City of Catania, held in Catania, Italy, agreed to the following:

- Epidemiological and *in vivo* and *in vitro* experimental evidence demonstrates the existence for electromagnetic field (EMF) induced effects, some of which can be adverse to health.
- We take exception to arguments suggesting that weak (low intensity) EMF cannot interact with tissue.
- There are plausible mechanistic explanations for EMF-induced effects which occur below present ICNIRP and IEEE guidelines and exposure recommendations by the EU.
- The weight of evidence calls for preventive strategies based on the precautionary principle. At times the precautionary principle may involve prudent avoidance and prudent use.
- We are aware that there are gaps in knowledge on biological and physical effects, and health risks related to EMF, which require additional independent research.

[back] 45. The Freiburger Appeal is a German based appeal by mainly medical practitioners who are concerned about the effects, they believe, from mobile phone technology including masts that are appearing in their patients. It started in Oct 2002 and with very little international publicity has got 50,000 signatories with at least 2000 medical signatures from across the world. Mast These physicians and scientists agreed to establish an international scientific commission to promote research for the protection of public health from EMF and to develop the scientific basis and strategies for assessment, prevention, management and communication of risk, based on the precautionary principle.

Excerpt:

On the basis of our daily experiences, we hold the current mobile communications technology (introduced in 1992 and since then globally extensive) and cordless digital telephones (DECT standard) to be among the fundamental triggers for this fatal development. One can no longer evade these pulsed microwaves. They heighten the risk of already-present chemical/physical influences, stress the body–immune system, and can bring the body–still-functioning regulatory mechanisms to a halt. Pregnant women, children, adolescents, elderly and sick people are especially at risk.

Statement of the physicians and researchers of Interdisziplinäre Gesellschaft für Umweltmedizin e. V. (Interdisciplinary Association for Environmental Medicine) IGUMED, Sackingen, Germany, September 19, 2002. The Freiburger Appeal can be found at: http://www.mastsanity.org/doctors-appeals.html.

[back] 46. Report of the European Union's REFLEX Project (Risk Evaluation of Potential Environmental Hazards from Low Frequency Electromagnetic Field

Exposure Using Sensitive *in vitro* methods), November 2004. The Project studied ELF and RF exposures to various animal cell types. The report is round at: http://new.iaff.org/HS/PDF/REFLEX%20Final%20Report.pdf

From the Summary: [t]he omnipresence of EMF's in infrastructures and consumer products have become a topic of public concern. This is due to the fear of people that based on the many conflicting research data a risk to their health cannot be excluded with some certainty. Therefore, the overall objective of REFLEX was to find out whether or not the fundamental biological processes at the cellular and molecular level support such an assumption. For this purpose, possible effects of EMF's on cellular events controlling key functions, including those involved in carcinogenesis and in the pathogenesis of neurodegenerative disorders, were studied through focused research. Failure to observe the occurrence of such key critical events in living cells after EMF exposure would have suggested that further research efforts in this field could be suspended and financial resources be reallocated to the investigation of more important issues. But as clearly demonstrated, the results of the REFLEX project show the way into the opposite direction.

[back] 47. From the Discussion section of the December 20, 2004 Second Annual Report of Sweden's Radiation Protection Board (SSI) entitled: *Recent Research on Mobile Telephony and Health Risks: Second Annual Report from SSI's Independent Expert Group on Electromagnetic Fields.* The complete report is available at: http://new.iaff.org/HS/PDF/EMF_exp_Eng_2004.pdf

To date, little is known about the levels of radiofrequency radiation exposure in the general population from sources such as mobile phones being used by oneself or other people, mobile phone base stations, and radio and television transmitters. Measurements that have been performed have usually been made as a result of public concern about base station exposures or other specific sources, and have therefore been made at locations that could be assumed to have higher fields than would be the case if measurement locations were selected randomly. Furthermore, all measurements have been stationary, and there is today no knowledge about the level of exposure that an individual will have throughout the day.

There is need for information about the personal exposure to RF fields in the general population, to enhance the understanding of the relative importance of exposure from base stations close to the home, from radio and television transmitters, and from the use of mobile phones . . . Studies with personal RF exposure measurements of randomly selected samples of the general population are strongly encouraged.

[back] 48. Released January 11, 2005, Mobile Phones and Health 2004: Report by the Board of NRPB Documents of the NRPB: Volume 15, No. 5. See: Mobile Phones and Health 2004

From the Executive Summary:

The Board notes that a central recommendation in the Stewart Report was that a precautionary approach to the use of mobile phone technologies be adopted until much more detailed and scientifically robust information on any health effects becomes available.

The Board considers that it is important to understand the signal characteristics and field strengths arising from new telecommunications systems and related technologies, to assess the RF exposure of people, and to understand the potential biological effects on the human body.

[back] 49. The ICNIRP exposure guidelines are only designed to protect against "known adverse health impacts," according to Dr. Jürgen Bernhardt, ICNIRP's chairman. Bernhardt reviewed the updated limits, which cover the spectrum from 1 Hz to 300 GHz, in a presentation at the 20th Annual Meeting of the Bioelectromagnetics Society in St. Pete Beach, FL, on June 10. The limits protect against "short-term, immediate health effects" such as nerve stimulation, contact shocks and thermal insults, according to the guidelines, which appear in the April issue of Health Physics (74, pp.494-522, 1998). Despite "suggestive" evidence that power frequency magnetic fields can be carcinogenic, ICNIRP has concluded that this and other non-thermal health effects have not been "established." ICNIRP has long followed this approach to standard-setting. In his talk, Bernhardt noted that the guidelines include "no consideration regarding prudent avoidance" for health effects for which evidence is less than conclusive.

Microwave News, July/August 1998

Additional References and Studies

The following references reporting biological effects of radiofrequency radiation (RFR) at low intensities through January 2005 were compiled on 12/27/04 by Henry C. Lai PhD, Research Professor of Bioengineering, University of Washington, Seattle, WA

Balode Sci Total Environ 180(1):81-85, 1996 - blood cells from cows from a farm close and in front of a radar installation showed significantly higher level of severe genetic damage.

Boscol et al. Sci Total Environ 273(1-3):1-10, 2001 - RFR from radio transmission stations (0.005 mW/cm²) affects immune system in women.

Chiang et al. J. Bioelectricity 8:127-131, 1989 - people who lived and worked near radio antennae and radar installations showed deficits in psychological and short-term memory tests.

de Pomerai et al. Nature 405:417-418, 2000. Enzyme Microbial Tech 30:73-79, 2002 - reported an increase in a molecular stress response in cells after exposure to a RFR at a SAR of 0.001 W/kg. This stress response is a basic biological process that is present in almost all animals - including humans.

de Pomerai et al. (FEBS Lett 22;543(1-3):93-97, 2003 - RFR damages proteins at 0.015-0.020 W/kg.

D'Inzeo et al. *Bioelectromagnetics* 9(4):363-372, 1988 - very low intensity RFR (0.002 – 0.004 mW/cm²) affects the operation of acetylcholine-related ionchannels in cells. These channels play important roles in physiological and behavioral functions.

Dolk et al. Am J Epidemiol 145(1):1-91997- a significant increase in adult leukemias was found in residents who lived near the Sutton Coldfield television (TV) and frequency modulation (FM) radio transmitter in England.

Dutta et al. *Bioelectromagnetics* 10(2):197-202 1989 - reported an increase in calcium efflux in cells after exposure to RFR at 0.005 W/kg. Calcium is an important component of normal cellular functions.

Fesenko et al. *Bioelectrochem Bioenerg* 49(1):29-35, 1999 - reported a change in immunological functions in mice after exposure to RFR at a power density of 0.001 mW/cm².

Hallberg O, Johansson O, (2004) concluded that continuous disturbance of cell repair mechanisms by body-resonant FM electromagnetic fields seems to amplify the carcinogenic effects resulting from cell damage caused e.g. by UV-radiation.

Hjollund et al. *Reprod Toxicol* 11(6):897, 1997 - sperm counts of Danish military personnel, who operated mobile ground-to-air missile units that use several RFR emitting radar systems (maximal mean exposure 0.01 mW/cm²), were significantly lower compared to references.

Hocking et al. *Med J Aust* 165(11-12):601-605, 1996 - an association was found between increased childhood leukemia incidence and mortality and proximity to TV towers.

Ivaschuk et al. *Bioelectromagnetics* 18(3):223-229, 1999 - short-term exposure to cellular phone RFR of very low SAR (26 mW/kg) affected a gene related to cancer.

Kolodynski and Kolodynska, *Sci Total Environ* 180(1):87-93, 1996 - school children who lived in front of a radio station had less developed memory and attention, their reaction time was slower, and their neuromuscular apparatus endurance was decreased.

Kwee et al. *Electro- and Magnetobiology* 20: 141-152, 2001 - 20 minutes of cell phone RFR exposure at 0.0021 W/kg increased stress protein in human cells.

Lebedeva et al. *Crit Rev Biomed Eng* 28(1-2):323-337, 2000 - brain wave activation was observed in human subjects exposed to cellular phone RFR at 0.06 mW/cm².

Magras and Aerios bioelectromagnetics 10(0).455-461, 1999 - reported a decrease in reproductive function in mice exposed to RFR at power densities of 0.000168 - 0.001053 mW/cm². Irreversible sterility was found in the fifth generation of offspring.

Mann et al. Neuroendocrinology 67(2):139-144, 1998 - a transient increase in blood cortisol was observed in human subjects exposed to cellular phone RFR at 0.02 mW/cm². Cortisol is a hormone involved in stress reaction.

Marinelli et al. J Cell Physiol. 198(2):324-332, 2004 - exposure to 900-MHz RFR at 0.0035 W/kg affected cell's self-defense responses.

Michelozzi et al. *Epidemiology* 9 (Suppl) 354p, 1998 - leukemia mortality within 3.5 km (5,863 inhabitants) near a high power radio-transmitter in a peripheral area of Rome was higher than expected.

Michelozzi et al. Am J Epidemiol 155(12):1096-1103, 2002 - childhood leukemia higher at a distance up to 6 km from a radio station.

Navakatikian and Tomashevskaya "Biological Effects of Electric and Magnetic Fields, Volume 1," D.O. Carpenter (ed) Academic Press, San Diego, CA, pp.333-342. 1994 - RFR at low intensities (0.01 - 0.1 mW/cm²; 0.0027- 0.027 W/kg) induced behavioral and endocrine changes in rats. Decreases in blood concentrations of testosterone and insulin were reported.

Novoselova et al. Bioelectrochem Bioenerg 49(1):37-41, 1999 -low intensity RFR (0.001 mW/cm²) affects functions of the immune system.

Park et al. International Archives of Occupational and Environmental Health 77(6):387-394, 2004 - higher mortality rates for all cancers and leukemia in some age groups in the area near the AM radio broadcasting towers.

Persson et al. Wireless Network 3:455-461, 1997 - reported an increase in the permeability of the blood-brain barrier in mice exposed to RFR at 0.0004 - 0.008 W/kg. The blood-brain barrier envelops the brain and protects it from toxic substances.

Phillips et al. Bioelectrochem. Bioenerg. 45:103-110, 1998 - reported DNA damage in cells exposed to RFR at SAR of 0.0024 - 0.024 W/kg.

Polonga-Moraru et al. *Bioelectrochemistry* 56(1-2):223-225, 2002 - change in membrane of cells in the retina (eye) after exposure to RFR at 15 μW/cm².

Pyrpasopoulou et al. *Bioelectromagnetics* 25(3):216-227, 2004 - exposure to cell phone radiation during early gestation at SAR of 0.0005 W/kg (5 μW/cm²) affected kidney development in rats.

Salford et al. Environ Health Persp Online January 29, 2003 - Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones signal at 0.02 W/kg.

Santini et al. Pathol Biol (Paris) 50(6):369-373, 2002 - increase in complaint frequencies for tiredness, headache, sleep disturbance, discomfort, irritability, depression, loss of memory, dizziness, libido decrease, in people who lived within 300 m of mobile phone base stations.

Sarimov et al. IEEE Trans Plasma Sci 32:1600-1608, 2004 - GSM microwaves affect human lymphocyte chromatin similar to stress response at 0.0054 W/kg.

Schwartz et al. *Bioelectromagnetics* 11(4):349-358, 1990 - calcium movement in the heart affected by RFR at SAR of 0.00015 W/kg. Calcium is important in muscle contraction. Changes in calcium can affect heart functions.

Somosy et al. Scanning Microsc 5(4):1145-1155, 1991 - RFR at 0.024 W/kg caused molecular and structural changes in cells of mouse embryos.

Stagg et al. *Bioelectromagnetics* 18(3):230-236, 1997- glioma cells exposed to cellular phone RFR at 0.0059 W/kg showed significant increases in thymidine incorporation, which may be an indication of an increase in cell division.

Stark et al. J Pineal Res 22(4):171-176, 1997 - a two- to seven-fold increase of salivary melatonin concentration was observed in dairy cattle exposed to RFR from a radio transmitter antenna.

Tattersall et al. *Brain Res* 904(1):43-53, 2001 - low-intensity RFR (0.0016 - 0.0044 W/kg) can modulate the function of a part of the brain called the hippocampus, in the absence of gross thermal effects. The changes in excitability may be consistent with reported behavioral effects of RFR, since the hippocampus is involved in learning and memory.

Vangelova et al. Cent Eur J Public Health 10(1-2):24-28, 2002 - operators of satellite station exposed to low dose (0.1127 J/kg) of RFR over a 24-hr shift showed an increased excretion of stress hormones.

Velizarov et al. *Bioelectrochem Bioenerg* 48(1):177-180, 1999 - showed a decrease in cell proliferation (division) after exposure to RFR of 0.000021 - 0.0021 W/kg.

Veyret et al. Bioelectromagnetics 12(1):47-56, 1991 - low intensity RFR at SAR of 0.015 W/kg affects functions of the immune system.

Wolke et al. Bioelectromagnetics 17(2):144-153, 1996 - RFR at 0.001W/kg affects calcium concentration in heart muscle cells of guinea pigs.

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The International Association of Fire Fighters recognizes IAFF Local 3368, Carpinteria-Summerland, California, who brought this issue to the attention of our membership through the Resolution 15, submitted through our biennial convention in August 2004. Additionally, the following local affiliates provided support for the passage of the resolution: Brookline, Massachusetts, San Diego, California, San Francisco, California and Vancouver, British Columbia. We also acknowledge the efforts of Dr. Henry C. Lai, University of Washington, Seattle, Washington; Dr. Magda Havas of Trent University, Peterborough, Ontario; Janet Newton, President of the EMR Policy Institute; and Susan Foster Ambrose for their technical support and continued passion to protect the health and safety of fire fighters and emergency medical personnel. Finally, we thank Dr. Leslie Plachta and the Safe Ossining Schools for their research efforts and their battle to stop siting cell towers on Ossining, New York schools.

RMD; 3/2005

Programs & Services

Burn Fund Resources Center of Excellence FIREPAC How to Become a Fire Fighter FIRE OPS 101 Fire Ground Survival

EXHIBIT E



VILLAGE OF BURR RIDGE

PETITION FOR PUBLIC HEARING PLAN COMMISSION/ZONING BOARD OF APPEALS

ADDRESS OF PROPERTY: 10 \$ 110 4ADISON ST. PIN # 1007203007		
GENERAL INFORMATION PETITIONER: TRISTATE FIRE PROTECTION AISTRCT SAM MOLINARO, FIRECHIEF (All correspondence will be directed to the Petitioner) PETITIONER'S ADRESS 4/19 PLAINFIELD ROAD PARIED IL 60561 PHONE: 630 323 6445 EMAIL: SMOLINARD & TRISTATE FO. COM PROPERTY OWNER: TRISTATE F.A.D. STATUS OF PETITIONER: OWNER'S ADDRESS: SAME AS ABOVE PHONE: SAME AS ABOVE		
PROPERTY INFORMATION		
PROPERTY ACREAGE/SQ FOOTAGE: 2.5 / 100,000 EXISTING ZONING:		
EXISTING USE/IMPROVEMENTS:		
SUBDIVISION:		
A CURRENT PLAT OF SURVEY WITH LEGAL DESCRIPTION MUST BE ATTACHED		
DESCRIPTION OF REQUEST PLEASE INDICATE THE TYPE OF PUBLIC HEARING REQUESTED AND PROVIDE A DETAILED DESCRIPTION OF THE PROPOSED SPECIAL USE, REZONING, TEXT AMENDMENT, OR VARIATION(S) INCLUDING A REFERENCE TO THE APPROPRIATE ORDINANCE SECTION(S) AND REGULATION(S): Special Use Rezoning Text Amendment Variation(s)		
Please Provide Written Description of Request - Attach Extra Pages If Necessary		
The above information and the attached Plat of Survey are true and accurate to the best of my knowledge. I understand the information contained in this petition will be used in preparation of a legal notice for public hearing. I acknowledge that I will be held responsible for any costs made necessary by an error in this petition. <u>3/1/9</u> Petitioner's Signature Date Petition is Filed		





7660 County Line Rd. - Burr Ridge, IL 60527 (630) 654-8181- Fax (630) 654-8269 - www.burr-ridge.gov Karen J. Thomas Village Clerk

J. Douglas Pollock Village Administrator

March 19, 2019

NOTICE OF PUBLIC HEARING

Dear Property Owner:

The Plan Commission/Zoning Board of Appeals hereby provides notice that a public hearing will be conducted to consider the following petition:

The Plan Commission/Zoning Board of Appeals will hold a public hearing to consider a request by Tri-State Fire Protection District for a special use as per Section IV.V of the Burr Ridge Zoning Ordinance to permit a personal wireless service facility at a property owned and used for municipal services. The petition number and property address is <u>Z-04-2019: 10S110 Madison Street</u> and the Permanent Real Estate Index Number is: <u>10-02-203-007</u>.

A public hearing to consider this petition is scheduled for:

Date:	Monday, April 15, 2019
Time:	7:00 P.M. or as soon thereafter as the matter may be heard.
Location:	Village of Burr Ridge Board Room 7660 South County Line Road Burr Ridge, IL 60527

Petition information is on file and available for public review online or in person at the Burr Ridge Village Hall. To request additional information, please contact:

Evan Walter, Assistant Village Administrator (630) 654-8181 ext. 2010 <u>ewalter@burr-ridge.gov</u>

All persons interested in commenting on the proposed request will be given an opportunity to do so at the public hearing. Written statements are encouraged and will be reviewed by the Plan Commission/Zoning Board of Appeals if received at the Village Hall on or before the Wednesday preceding the public hearing.

State Bank Of Countryside 190 S La Salle Chicago, IL 605210000 PIN 10011010020000

Payne, Richard & Doris 15W680 89Th St Hinsdale, IL 605210000 PIN 10011000110000

Scott Falcone 8877 S Madison St Burr Ridge, IL 605270000 PIN 10011000330000

Vade, Aruna & Suresh 8726 Aintree Ln Burr Ridge, IL 605210000 PIN 10011070190000

Chicago Tr Co Tr Bev-3561 8750 Polo Ridge Ct Burr Ridge, IL 605270000 PIN 10011000380000

Oedzes, Edward & E C 10S125 Madison St Burr Ridge, IL 605270000 PIN 10011000050000

Doyle, Patrick 8814 Aintree Ln Burr Ridge, IL 605210000 PIN 10011070240000

State Bank Of Countryside 190 S La Salle Chicago, IL 605210000 PIN 10011010080000

Greulich, Robert C 10S135 Madison St Burr Ridge, IL 605210000 PIN 10011000060000

Tanious, Nader 8701 Polo Ridge Ct Burr Ridge, IL 605210000 PIN 10011070270000 Borsum, James C & Deborah 8698 S Madison St Burr Ridge, IL 605210000 PIN 09354040110000

Madison Club Hoa 8625 Timber Ridge Dr Burr Ridge, IL 605270000 PIN 09354040040000

Kraml Estates Homeowners 5 Shiloh Ct Burr Ridge, IL 605210000 PIN 09363130010000

Mehta, Sharad & Ila 8720 Aintree Ln Burr Ridge, IL 605210000 PIN 10011070180000

Chicago Title 10S055 Thurlow Burr Ridge, IL 605270000 PIN 10022030060000

Grozich, Glenn J 16W125 89Th St Hinsdale, IL 605270000 PIN 10022110010000

Schiappa, James V 7722 S Kedzie Chicago, IL 605270000 PIN 10011000360000

Thompson Iii, Wirt & V 8730 Polo Ridge Ct Burr Ridge, IL 605270000 PIN 10011000310000

Mchaughten Dev Inc 11S220 Jackson St Burr Ridge, IL 605210000 PIN 10011000400000

Oedzes, Edward & E C 10S125 Madison St Burr Ridge, IL 605270000 PIN 10011000040000 Madison Club Hoa 8625 Timber Ridge Dr Burr Ridge, IL 605270000 PIN 09354040100000

Schieszler, Joseph F 8900 S Madison St Burr Ridge, IL 605270000 PIN 10022110080000

Tri State Fire Protection 419 Plainfield Rd Darien, IL 0 PIN 10022030070000

Mc Millen, Thomas & Zeana 8733 Polo Ridge Ct Burr Ridge, IL 605210000 PIN 10011070290000

Zalewski, Richard & S 8712 Polo Ridge Ct Burr Ridge, IL 605270000 PIN 10011000420000

Fawcett, John 8802 Aintree Ln Burr Ridge, IL 605210000 PIN 10011070230000

Thompson, David & Oralee 16W021 89Th St Burr Ridge, IL 605270000 PIN 10022110070000

Gaw, James B & Rhonda 8738 Aintree Ln Burr Ridge, IL 605270000 PIN 10011070200000

Collins Tr, J Robert 10S055 Thurlow St Burr Ridge, IL 605210000 PIN 10022030150000

PIN 10011000450000

Rebacz, Ralph 15W730 90Th St Hinsdale, IL 605270000 PIN 10011010090000

Nili, Alireza & Sara 10S055 Madison St Burr Ridge, IL 605210000 PIN 10011000290000

PIN 10021000430000

Lall, Kuldeep & Diljit 16W060 89Th St Hinsdale, IL 605270000 PIN 10022030040000

Ruiz, Francisco & Susan 8749 Polo Ridge Ct Burr Ridge, IL 605210000 PIN 10011070300000

Hickel Tr, Jeffrey &Susan 8750 Aintree Burr Ridge, IL 605250000 PIN 10011070210000

Janusz, Lawrence & Jamie 10S215 Madison Burr Ridge, IL 605270000 PIN 10011010010000

Belcaster, Larry R 8891 S Madison St Burr Ridge, IL 605270000 PIN 10011000340000

Ramadurai, Raghu 135 Kraml Dr Burr Ridge, IL 605270000 PIN 09363120180000

Schiappa, James V 7722 S Kedzie Chicago, IL 605270000 PIN 10011000370000 Mchaughten Dev Inc 11S220 Jackson St Burr Ridge, IL 605210000 PIN 10011000410000

Bas Properties Llc 22808 N Via Ventosa Scottsdale, AZ 605270000 PIN 10022020090000

Yong, Gary & Margaret 8717 Polo Ridge Ct Burr Ridge, IL 605210000 PIN 10011070280000

Murray, Charles & Vida 10S245 Madison St Burr Ridge, IL 605270000 PIN 10011010040000

Incavo, Noel & Marian 16W185 89Th St Burr Ridge, IL 605270000 PIN 10022100180000

Mc Naughton Development 11S220 Jackson St Burr Ridge, IL 605270000 PIN 10011000350000

Tichy, Ivan & Michelle 302 Old Oak Ct Burr Ridge, IL 605210000 PIN 10011070310000

Khatib, Nazam & Fadwa 8720 Polo Ridge Ct Burr Ridge, IL 605210000 PIN 10011000300000

Grozich, Phyllis 16W184 89Th St Willowbrook, IL 605270000 PIN 10022020050000

State Bank Of Countryside 190 S La Salle Chicago, IL 605210000 PIN 10011010070000 State Bank Of Countryside 190 S La Salle Chicago, IL 605210000 PIN 10011010030000

Means, Jeffrey & Carissa 10S180 Madison St Hinsdale, IL 605270000 PIN 10022030050000

Glod, Antonina 16W130 89Th St Willowbrook, IL 605270000 PIN 10022020010000

Klima, James J & Cindy K 8762 Aintree Ln Burr Ridge, IL 605270000 PIN 10011070220000

Collins Tr, J Robert 10S055 Thurlow St Burr Ridge, IL 605210000 PIN 10022030140000

Bas Properties Llc 22808 N Via Ventosa Scottsdale, AZ 605210000 PIN 10022020080000

Zolnierzow, Zbigniew & E 10S261 Madison St Burr Ridge, IL 605270000 PIN 10011010050000

Mchaughten Dev Inc 11S220 Jackson St Burr Ridge, IL 605210000 PIN 10011000390000

Mc Dermott, William D & K 8781 Polo Ridge Ct Burr Ridge, IL 605270000 PIN 10011070320000



VILLAGE OF BURR RIDGE PLAN COMMISSION AND ZONING BOARD OF APPEALS

Consent to Install Public Notice Sign

The owner of the property referenced below, or an authorized representative of the owner, which is the subject of a public hearing before the Village of Burr Ridge Plan Commission or Zoning Board of Appeals, hereby consents to allow the Village of Burr Ridge to install a public notice sign on the aforesaid property. The public notice sign will be erected 15 to 30 days prior to the public hearing and will remain on the property until it is removed by the Village of Burr Ridge subsequent to a final dispensation of petition request.

Street Address of Subject Property:

10 5 110 MADISON ST. BURR RIDGE, 12 60577

Property Owner or Petitioner:

FIRE CHIEF TSFPD 10LINARD



Village of Burr Ridge

There will be a public hearing to consider zoning changes or approvals for this property.

For further information, please call or visit:

Burr Ridge Village Hall 7660 County Line Road (630)654-8181, Extension

Ask for Information Re: Z-04-2019;

Further details are available at:

www.burr-ridge.gov

(see Public Hearing/Plan Commission Agenda)





VILLAGE OF BURR RIDGE

MEMORANDUM

TO:	Village of Burr Ridge Plan Commission Greg Trzupek, Chairman
FROM:	Doug Pollock Village Administrator
DATE:	June 12, 2019
RE:	Board Report for June 17, 2019 Plan Commission Meeting

At its May 28, 2019 meeting, the following actions were taken by the Board of Trustees relative to matters forwarded from the Plan Commission.

Z-05-2019: 6901 Madison Street (Five Seasons); The Board of Trustees approved an Ordinance granting an amendment to Planned Unit Development Ordinance #A-834-09-99 to permit an annual, temporary accessory structure covering a pool in the rear yard of a health club in the L-I Light Industrial District, including all recommended conditions. The Plan Commission had previously recommended approval of the PUD amendment.

Z-06-2019: 6880 North Frontage Road (Vine Academy); The Board of Trustees approved an Ordinance granting an amendment to Section X.E of the Burr Ridge Zoning Ordinance to add "private school" as a special use in the L-I Light Industrial District and a special use as per the amended Section X.E to permit a special use for a private school in the L-I Light Industrial District, including all recommended conditions. Both were recommended by the Plan Commission.