

60192

**VILLAGE OF LOMBARD**  
**REQUEST FOR BOARD OF TRUSTEES ACTION**  
**For Inclusion on Board Agenda**

X Resolution or Ordinance (Blue)  
Recommendations of Boards, Commissions & Committees (Green)  
Other Business (Pink)  
District

TO : PRESIDENT AND BOARD OF TRUSTEES

FROM: William T. Lichter, Village Manager

DATE : April 10, 2006 B of T April 20, 2006

SUBJECT: RADIO AMPLIFICATION SYSTEMS IN CERTAIN BUILDINGS

SUBMITTED BY: George E. Seagraves, Fire Chief  
*(Signature)*

**BACKGROUND/POLICY IMPLICATIONS:**

Certain buildings due to size and construction material, limit or negate the use of both Fire/Rescue and Police Department radios. This endangers Police Officers and Firefighters, also reducing our capabilities to render aid.  
The ordinance requires building owners that have buildings that do not provide 95% coverage to install as needed, radio amplification equipment to ensure that the building has 95% coverage.

Fiscal Impact/Funding Source: N/A

Review (as necessary):

Finance Director \_\_\_\_\_  
Village Manager *(Signature)*  
Date 4/12/06

**NOTE: All materials must be submitted to and approved by the Village Manager's Office by 12:00 noon, Wednesday, prior to the Agenda distribution.**



**Memo**

Date: April 4, 2006

To: William T. Lichter - Village Manager

From: George E. Seagraves - Fire Chief

Regarding: Public Safety Radio Amplification System Ordinance

Please place before the Board of Trustees an ordinance ensuring adequate public safety radio operations within both new and existing buildings. We presently have buildings in town that due to their size or construction type, severely limit our radio usage inside of them. The interior density and mass of these larger structures significantly impedes radio wave penetration and subsequently reduces our ability to communicate via radio within them and to the outside. This poses an extremely dangerous situation for police officers and fire fighters.

Looking forward, buildings like the new convention center will also certainly pose great challenges for interior fire and police communications without an integrated radio amplification system. This ordinance is intended to ensure that all public safety personnel can communicate via radio in and around buildings in the Village of Lombard.

There are essentially two ways to ensure radio communications in larger buildings. First, a proprietary radio system can be installed throughout the building. Second, a Bi-Directional Amplification system (BDA) can be installed. A BDA system consists of an antenna and amplifier system that is installed only in areas of the building that do not support radio communication. A BDA system supports the use of a wide range of existing and future radio equipment. A BDA system is far less expensive to purchase and maintain, does not create reliance on specific radio vendors, allows for greater location flexibility and allows all emergency responders to communicate both in and outside of the structure with radios we regularly use.

This ordinance is very similar to ordinances currently adopted or in the process of adoption in neighboring Elmhurst, Schaumburg, Hoffman Estates, and Wheeling. Schaumburg and Wheeling are both currently building convention centers and like Lombard, are all being built by Walsh Construction. Prompted by recent governmental reports such as the 911 Commission findings and the investigation of the Cook County Building fire many large cities including Chicago, New York City and Boston now have to meet current requirements for radio coverage inside high-rise buildings. Smaller communities in the country such as ours have also recently created similar requirements in their new building codes.



In brief, the ordinance requires that building owners, when required, provide radio amplification in portions of their buildings that radio signals cannot penetrate. Additionally, it is the responsibility of the building owner to maintain and keep in operation any required amplification system. Building owners will be required to commission a third party agency to test systems annually much in the same way they do for their fire alarm system(s). The cost for radio amplification systems is dependant upon the level of amplification needed, the size of the building, the type of equipment installed, and where and when the equipment is installed. Special consideration regarding installation time lines and coverage requirements will be given to building owners that are required to retrofit a system.

c. Deputy Police Chief Dane Cuny

Battalion Chief Mike Kalina

Battalion Chief Chuck Ralis

Battalion Chief Mike Torrence

Jerry Howell, Fire Marshal

Brian Stuart, Deputy Coordinator E.C.C.

Ted Klioris, Building Inspection Supervisor

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE AMENDING TITLE 15, CHAPTER 150 OF THE LOMBARD VILLAGE CODE IN REGARD TO THE INSTALLATION OF RADIO AMPLIFICATION SYSTEMS IN CERTAIN BUILDINGS

BE IT ORDAINED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE VILLAGE OF LOMBARD, DU PAGE COUNTY, ILLINOIS, AS FOLLOWS:

SECTION 1: That, effective June 1, 2006 Title 15, Chapter 150 of the Lombard Village Code is hereby amended to add new sections 150.350 through 150.361 thereto, which shall read in there entirety as follows:

RADIO AMPLIFICATION SYSTEMS IN CERTAIN BUILDINGS

§150.350 RADIO COVERAGE

(A) Except as otherwise provided in Section 150.360 below, no person shall erect, construct, maintain or modify any building or structure or any part thereof, or cause the same to be done in such a manner which fails to support adequate radio coverage within said building or structure for Village of Lombard public safety services, including, but not limited to, emergency management, police, fire and public works services. A Certificate of Occupancy may not be issued for any building or structure which fails to comply with this requirement.

(B) The frequency range, which must be supported, shall be 150-160 MHzFD, 450-480 MHzZPD, 746-776 MHz, and 794-806 MHz, or as otherwise established and required in writing by the Village as being necessary for public safety purposes.

(C) For purposes of Sections 150.350 through 150.361 of this Code, adequate radio coverage shall be defined as a minimum signal level of DAQ (Delivered Audio Quality 3) available in 95% of the area as agreed to be in the coverage acceptance test plan by the Village of Lombard and the radio system manufacturer prior to system testing.

§150.351 RADIO AMPLIFICATION SYSTEM ALLOWED

(A) Buildings and structures may be equipped with any of the following, in order to achieve adequate radio coverage:

- (1) A radiating cable system;
- (2) An internal multiple antenna system with FCC Type Accepted Bi-Directional VHF and UHF Amplifiers as needed to encompass the frequency range stated in Section 150.350 (B) above or frequency range subsequently established by the Village; or

(C) The gain values of all amplifiers shall be measured and the results kept on file with the building/structure owner so that the measurements can be verified each year during the annual tests. In the event that the measurements become lost, the building / structure owner will be required to return the acceptance test to reestablish the gain values.

(B) Each floor of the building / structure shall be divided into a grid of approximately forty (40) equal areas. A maximum of two (2) nonadjacent areas will be allowed to fail the test. In the event that three (3) of the areas fail the test, in order to be more statistically accurate, the floor may be divided into eighty (80) equal areas. In such event, a maximum of four (4) nonadjacent areas will be allowed to fail the test. If the radio amplification system continues to fail the test after eight (8) testing attempts, the building / structure owner shall repair, replace, alter or upgrade the radio amplification system to meet the DAQ 3 coverage requirement. Talk back testing from the site to the Village's E911 PSAP Communications Center shall use a four (4) watt UHF portable transmitter with public safety speaker / microphone and flexible antenna attached, and a five (5) watt VHF transmitter with speaker/microphone and flexible antenna. A spot located approximately in the center of a grid area will be selected for the test, then the radio will be keyed to verify two (2) way communication to and from the outside of the building / structure. Once the spot has been selected, use of another spot within the grid area will not be permitted. Field strength testing instruments are to be recently calibrated (within the past twelve (12) months) and of the frequency selective type incorporating a flexible antenna similar to the ones used on the hand held transceivers.

(A) Acceptance testing for an in-building/structure radio amplification system is required, upon completion of the installation of the radio amplification system. It is the building owner's responsibility to have the radio amplification system tested to ensure that two (2) way coverage on each floor of the building is a minimum of DAQ3.

## § 150.352 ACCEPTANCE TEST PROCEDURES

(B) The radio amplification system shall be capable of operating on an independent battery and / or generator system for a period of at least twelve (12) hours without external power input. The battery system shall automatically charge in the presence of external power input. There shall be no connection between the radio amplification system and the fire alarm system.

(3) A system that has been approved by the Village as being capable of providing amplification to meet the requirements of Sections 150.350 through 150.361 of this Code.

**§ 150.353 ANNUAL TEST**

When an in-building / structure radio amplification system is installed, the building/ structure owner shall test all active components of the radio amplification system including, but not limited to the amplifier, the power supplies and the back-up batteries, a minimum of once every twelve (12) months. Amplifiers shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance of the radio amplification system. Back-up batteries and power supplies shall be tested under load for a period of one (1) hour to verify that they will operate during an actual power outage. All other active components shall be checked to determine that they are operating within the manufacturer's specification for the intended purpose.

**§ 150.354 OWNER RESPONSIBILITY FOR COMPLIANCE**

It shall be the responsibility of the owner of any existing building or structure to cause said building or structure to come into compliance with the provisions of Sections 150.350 through 150.361 of this Code and to be maintained thereafter in full compliance therewith. All existing buildings or structures shall comply with Sections 150.350 through 150.361 of this Code within one (1) year after being notified by the Village to do so. An extension of one (1) additional year may be granted by the Fire Chief with an approved phase in plan. All buildings or structures constructed after June 1, 2006 (the effective date of the requirements of Sections 150.350 through 150.361 of this Code), shall be constructed and maintained in compliance with the provisions of Sections 150.350 through 150.361 of this Code.

**§ 150.355 FIVE YEAR TEST**

In addition to the annual test as referenced in Section 150.353 above, the building/ structure owner shall perform a radio coverage test at least once every five (5) years to ensure that the radio amplification system continues to meet the requirements of Sections 150.350 through 150.361 of this Code. The acceptance test procedures, set forth above in Section 150.352 shall apply to such tests.

**§ 150.356 INADEQUATE RADIO COVERAGE**

When a building or structure fails to support adequate radio coverage, the owner of same must present a compliance plan to the Village's Fire Chief and the Village's E911 PSAP Communications Center's Chief RF Engineer, within ninety (90) days after the discovery of said failure, to address the inadequate radio coverage. The owner of the building or structure shall, within one (1) year of the approval of the compliance plan, have the approved plan enacted. A one (1) year extension for the implementation of the compliance plan may be granted by the Fire Chief with an approved phase in plan.

The provisions of Sections 150.350 through 150.361 of this Code shall not apply to buildings or structures less than fifty thousand (50,000) square feet in area unless special construction needs are required in the building or structure whereby the building / structure construction type prohibits adequate radio coverage as defined in Section 150.350 above.

**§ 150.360 EXEMPTIONS**

**§ 150.361 PERMIT REQUIRED**

A building permit shall be required for the installation of any radio amplification system. The fee for the permit shall be the minimum permit fee as established by the building permit fee schedule set forth in Section 150.141 of this Code.

**§ 150.362 FAILURE TO COMPLY**

Failure to comply with, or a violation of any of the requirements of, Sections 150.350 through 150.361 of this Code shall subject the violator to a fine of not to exceed seven hundred fifty and no/100 dollars (\$750.00), with each day a violation/non-compliance continues constituting a separate and distinct offense. In addition to the fine, non-compliance with/a violation of any of the requirements of Sections 150.350 through 150.361 of this Code shall be grounds for the Village to revoke any previously issued Certificate of Occupancy for the building or structure.

SECTION 2: That this Ordinance shall be in full force and effect from and after its

passage, approval and publication in pamphlet form as provided by law.

Passed on first reading this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

First reading waived by action of the Board of Trustees this

\_\_\_\_\_ day of \_\_\_\_\_, 2006.

Passed on second reading this \_\_\_\_\_ day of \_\_\_\_\_, 2006, pursuant to a

roll call vote as follows:

AYES: \_\_\_\_\_

NAYS: \_\_\_\_\_

ABSENT: \_\_\_\_\_

APPROVED by me this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

\_\_\_\_\_  
William J. Mueller  
Village President

ATTEST:

\_\_\_\_\_  
Brigitte O'Brien  
Village Clerk

Published by me in pamphlet form this \_\_\_\_\_ day of \_\_\_\_\_, 2006.

\_\_\_\_\_  
Brigitte O'Brien  
Village Clerk