SAN FRANCISCO
PLANNING DEPARTMENT

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Executive Summary
Conditional Use Authorization
HEARING DATE: JUNE 17TH, 2010

Date:	June 10, 2010
Case No.:	**2009.0562C**
Project Address:	**3281 16th Street**
Current Zoning:	RM-1 (Mixed Apartments and Houses, Low Density) District 40-X Height and Bulk District
Block/Lot:	3567/034
Project Sponsor:	Joe Camicia for T-Mobile 2860 14th Strret, #1 San Francisco, CA 94114
Staff Contact:	Sharon Lai – (415) 575-9087 sharon.w.lai@sfgov.org
Recommendation:	**Approval with Conditions**

PROJECT DESCRIPTION

The proposal is to install four panel antennas, one GPS antenna, and associated equipment cabinets as part of a wireless transmission network operated by T-Mobile on a Location Preference 1 (Preferred Location – Publicly-used structures) according to the Wireless Telecommunications Services (WTS) Siting Guidelines.[1] The four panel antennas will be mounted on the interior of the steeple, approximately 63 feet tall from the grade, behind the four wood louvers, which will be replaced with new louvers that will match the historic elements in terms of size, configuration, detail, and color. The proposed replacement material is a synthetic material that is RF (Radio Frequency) Transparent, which allows transmission to occur even though the antennas are obscured. Three of the four antennas measure approximately 55.9" tall, by 13.3" wide by 3.15" thick; and one of the four antennas measures approximately 30.5" tall by 12" wide by 6.5" thick. One GPS antenna is to be located on the rear of the exterior of the steeple, and will be approximately 1 foot, 5 inches tall and project 1 foot, 3 inches from the rear of the steeple wall. The proposed WTS installation also includes the installation of the associated mechanical equipment, including four cabinets measuring 72.8" tall, 23.6" wide, and 15.75" deep; and two battery back-up units – all to be located in the recessed area at the interior base of the church spire.

SITE DESCRIPTION AND PRESENT USE

Saint Mathew's German Evangelical Lutheran Church is located along 16th Street between Dolores and Guerrero Streets. The adjacent corner lot to the west is a parking lot for the Church. The Church was constructed in 1907 in a Neo-Gothic style with Queen Anne features and includes an octagon-shaped

[1] PC Resolution No. 14182, adopted August 15, 1996, establishing the *Wireless Telecommunications Services (WTS) Facilities Siting Guidelines*.

steeple clad in wood shingles, with four wood louvers and four pinnacles and topped with a cross. The steeple is approximately 88 feet high to the peak of the steeple and approximately 100 feet to the top of the cross. The Church is an existing legal non-complying structure in that it exceeds current zoning height limits. The building was constructed prior to zoning height restrictions. There are no existing wireless telecommunications facilities present.

SURROUNDING PROPERTIES AND NEIGHBORHOOD

The Project Site is located within the Mission Neighborhood and boarders the Castro/Upper Market Neighborhood. The subject site is zoned RM-1, which is described in the Planning Code as being a mixture of the dwelling types found in RH Districts but have a significant number of apartment buildings that broaden the range of unit sizes and the variety of structures. A pattern of 25-foot to 35-foot building widths is retained, however, and structures rarely exceed 40 feet in height. The overall density of units remains low, buildings are moderately scaled and segmented, and units or groups of units have separate entrances. Outdoor space tends to be available at ground and upper levels regardless of the age and form of structures. Shopping facilities and transit lines may be found within a short distance of these districts. Nonresidential uses are often present to provide for the needs of residents.

ENVIRONMENTAL REVIEW

The proposed project was determined by the San Francisco Public Utilities Commission's Bureau of Environmental and Regulatory Management to be categorically exempt from the environmental review process pursuant to Class 1 exemptions of Title 14 of the California Administrative Code.

HEARING NOTIFICATION

TYPE	REQUIRED PERIOD	REQUIRED NOTICE DATE	ACTUAL NOTICE DATE	ACTUAL PERIOD
Classified News Ad	20 days	May 28, 2010	May 28, 2010	20 days
Posted Notice	20 days	May 28, 2010	May 28, 2010	20 days
Mailed Notice	20 days	May 28, 2010	May 28, 2010	20 days

PUBLIC COMMENT

- As of June 10, 2010, the Department has received 1 letter of support and 8 letters of opposition, and petitions with a total of 307 signatures in opposition. Comments in opposition to the project are summarized below, and discussion related to the public comments is addressed under "Issues and Other Considerations".
    - Strong community opposition due to the location's proximity to schools and other residential uses in the area.
    - Deficiency in application information such as inadequate visual analysis and RF Emissions report.
    - Absence of necessity or desirability, in that the public does not see a need for an additional cell tower because no significant gaps in coverage were experienced in the area.

- Alternative sites with a lower concentration of schools, residences and landmarks are available.
- The Church should be protected as an historic resource and the historic resource review conducted is inadequate. The proposed modifications will negatively impact the historic fabric of the building, specifically the GPS antenna to the south side of the steeple and the proposed replacement materials on the steeple are detrimental to the integrity of the resource.
- Fire and safety concerns due to the age and construction of the Church. The proposed batteries contain hazardous and flammable chemicals that may cause health and safety risks.
- CEQA (California Environmental Quality Act) review did not occur to evaluate the potential environmental, health and safety, and historic resource impacts.
- Inadequate Five Year Plan, in that proposed WTS locations are not clearly called out.
- Inadequate noticing for the pre-application community outreach. Parents of the Children's Day School were not individually notified.
- Negative health and safety impacts on children due to the potential harmful emissions. Current Federal safety standards are inadequate due to the age and realm of the standards.
- The project would cause a loss in property value.

ISSUES AND OTHER CONSIDERATIONS

- The Project will utilize the existing Church steeple and install antennas that will be concealed by louver vents.
- The proposed Church location is across from the Children's Day School. The project is a Location Preference 1, preferred location. Churches are considered a publicly used structure as per the WTS Facilities Siting Guidelines and are categorized as a preferred WTS siting location.
- Health and safety aspects of all wireless projects are reviewed under the Department of Public Health and the Department of Building Inspections.
- The subject building is a known historic resource. The proposed project has been reviewed by staff and found to be categorically exempt from further environmental review. The proposed changes to the subject building do not result in a significant impact on the resource. The proposed antenna project is categorically exempt from further environmental review pursuant to the Class 1 exemptions of Title 14 of the California Administrative Code. The replacement louver material for the steeple is of a material that matches the look of the original wood louvers and also allows for transmission of radio frequencies.
- The State Historic Preservation Officer (SHPO) has determined that the proposed project will have no adverse effects on the listed historic resource.
- A Five Year Plan with approximate longitudinal and latitudinal coordinates of proposed locations, including the subject site, was submitted.
- The previously submitted RF report and DPH approvals were assessed based on four of the same antennas (model APX16DWV-16DWV-S-E-A20). The current proposal is to install three model APX16DWV-16DWV-S-E-A20 antennas and one model HBXX-6513DS-VTM antenna. The Department of Public Health (DPH) has stated that the proposed change in one antenna will not significantly change the emission levels and hence will not change DPH's approval. DPH is

required to conduct field tests after the installation of the antennas to ensure that emissions levels are within federal regulations. **The project sponsors will provide an updated RF report and DPH approval prior to the hearing to reflect the currently proposed antenna models.**

- All required public notifications were conducted in compliance with the City's code and policies.
- The Project will provide wireless coverage to an area that previously received poor coverage.

REQUIRED COMMISSION ACTION

In order for the project to proceed, the Commission may grant the Conditional Use authorization pursuant to Planning Code Sections 209.6(b) and 303 to allow the installation of wireless facilities.

BASIS FOR RECOMMENDATION

The Department believes this project is necessary and/or desirable under Section 303 of the Planning Code for the following reasons:

- The project complies with the applicable requirements of the Planning Code.
- The project is consistent with the objectives and policies of the General Plan.
- The Project is consistent with the 1996 WTS Facilities Siting Guidelines, Planning Commission Resolution No. 14182.
- The project site is a Location Preference 1, a preferred location, according to the Wireless Telecommunications Services (WTS) Siting Guidelines.
- The project will improve coverage for an area where there is currently poor cell phone coverage.

RECOMMENDATION:	**Approval with Conditions**

☒ Executive Summary	☒ Project sponsor submittal
☒ Draft Motion	Drawings: Proposed Project
☒ Zoning District Map	☒ Check for legibility
☒ Height & Bulk Map	☒ Photo Simulations
☒ Parcel Map	☒ Coverage Maps
☒ Sanborn Map	☒ RF Report
☒ Aerial Photo	☒ DPH Approval
☒ Context Photos	☒ Community Outreach Report
☒ Site Photos	☒ SHPO Review

Exhibits above marked with an "X" are included in this packet _____ Planner's Initials

G:\DOCUMENTS\CU\3281 16th St\2009.0562C\3281 16th St - Executive Summary.doc

SAN FRANCISCO
PLANNING DEPARTMENT

Subject to: (Select only if applicable)

☐ Inclusionary Housing (Sec. 315)
☐ Jobs Housing Linkage Program (Sec. 313)
☐ Downtown Park Fee (Sec. 139)
☐ First Source Hiring (Admin. Code)
☐ Child Care Requirement (Sec. 314)
☐ Other

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Planning Commission Motion

HEARING DATE: JUNE 17, 2010

Date:	June 10, 2010
Case No.:	**2009.0562C**
Project Address:	**3281 16th Street**
Current Zoning:	RM-1 (Mixed Apartments and Houses, Low Density) District 40-X Height and Bulk District
Block/Lot:	3567/034
Project Sponsor:	Joe Camicia for T-Mobile 2860 14th Strret, #1 San Francisco, CA 94114
Staff Contact:	Sharon Lai – (415) 575-9087 sharon.w.lai@sfgov.org

ADOPTING FINDINGS RELATING TO THE APPROVAL OF A CONDITIONAL USE AUTHORIZATION UNDER PLANNING CODE SECTIONS 209.6(b) AND 303 TO INSTALL A WIRELESS TELECOMMUNICATIONS FACILITY CONSISTING OF FOUR PANEL ANTENNAS AND ASSOCIATED EQUIPMENT, LOCATED IN THE STEEPLE OF A CHURCH WITH A MAXIMUM HEIGHT OF 63-FEET, AS PART OF T-MOBILE'S WIRELESS TELECOMMUNICATIONS NETWORK WITHIN A RM-1 (MIXED APARTMENTS AND HOUSES, LOW DENSITY) ZONING DISTRICT AND A 40-X HEIGHT AND BULK DISTRICT.

PREAMBLE

On June 25, 2009, T-Mobile (hereinafter "project sponsor"), made an application (hereinafter "application"), for Conditional Use authorization on the property at 3281 16th Street, aka Saint Mathew's German Evangelical Lutheran Church, Lot 034 in Assessor's Block 3567, (hereinafter "project site") to install a wireless telecommunications facility consisting of four panel antennas located on the interior of the church steeple and related mechanical equipment located at the interior of the base of the steeple as part of T-Mobile's wireless telecommunications network within a RM-1 (Mixed Apartments and Houses, Low Density) Zoning District and a 40-X Height and Bulk District.

The San Francisco Planning Department (hereinafter "Department") determined the application to be categorically exempt from the environmental review process (CEQA) pursuant to exemption Classes 1 of Title 14 of the California Administrative Code. Additionally this project was determined to have no adverse effect on historic properties by the State Historic Preservation Officer (SHPO) as dated, December 4, 2009. The Commission has reviewed and concurs with said determination. The categorical exemption

and all pertinent documents may be found in the files of the planning department, as the custodian of records, at 1650 Mission Street, San Francisco.

The proposed project as approved herein is consistent with the project description contained in the categorical exemption and would not result in significant impacts not identified in the categorical exemption or cause significant effects already identified in the categorically exemption to be substantially more severe.

On June 17th, 2010, the Commission conducted a duly noticed public hearing at a regularly scheduled meeting on the application for a Conditional Use authorization.

The Commission has heard and considered the testimony presented to it at the public hearing and has further considered written materials and oral testimony presented on behalf of the applicant, department staff, and other interested parties.

MOVED, that the Commission hereby authorizes the Conditional Use in Application No. 2009.0562C, subject to the conditions contained in "EXHIBIT A" of this motion, based on the following findings:

FINDINGS

Having reviewed the materials identified in the preamble above, and having heard all testimony and arguments, this Commission finds, concludes, and determines as follows:

1. The above recitals are accurate and constitute findings of this Commission.

2. **Site Description and Present Use.** Saint Mathew's German Evangelical Lutheran Church is located along 16th Street between Dolores and Guerrero Streets. The adjacent corner lot to the west is a parking lot for the Church. The Church was constructed in 1907 in a Neo-Gothic style with Queen Anne features and includes an octagon-shaped steeple clad in wood shingles, with four wood louvers and four pinnacles and topped with a cross. The steeple is approximately 88 feet high to the peak of the steeple and approximately 100 feet to the top of the cross. The Church is an existing legal non-complying structure in that it exceeds current zoning height limits. The building was constructed prior to zoning height restrictions. There are no existing wireless telecommunications facilities present.

3. **Surrounding Properties and Neighborhood**. The Project Site is located within the Mission Neighborhood and boarders the Castro/Upper Market Neighborhood. The subject site is zoned RM-1, which is described in the Planning Code as being a mixture of the dwelling types found in RH Districts but have a significant number of apartment buildings that broaden the range of unit sizes and the variety of structures. A pattern of 25-foot to 35-foot building widths is retained, however, and structures rarely exceed 40 feet in height. The overall density of units remains low, buildings are moderately scaled and segmented, and units or groups of units have separate entrances. Outdoor space tends to be available at ground and upper levels regardless of the age and form of structures. Shopping facilities and transit lines may be found within a short distance of these districts. Nonresidential uses are often present to provide for the needs of residents.

4. **Project Description.** The proposal is to install four panel antennas, one GPS antenna, and associated equipment cabinets as part of a wireless transmission network operated by T-Mobile on a Location Preference 1 (Preferred Location – Publicly-used structures) according to the Wireless Telecommunications Services (WTS) Siting Guidelines.[1] The four panel antennas will be mounted on the interior of the steeple, approximately 63 feet tall from the grade, behind the four wood louvers, which will be replaced with new louvers that will match the historic elements in terms of size, configuration, detail, and color. The proposed replacement material is a synthetic material that is RF (Radio Frequency) Transparent, which allows transmission to occur even though the antennas are obscured. Three of the four antennas measure approximately 55.9" tall, by 13.3" wide by 3.15" thick; and one of the four antennas measures approximately 30.5" tall by 12" wide by 6.5" thick. One GPS antenna is to be located on the rear of the exterior of the steeple, and will be approximately 1 foot, 5 inches tall and project 1 foot, 3 inches from the rear of the steeple wall. The proposed WTS installation also includes the installation of the associated mechanical equipment, including four cabinets measuring 72.8" tall, 23.6" wide, and 15.75" deep; and two battery back-up units – all to be located in the recessed area at the interior base of the church spire.

5. **Past History and Actions.** The Planning Commission established guidelines for the installation of wireless telecommunications facilities in 1996 ("Guidelines"). These Guidelines set forth the land use policies and practices that guide the installation and approval of wireless facilities throughout San Francisco. A large portion of the Guidelines was dedicated to establishing location preferences for these installations. The Board of Supervisors, in Resolution No. 635-96, provided input as to where wireless facilities should be located within San Francisco. The Guidelines were updated by the Commission in 2003, requiring community outreach, notification, and detailed information about the facilities to be installed.[2]

   Section 8.1 of the Guidelines outlines Location Preferences for wireless facilities. There are five primary areas were the installation of wireless facilities should be located:

   1. Publicly-used Structures: such facilities as fire stations, utility structures, community facilities, and other public structures;
   2. Co-Location Site: encourages installation of facilities on buildings that already have wireless installations;
   3. Industrial or Commercial Structures: buildings such as warehouses, factories, garages, service stations;
   4. Industrial or Commercial Structures: buildings such as supermarkets, retail stores, banks; and

[1] PC Resolution No. 14182, adopted August 15, 1996, establishing the *Wireless Telecommunications Services (WTS) Facilities Siting Guidelines*.

[2] PC Resolution 16539, passed March 13, 2003.

5. Mixed Use Buildings in High Density Districts: buildings such as housing above commercial or other non-residential space.

Before the Planning Commission can review an application to install a wireless facility, the project sponsor must submit a five-year facilities plan, which must be updated biannually, an emissions report and approval by the Department of Public Health, Section 106 Declaration of Intent, a submittal checklist and details about the facilities to be installed.

Under Section 704(B)(iv) of the 1996 Federal Telecommunications Act, local jurisdictions cannot deny wireless facilities based on Radio Frequency (RF) radiation emissions so long as such facilities comply with the FCC's regulations concerning such emissions.

On June 17th, 2010, the Commission conducted a duly noticed public hearing at a regularly scheduled meeting on the application for a Conditional Use authorization pursuant to Planning Code Sections 209.6 and 303 to allow the installation of a wireless telecommunications facility consisting of four panel antennas and related equipment and one GPS antenna on the steeple of the Church as part of T-Mobile's wireless telecommunications network.

6. **Location Preference.** The *WTS Facilities Siting Guidelines* identify different types of buildings for the siting of wireless telecommunications facilities. Under the *Guidelines*, the Project is a Location Preference Number 1, as it is a preferred location for a publicly used, church, structure.

7. **Radio Waves Range.** The Project Sponsor has stated that the proposed wireless network will transmit calls by radio waves operating in the 1710 - 2180 Megahertz (MHZ) bands and receive calls in the 806 to 960 MHZ bands, which are regulated by the Federal Communications Commission (FCC) and which must comply with the FCC-adopted health and safety standards for electromagnetic radiation and radio frequency radiation.

8. **Radiofrequency (RF) Emissions:** The project sponsor retained Hammett & Edison, Inc., a radio engineering consulting firm, to prepare a report describing the expected RF emissions from the proposed facility. Pursuant to the *Guidelines*, the Department of Public Health reviewed the report and determined that the proposed facility complies with the standards set forth in the Guidelines.

9. **Department of Public Health Review and Approval.** The maximum ambient RF exposure at the ground level to install four RFS Model APX16DWV-16DWV-S-E-A20 directional antenna panels is calculated to be less than 0.048% of the public exposure limit. The maximum calculated level at any nearby building is 1.4% of the public limit. The antennas would be mounted at an effective height of approximately 60 feet above ground level and would be oriented at about 90 degrees spacing, to provide service in all directions. The one GPS antenna located behind the Church steeple does not emit any frequencies and proposes to only receive frequencies. The three dimensional perimeter of RF levels equal to the public exposure limit is calculated to extend approximately 8 feet directly in front of the antennas and to much lesser distances behind, below, above, and to the sides; this does not reach any publicly accessible areas. Due to the mounting locations of the antennas, Warning signs must be posted on the bottom of the tower in English,

Spanish, and Chinese. Workers should not have access to the front of the antennas while in operation.

10. **Maintenance Schedule**. The proposed facility would operate without on-site staff but with a two-person maintenance crew visiting the property approximately once a month and on an as-needed basis to service and monitor the facility.

11. **Community Outreach.** Per the *Guidelines*, the project sponsor held a Community Outreach Meeting for the proposed project. The meeting was held from 6:30 P.M. to 8:00 P.M. on Tuesday, November 19th, 2009 at the St. Mathews German Evangelical Lutheran Church, (the subject property at 3281 16th Street). A total of 4 members of the public attended the meeting with general comments and concerns regarding potential health impacts and method of mounting of the antenna.

12. **Five-year plan:** Per the *Guidelines*, the project sponsor submitted its latest five-year plan, as required, in April 2010.

13. **Public Comment.** As of June 10, 2010, the Department has received 1 letter of support and 8 letters of opposition, and petitions with a total of 307 signatures in opposition. Comments in opposition to the project are summarized below:

    - Strong community opposition due to the location's proximity to schools and other residential uses in the area.
    - Deficiency in application information such as inadequate visual analysis and RF Emissions report.
    - Absence of necessity or desirability, in that the public does not see a need for an additional cell tower because no significant gaps in coverage were experienced in the area.
    - Alternative sites with a lower concentration of schools, residences and landmarks are available.
    - The Church should be protected as an historic resource and the historic resource review conducted is inadequate. The proposed modifications will negatively impact the historic fabric of the building, specifically the GPS antenna to the south side of the steeple and the proposed replacement materials on the steeple are detrimental to the integrity of the resource.
    - Fire and safety concerns due to the age and construction of the Church. The proposed batteries contain hazardous and flammable chemicals that may cause health and safety risks.
    - CEQA (California Environmental Quality Act) review did not occur to evaluate the potential environmental, health and safety, and historic resource impacts.
    - Inadequate Five Year Plan, in that proposed WTS locations are not clearly called out.
    - Inadequate noticing for the pre-application community outreach. Parents of the Children's Day School were not notified individually.

- Negative health and safety impacts on children due to the potential harmful emissions. Current Federal safety standards are inadequate due to the age and realm of the standards.
- The project would cause a loss in property value.

14. **Planning Code Compliance.** The Commission finds that the Project is consistent with the relevant provisions of the Planning Code in the following manner:

    A. **Use.** Per Planning Code Sections 209.6(b) and 303, a Conditional Use authorization is required for the installation of public uses such as wireless transmission facilities.
    B. **Height.** Per Planning Code Section 260(b)2(I), radio antennae for transmission, reception, or relay of radio, television of other electronic signals, where permitted as principal or conditional uses are exempt from height limits.

15. **Planning Code Section 303** establishes criteria for the Planning Commission to consider when reviewing applications for Conditional Use approval. On balance, the project does comply with said criteria in that:

    A. The proposed new uses and building, at the size and intensity contemplated and at the proposed location, will provide a development that is necessary or desirable, and compatible with, the neighborhood or the community.

        i *Desirable: San Francisco is a leader of the technological economy; it is important and desirable to the vitality of the city to have and maintain adequate telecommunications coverage and data capacity. This includes the installation and upgrading of systems to keep up with changing technology and increases in usage. It is desirable for the City to allow wireless facilities to be installed.*

        The proposed project at 3281 16th Street will be generally desirable and compatible with the surrounding neighborhood because the project will not conflict with the existing uses of the property and will be of such size and nature to be compatible with the surrounding nature of the vicinity. The approval of this authorization has been found, first and foremost, to insure public safety, and insure that the placement of antennas and related support and protection features are so located, designed, and treated architecturally to minimize their visibility from public places, to avoid intrusion into public vistas, avoid disruption of the architectural design integrity of building and insure harmony with neighborhood character. The project has been reviewed and determined to not cause the removal or alteration of any significant architectural features on the subject known historic resource.

        ii *Necessary: In the case of wireless installations, there are 2 criteria that the Commission reviews: coverage and capacity.*

        Coverage: San Francisco does have sufficient overall wireless coverage (note that this is separate from carrier service). It is necessary for San Francisco to have as much coverage as possible in terms of wireless facilities. Due to the topography and tall buildings in San Francisco, unique

coverage issues arise because the hills and building break up coverage. Thus, telecommunication carriers often install additional installations to make sure coverage is sufficient.

Capacity: While a carrier may have adequate coverage in a certain area, the capacity may not be sufficient. With the continuous innovations in wireless data technology and demand placed on existing infrastructure, individual telecommunications carriers must upgrade and in some instances expand their facilities network to be able to have proper data distribution. It is necessary for San Francisco, as a leader in technology, to have adequate capacity.

The proposed project at 3281 16th Street is necessary in order to achieve sufficient street and in-building mobile phone coverage. Recent drive tests in the subject area conducted by the T-Mobile Radio Frequency Engineering Team provide conclusive evidence that the subject property is the most viable location, based on factors including quality of coverage, population density, land use compatibility, zoning and aesthetics. The proposed coverage area will serve the vicinity bounded by 14th Street to the north, 20th Street to the south, Sanchez Street to the west, and Van Ness Street to the east, as indicated in the coverage maps. There are currently three smaller T-Mobile microcell facilities at the outer fringes of the identified service area. This facility will fill in the gaps to improve coverage in the Mission Dolores area as well as to provide necessary facilities for emergency transmission and improved communication for the neighborhood, community and the region.

B. The proposed project will not be detrimental to the health, safety, convenience or general welfare of persons residing or working in the vicinity. There are no features of the project that could be detrimental to the health, safety or convenience of those residing or working the area, in that:

i Nature of proposed site, including its size and shape, and the proposed size, shape and arrangement of structures;

The proposed project must comply with all applicable Federal and State regulations to safeguard the health, safety and to ensure that persons residing or working in the vicinity will not be affected, and prevent harm to other personal property.

An evaluation of potential health effects from Radio Frequency radiation, conducted by the Department of Public Health, has concluded that the proposed wireless transmission facilities will have no adverse health effects if operated in compliance with the FCC-adopted health and safety standards. The Department has received information that the proposed wireless system must be operated so as not to interfere with radio or television reception in order to comply with the provisions of its license under the FCC.

The Department is developing a database of all such wireless communications facilities operating or proposed for operation in the City and County of San Francisco. All applicants are now required to submit information on the location and nature of all existing and approved wireless transmission facilities operated by the Project Sponsor. The goal of this effort is to foster public information as to the location of these facilities.

ii The accessibility and traffic patterns for persons and vehicles, the type and volume of such traffic, and the adequacy of proposed off-street parking and loading;

No increase in traffic volume is anticipated with the facilities operating unmanned, with a single maintenance crew visiting the site once a month or on an as-needed basis.

iii The safeguards afforded to prevent noxious or offensive emissions such as noise, glare, dust and odor;

While some noise and dust may result from the erection of the antennas and transceiver equipment, noise or noxious emissions from continued use are not likely to be significantly greater than ambient conditions due to the operation of the wireless communication network.

iv Treatment given, as appropriate, to such aspects as landscaping, screening, open spaces, parking and loading areas, service areas, lighting and signs;

The proposed antennas are proposed to be screened behind RF transparent louvers within the existing Church steeple. The proposed replacement RF transparent louvers will match the look, size, texture, and color of the existing wood louvers. The proposed externally mounted GPS antenna located about 60 feet above grade is small in size (approximately 1'-6" tall) and is located on the rear side of the steeple; hence it will be minimally visible at the pedestrian level. The project will not affect the existing landscaping

C. That the use as proposed will comply with the applicable provisions of the Planning Code and will not adversely affect the General Plan.

The Project complies with all relevant requirements and standards of the Planning Code and is consistent with objectives and policies of the General Plan as detailed below.

D. That the use as proposed would provide development that is in conformity with the purpose of the applicable Neighborhood Commercial District.

The proposed project is consistent with the stated purposed of RM-1 Districts in that the intended use is located in an existing church steeple approximately 63 feet tall and set back from the street frontage.

16. **General Plan Compliance.** The Project is, on balance, consistent with the following Objectives and Policies of the General Plan

HOUSING ELEMENT

HOUSING DENSITY, DENSITY, DESIGN & QUALITY OF LIFE

OBJECTIVE 11 - IN INCREASING THE SUPPLY OF HOUSING, PURSUE PLACE MAKING AND NEIGHBORHOOD BUILDING PRINCIPLES AND PRACTICES TO MAINTAIN SAN

FRANCISCO'S DESIRABLE URBAN FABRIC AND ENHANCE LIVABILITY IN ALL NEIGHBORHOODS.

POLICY 11.2 - Ensure housing is provided with adequate public improvements, services, and amenities.

The Project will improve T-Mobile Wireless coverage in a residential, commercial and recreational area along primary transportation routes in San Francisco.

URBAN DESIGN

HUMAN NEEDS

OBJECTIVE 4 - IMPROVEMENT OF THE NEIGHBORHOOD ENVIRONMENT TO INCREASE PERSONAL SAFETY, COMFORT, PRIDE AND OPPORTUNITY.

POLICY 4.14 - Remove and obscure distracting and cluttering elements.

The Project adequately "stealths" the proposed antennas and related equipment, by locating the antennas and equipment cabinets within the Church steeple and are not visible from the street.

COMMERCE AND INDUSTRY ELEMENT

Objectives and Policies

OBJECTIVE 1:
MANAGE ECONOMIC GROWTH AND CHANGE TO ENSURE ENHANCEMENT OF THE TOTAL CITY LIVING AND WORKING ENVIRONMENT.

Policy 1:
Encourage development, which provides substantial net benefits and minimizes undesirable consequences. Discourage development, which has substantial undesirable consequences that cannot be mitigated.

Policy 2:
Assure that all commercial and industrial uses meet minimum, reasonable performance standards.

The project would enhance the total city living and working environment by providing communication services for residents and workers within the City. Additionally, the project would comply with Federal, State and Local performance standards.

OBJECTIVE 2:
MAINTAIN AND ENHANCE A SOUND AND DIVERSE ECONOMIC BASE AND FISCAL STRUCTURE FOR THE CITY.

Policy 1:
Seek to retain existing commercial and industrial activity and to attract new such activity to the city.

Policy 3:
Maintain a favorable social and cultural climate in the city in order to enhance its attractiveness as a firm location.

The site is an integral part of a new wireless communications network that will enhance the City's diverse economic base.

OBJECTIVE 4:
IMPROVE THE VIABILITY OF EXISTING INDUSTRY IN THE CITY AND THE ATTRACTIVENESS OF THE CITY AS A LOCATION FOR NEW INDUSTRY.

Policy 1:
Maintain and enhance a favorable business climate in the City.

Policy 2:
Promote and attract those economic activities with potential benefit to the City.

The project would benefit the City by enhancing the business climate through improved communication services for residents and workers.

VISITOR TRADE

OBJECTIVE 8 - ENHANCE SAN FRANCISCO'S POSITION AS A NATIONAL CENTER FOR CONVENTIONS AND VISITOR TRADE.

POLICY 8.3 - Assure that areas of particular visitor attraction are provided with adequate public services for both residents and visitors.

The Project will ensure that residents and visitors have adequate public service in the form of T-Mobile Wireless mobile telecommunications.

COMMUNITY SAFETY ELEMENT

Objectives and Policies

OBJECTIVE 3:
ENSURE THE PROTECTION OF LIFE AND PROPERTY FROM THE EFFECTS OF FIRE OR NATURAL DISASTER THROUGH ADEQUATE EMERGENCY OPERATIONS PREPARATION.

Policy 1:
Maintain a local agency for the provision of emergency services to meet the needs of San Francisco.

Policy 2:
Develop and maintain viable, up-to-date in-house emergency operations plans, with necessary equipment, for operational capability of all emergency service agencies and departments.

Policy 3:
Maintain and expand agreements for emergency assistance from other jurisdictions to ensure adequate aid in time of need.

Policy 4:
Establish and maintain an adequate Emergency Operations Center.

Policy 5:
Maintain and expand the city's fire prevention and fire-fighting capability.

Policy 6:
Establish a system of emergency access routes for both emergency operations and evacuation.

The project would enhance the ability of the City to protect both life and property from the effects of a fire or natural disaster by providing communication services.

17. **Planning Code Section 101.1(b)** establishes eight priority-planning policies and requires review of permits for consistency with said policies. On balance, the project does comply with said policies in that:

    A. That existing neighborhood-serving retail uses be preserved and enhanced and future opportunities for resident employment in and ownership of such businesses be enhanced.

    No neighborhood-serving retail use would be displaced and the wireless communications network will enhance personal communication services.

    B. That existing housing and neighborhood character be conserved and protected in order to preserve the cultural and economic diversity of our neighborhoods.

    No residential uses would be displaced or altered in any way by the granting of this authorization.

    C. That the City's supply of affordable housing be preserved and enhanced,

The project would have no adverse impact on housing in the vicinity.

D. That commuter traffic not impede MUNI transit service or overburden our streets or neighborhood parking.

Due to the nature of the project and minimal maintenance or repair, municipal transit service would not be impeded and neighborhood parking would not be overburdened.

E. That a diverse economic base be maintained by protecting our industrial and service sectors from displacement due to commercial office development, and that future opportunities for resident employment and ownership in these sectors be enhanced.

The Project would cause no displacement of industrial and service sector activity.

F. That the City achieve the greatest possible preparedness to protect against injury and loss of life in an earthquake.

Compliance with applicable structural safety and seismic safety requirements would be considered during the building permit application review process.

G. That landmarks and historic buildings be preserved.

The proposed façade alterations do not cause the removal or alteration of any significant architectural features and has been determined to be categorically exempt as class 1(a). Additionally, this project has been reviewed by the State Historic Preservation Officer on December 4, 2009, and was found to have "no adverse effect." No landmarks or historic buildings would be affected by the project.

H. That our parks and open space and their access to sunlight and vistas be protected from development.

The Project will have no adverse impact on parks or open space, or their access to sunlight or vistas.

18. The Project is consistent with and would promote the general and specific purposes of the Code provided under Section 101.1(b) in that, as designed, the Project would contribute to the character and stability of the neighborhood and would constitute a beneficial development.

19. The Commission hereby finds that approval of the Determination of Compliance authorization would promote the health, safety and welfare of the City.

DECISION

The Commission, after carefully balancing the competing public and private interests, and based upon the Recitals and Findings set forth above, in accordance with the standards specified in the Code, hereby approves the Conditional Use authorization under Planning Code Sections 209.6(b) and 303 to install a wireless telecommunications facility consisting of 4 panel antennas with related equipment in the existing steeple of Saint Mathew's German Evangelical Lutheran Church a Location Preference 1 (Preferred Location – Publicly-used structures) according to the Wireless Telecommunications Services (WTS) Siting Guidelines, as part of T-Mobile's wireless telecommunications network within a RM-1 (Mixed Residential, Low Density) Zoning District and a 40-X Height and Bulk District and subject to the conditions of approval attached hereto as **Exhibit A**.

APPEAL AND EFFECTIVE DATE OF MOTION: Any aggrieved person may appeal this conditional use authorization to the Board of Supervisors within thirty (30) days after the date of this Motion No. XXXX The effective date of this Motion shall be the date of this Motion if not appealed (after the 30-day period has expired) OR the date of the decision of the Board of Supervisors if appealed to the Board of Supervisors. For further information, please contact the Board of Supervisors at (415) 554-5184, City Hall, Room 244, 1 Dr. Carlton B. Goodlett Place, San Francisco, CA 94102.

I hereby certify that the foregoing Motion was adopted by the Planning Commission on **June 17th, 2010**.

Linda Avery
Commission Secretary

AYES:

NAYS:

ABSENT:

ADOPTED: June 17th, 2010

Exhibit A
Conditions of Approval

Whenever "Project Sponsor" is used in the following conditions, the conditions shall also bind any successor to the Project or other persons having an interest in the Project or underlying property.

General Conditions

1. This approval is for Conditional Use authorization under Planning Code Sections 209.6(b) and 303 to install a wireless telecommunications facility consisting of four panel antennas with related equipment on the interior of an existing church steeple, a Location Preference 1 (Preferred Location – Publicly-used structures) according to the Wireless Telecommunications Services (WTS) Siting Guidelines, as part of T-Mobile's wireless telecommunications network within a RM-1 (Mixed Residential, Low Density) Zoning District and a 40-X Height and Bulk District

2. The Project approved by this Motion is in general conformity with the plans dated August 13, 2009 on file with the Department in the docket for Case No. 2009.0562C (labeled EXHIBIT B), reviewed and approved by the Commission on June 17th, 2010.

Design

3. The final plans shall meet the standards of the Planning Code and be in general conformity with the plans approved by the Commission on June 17th, 2010 as Exhibit B found in the Case docket.

4. Prior to the issuance of any building or electrical permits for the installation of the facilities, the Project Sponsor shall submit final scaled drawings for review and approval by the Planning Department ("Plan Drawings"). The Plan Drawings shall:

    a. Structure and Siting. Identify all facility related support and protection measures to be installed. This includes, but is not limited to, the location(s) and method(s) of placement, support, protection, screening, paint and/or other treatments of the antennas and other appurtenances to insure public safety, insure compatibility with urban design, architectural and historic preservation principles, and harmony with neighborhood character.

    b. For the Project Site, regardless of the ownership of the existing facilities: Identify the location of all existing antennas and facilities; and identify the location of all approved (but not installed) antennas and facilities.

    c. Emissions. Provide a report, subject to approval of the Zoning Administrator, that operation of the facilities in addition to ambient RF emission levels will not exceed adopted FCC standards with regard to human exposure in uncontrolled areas.

Performance

5. Project Implementation Report. The Project Sponsor shall prepare and submit to the Zoning Administrator a Project Implementation Report. The Project Implementation Report shall:

    a. Identify the three-dimensional perimeter closest to the facility at which adopted FCC standards for human exposure to RF emissions in uncontrolled areas are satisfied;

    b. Document testing that demonstrates that the facility will not cause any potential exposure to RF emissions that exceed adopted FCC emission standards for human exposure in uncontrolled areas.

    c. Compare test results for each test point with applicable FCC standards. Testing shall be conducted in compliance with FCC regulations governing the measurement of RF emissions and shall be conducted during normal business hours on a non-holiday week day with the subject equipment measured while operating at maximum power.

    d. The Project Implementation Report shall be prepared by a certified professional engineer or other technical expert approved by the Department. At the sole option of the Department, the Department (or its agents) may monitor the performance of testing required for preparation of the Project Implementation Report. The cost of such monitoring shall be borne by the Project Sponsor pursuant to the condition related to the payment of the City's reasonable costs.

6. Notification and Testing. The Project Implementation Report shall set forth the testing and measurements undertaken pursuant to Conditions 4 and 13.

7. Approval. The Zoning Administrator shall request that the Certification of Final Completion for operation of the facility not be issued by the Department of Building Inspection until such time that the Project Implementation Report is approved by the Department for compliance with these conditions.

8. Notification prior to Project Implementation Report. The Project Sponsor shall undertake to inform and perform appropriate tests for residents of any dwelling units located within 25 feet of the transmitting antennae at the time of testing for the Project Implementation Report.

    a. At least twenty calendar days prior to conducting the testing required for preparation of the Project Implementation Report, the Project Sponsor shall mail notice to the Department, as well as to the resident of any legal dwelling unit within 25 feet of a transmitting antenna, of the date on which testing will be conducted. The Applicant will submit a written affidavit attesting to this mail notice along with the mailing list.

    b. When requested in advance by a resident notified of testing pursuant to subsection (a), the Project Sponsor shall conduct testing of total power density of RF emissions within the residence of that resident on the date on which the testing is conducted for the Project Implementation Report.

9. Community Liaison. Within 10 days of the effective date of this authorization, the Project Sponsor shall appoint a community liaison officer to resolve issues of concern to neighbors and residents relating to the construction and operation of the facilities. Upon appointment, the Project Sponsor shall report in writing the name, address and telephone number of this officer to the Zoning Administrator. The Community Liaison Officer shall report to the Zoning Administrator what issues, if any, are of concern to the community and what issues have not been resolved by the Project Sponsor.

10. Installation. Within 10 days of the installation and operation of the facilities, the Project Sponsor shall confirm in writing to the Zoning Administrator that the facilities are being maintained and operated in compliance with applicable Building, Electrical and other Code requirements, as well as applicable FCC emissions standards.

11. Screening.
    a. To the extent necessary to ensure compliance with adopted FCC regulations regarding human exposure to RF emissions, and upon the recommendation of the Zoning Administrator, the Project Sponsor shall:
        i. Modify the placement of the facilities;
        ii. Install fencing, barriers or other appropriate structures or devices to restrict access to the facilities;
        iii. Install multi-lingual signage, including the RF radiation hazard warning symbol, to notify persons that the facility could cause exposure to RF emissions; or
        iv. Implement any other practice reasonably necessary to ensure that the facility is operated in compliance with adopted FCC Radio Frequency emission standards.
    b. To the extent necessary to minimize visual obtrusion and clutter, installations shall conform to the following standards:
        i. Antennas and back-up equipment shall be painted, fenced, landscaped or otherwise treated architecturally so as to minimize visual impacts;
        ii. Rooftop installations shall be setback such that back-up facilities are not viewed from the street;
        iii. Antennae attached to building facades shall be so placed, screened or otherwise treated to minimize any negative visual impact; and
        iv. Although co-location of various companies' facilities may be desirable, a maximum number of antennas and back-up facilities on the Project Site shall be established, on a case-by-case basis, such that "antennae farms" or similar visual intrusions for the site and area is not created.

12. The Project Sponsor or Property Owner shall remove antennae and equipment that has been out of service for a continuous period of six months.

13. Periodic Safety Monitoring. The Project Sponsor shall submit to the Zoning Administrator 10 days after installation of the facilities, and every two years thereafter, a certification attested to by a licensed engineer expert in the field of EMR/RF emissions, that the facilities are and have been operated within the then current applicable FCC standards for RF/EMF emissions.

14. Emissions Conditions. It is a continuing condition of this authorization that the facilities be operated in such a manner so as not to contribute to ambient RF/EMF emissions in excess of then current FCC adopted RF/EMF emission standards; violation of this condition shall be grounds for revocation.

15. Noise and Heat. The WTS facility, including power source and cooling facility, shall be operated at all times within the limits of the San Francisco Noise Ordinance. The WTS facility, including power source and cooling facility, shall not be operated so as to cause the generation of heat that adversely affects a building occupant.

16. Implementation and Monitoring Costs.
    a. The Project Sponsor, on an equitable basis with other WTS providers, shall pay the cost of preparing and adopting appropriate General Plan policies related to the placement of WTS facilities. Should future legislation be enacted to provide for cost recovery for planning, the Project Sponsor shall be bound by such legislation.

    b. The Project Sponsor or its successors shall be responsible for the payment of all reasonable costs associated with the monitoring of the conditions of approval contained in this authorization, including costs incurred by this Department, the Department of Public Health, the Department of Electricity and Telecommunications, Office of the City Attorney, or any other appropriate City Department or agency pursuant to Planning Code Section 351(f)(2). The Planning Department shall collect such costs on behalf of the City.

    c. The Project Sponsor shall be responsible for the payment of all fees associated with the installation of the subject facility, which are assessed by the City pursuant to all applicable law.

17. All Conditions Basis for Revocation. The Project Sponsor or its successors shall comply fully with all conditions specified in this authorization. Failure to comply with any condition shall constitute grounds for revocation under the provisions of Planning Code Sections 174, 176 and 303(d). The Zoning Administrator shall schedule a public hearing before the Planning Commission to receive testimony and other evidence to demonstrate a finding of a violation of a condition of the authorization of the use of the facility and, finding that violation, the Commission shall revoke the Conditional Use authorization. Such revocation by the Planning Commission is appealable to the Board of Supervisors.

    In the event that the project implementation report includes a finding that RF emissions for the site exceed FCC Standards in any uncontrolled location, the Zoning Administrator may require the Applicant to immediately cease and desist operation of the facility until such time that the violation is corrected to the satisfaction of the Zoning Administrator.

18. Complaints and Proceedings. Should any party complain to the Project Sponsor about the installation or operation of the facilities, which complaints are not resolved by the Project Sponsor, the Project Sponsor (or its appointed agent) shall advise the Zoning Administrator of the complaint and the failure to satisfactorily resolve such complaint. If the Zoning Administrator thereafter finds a violation of any provision of the Planning Code and/or any condition of approval herein, the Zoning Administrator shall attempt to resolve such violation on an expedited basis with the Project Sponsor. If such efforts fail, the Zoning Administrator shall refer such complaints to the Commission for consideration at the next regularly scheduled public meeting.

19. Severability. If any clause, sentence, section or any part of these conditions of approval is for any reason held to be invalid, such invalidity shall not affect or impair other of the remaining provisions, clauses, sentences, or sections of these conditions. It is hereby declared to be the intent of the Commission that these conditions of approval would have been adopted had such invalid sentence, clause, or section or part thereof not been included herein.

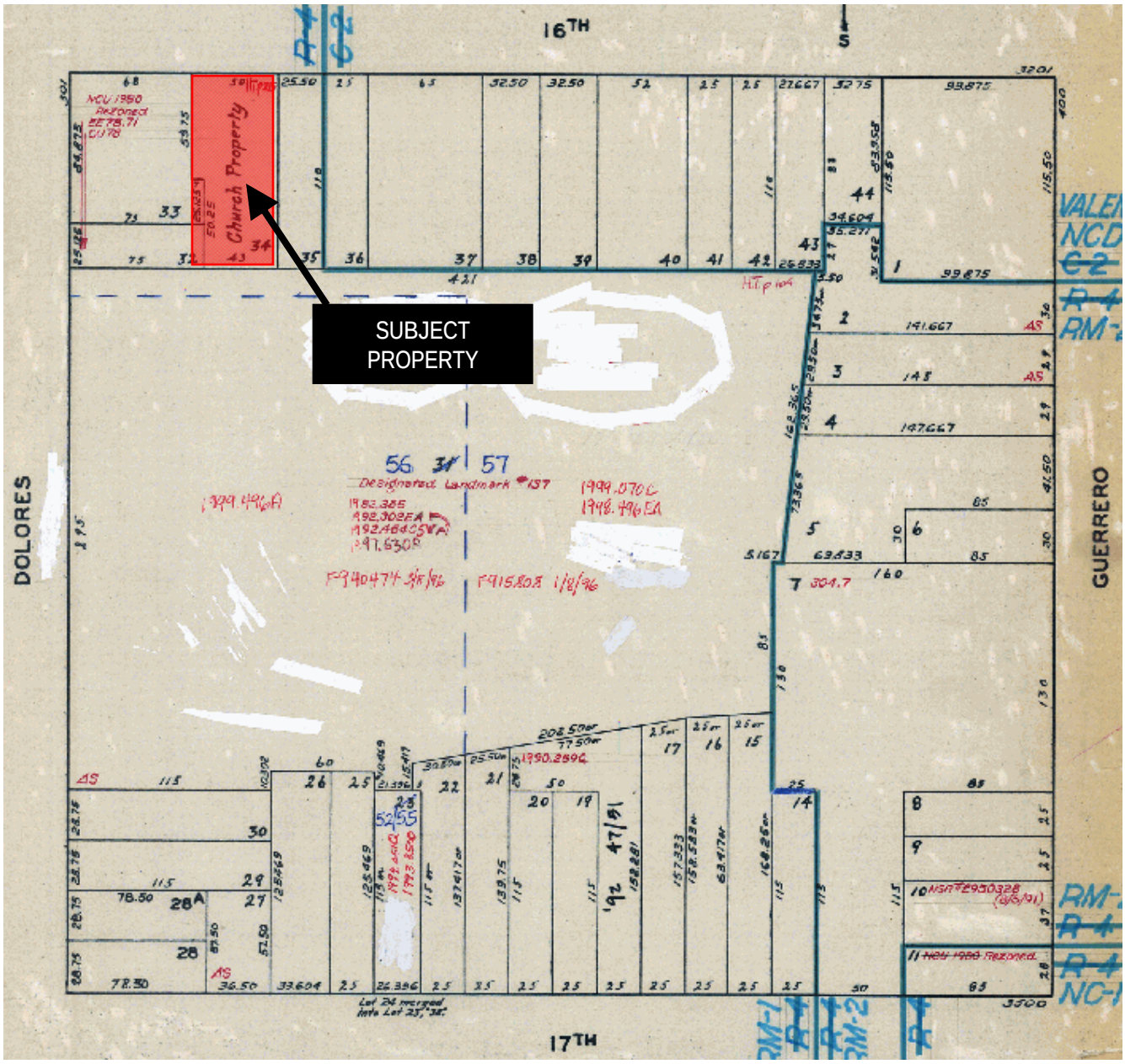
20. Transfer of Operation. Any carrier/provider authorized by the Zoning Administrator or by the Planning Commission to operate a specific WTS installation may assign the operation of the facility to another carrier licensed by the FCC for that radio frequency provided that such transfer is made known to the Zoning Administrator in advance of such operation, and all conditions of approval for the subject installation are carried out by the new carrier/provider, and the authorizing Motion is recorded on the deed of the property stating the new carrier/provider and authorizing conditions of approval.

21. Compatibility with City Emergency Services. The facility shall not be operated, nor caused to transmit on or adjacent to any radio frequencies licensed to the City for emergency telecommunication services such that the City's emergency telecommunications system experiences interference, unless prior approval for such has been granted in writing by the City.

22. The authorization and right vested by virtue of this action shall be deemed void and canceled if, within 3 years of the date of this Motion, a site permit or building permit for the Project has not been secured by Project Sponsor. This authorization may be extended at the discretion of the Zoning Administrator only if the failure to issue a permit by the Department of Building Inspection is delayed by a city, state, or federal agency or by appeal of the issuance of such permit.

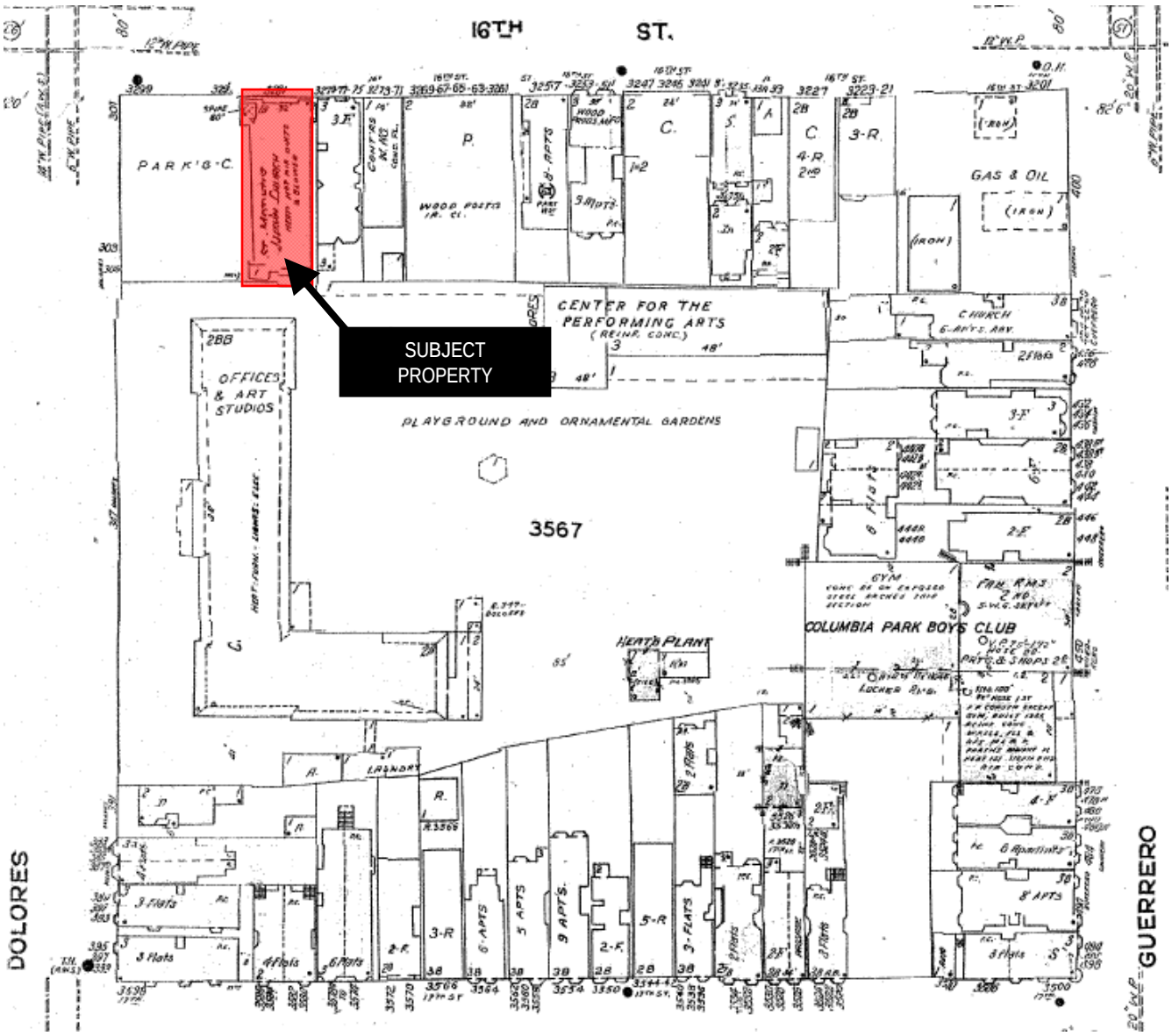
3281 16th Street
(aka 3589 16th Street)

Parcel Map



Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

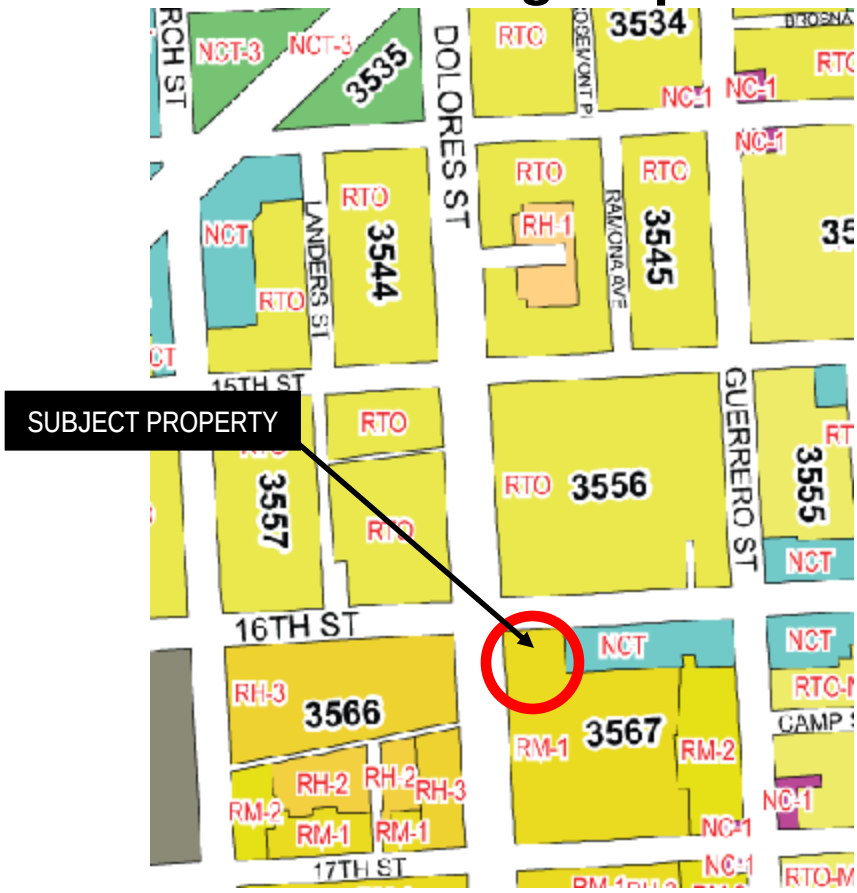
Sanborn Map*



**The Sanborn Maps in San Francisco have not been updated since 1998, and this map may not accurately reflect existing conditions.*

Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

Zoning Map



ZONING USE DISTRICTS

RESIDENTIAL, HOUSE DISTRICTS
RH-1(D) | RH-1 | RH-1(S) | RH-2 | RH-3

RESIDENTIAL, MIXED (APARTMENTS & HOUSES) DISTRICTS
RM-1 | RM-2 | RM-3 | RM-4

NEIGHBORHOOD COMMERCIAL DISTRICTS
NC-1 | NC-2 | NC-3 | NCD | NC-S

SOUTH OF MARKET MIXED USE DISTRICTS
SPD | RED | RSD | SLR | SLI | SSO

COMMERCIAL DISTRICTS
C-2 | C-3-S | C-3-G | C-3-R | C-3-O | C-3-O(SD)

INDUSTRIAL DISTRICTS
C-M | M-1 | M-2

CHINATOWN MIXED USE DISTRICTS
CRNC | CVR | CCB

RESIDENTIAL-COMMERCIAL DISTRICTS
RC-3 | RC-4

REDEVELOPMENT AGENCY DISTRICTS
MB-RA | HP-RA

DOWNTOWN RESIDENTIAL DISTRICTS
RH DTR | TB DTR

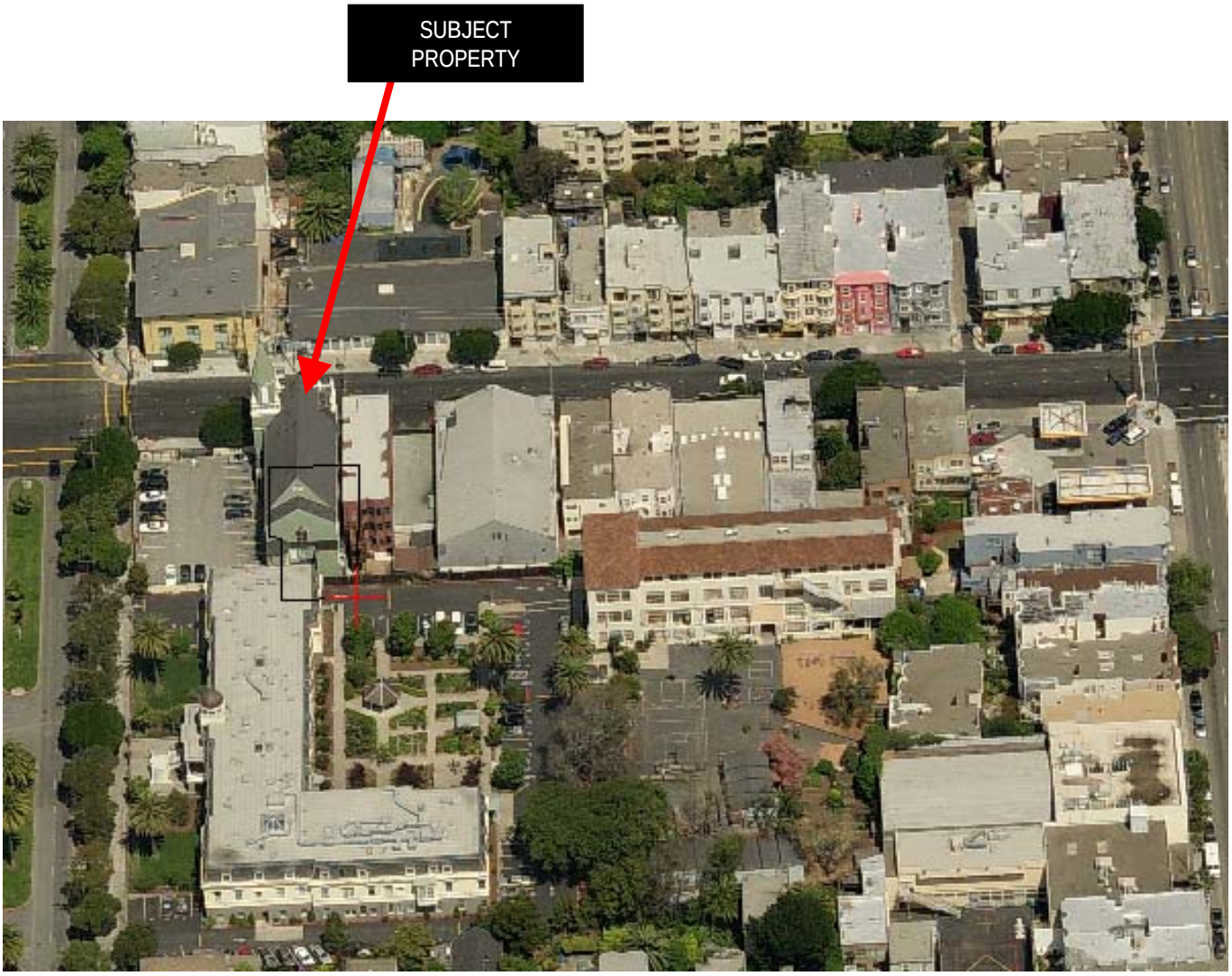
MISSION BAY DISTRICTS
MB-OS | MB-O

PUBLIC DISTRICT
P

Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

Aerial Photo

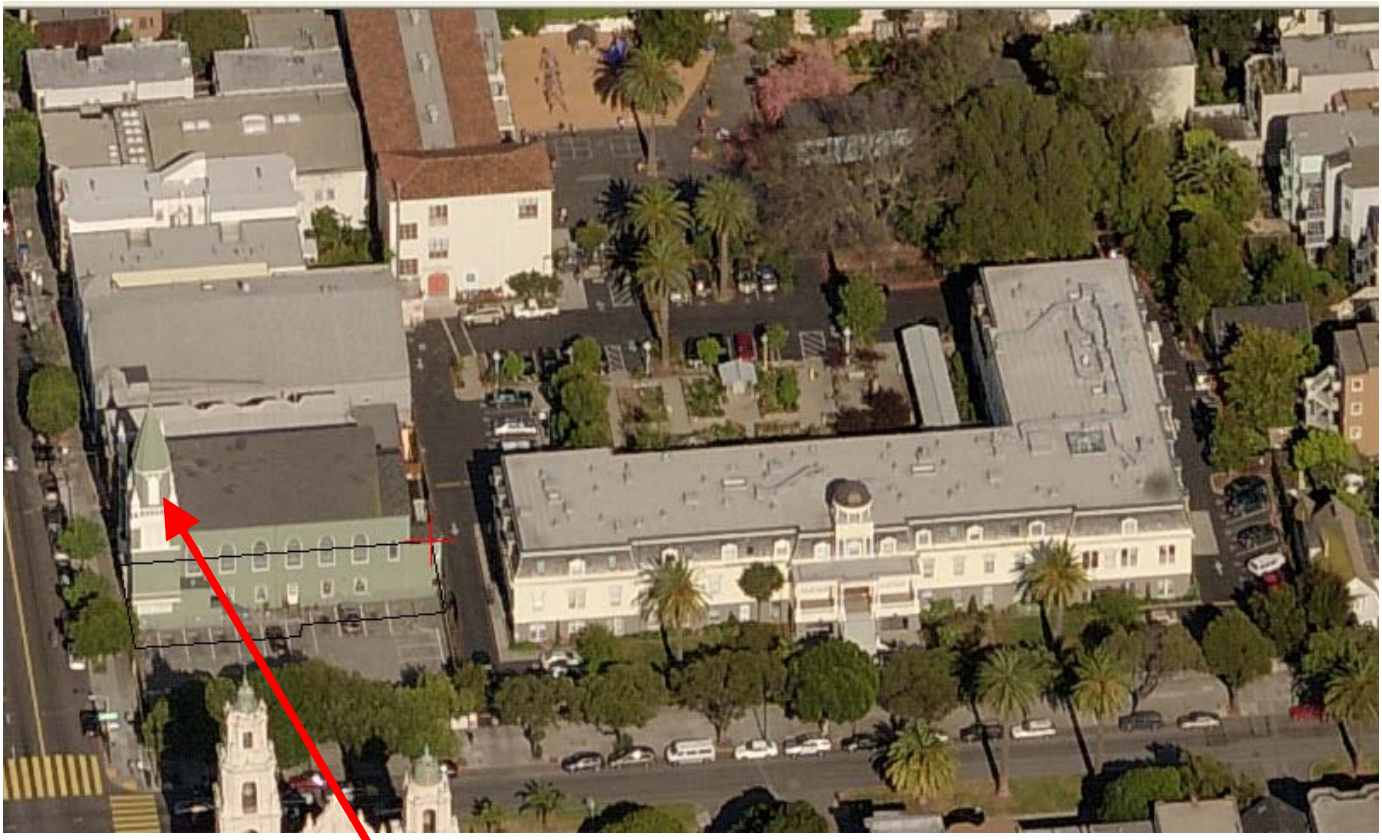
View from South



Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

Aerial Photo

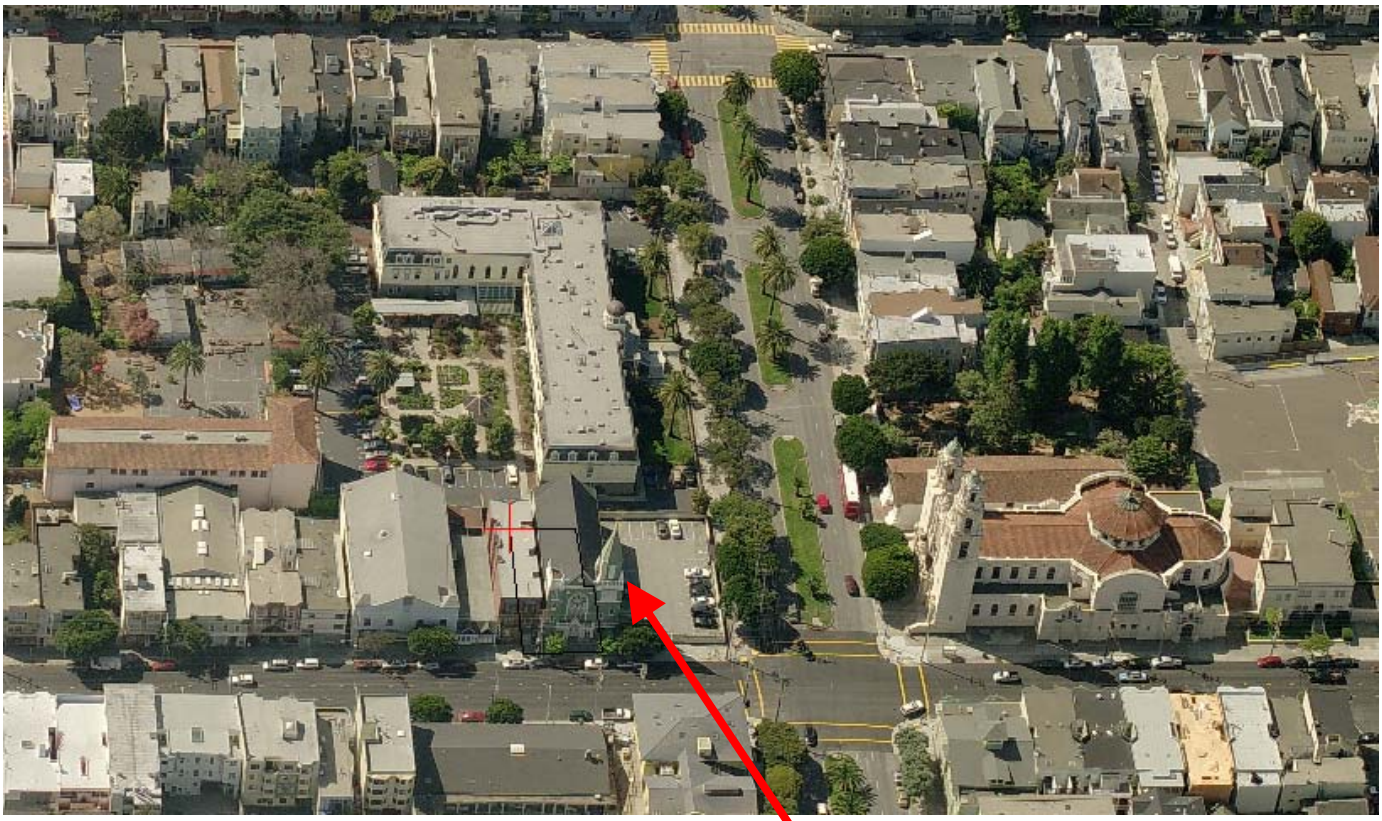
View from West



Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

Aerial Photo

View from North



Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

Site Photo

Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

Proposed Grate Sample

Conditional Use Hearing
Case Number 2009.0562C
WTS Facility
T-Mobile
3281 16th Street (aka 3589 16th Street)

T-Mobile

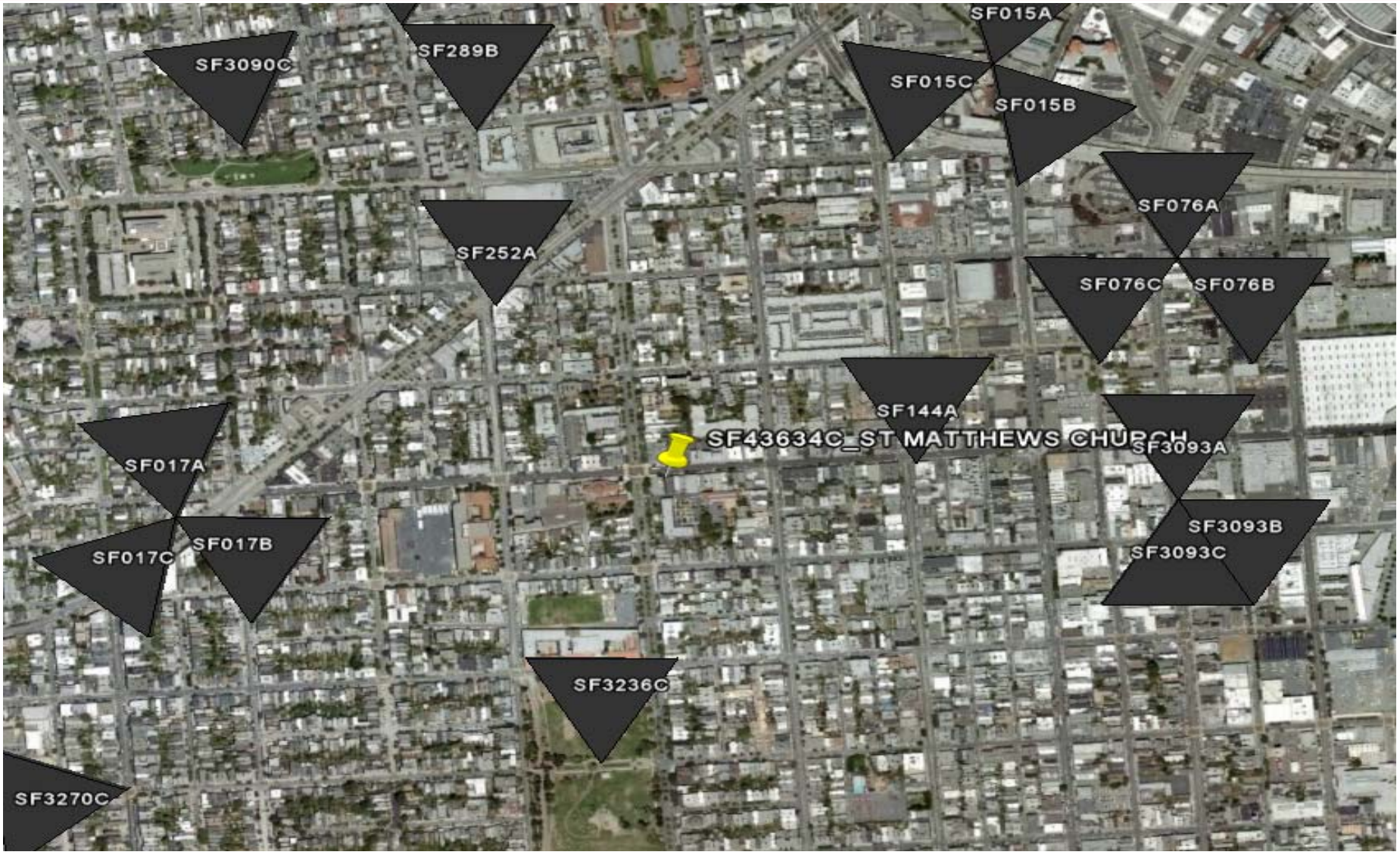
Coverage Maps

SF43634C

St. Mathews Lutheran Church
3281 16th St, San Francisco, CA

ROCKSOLID COVERAGE

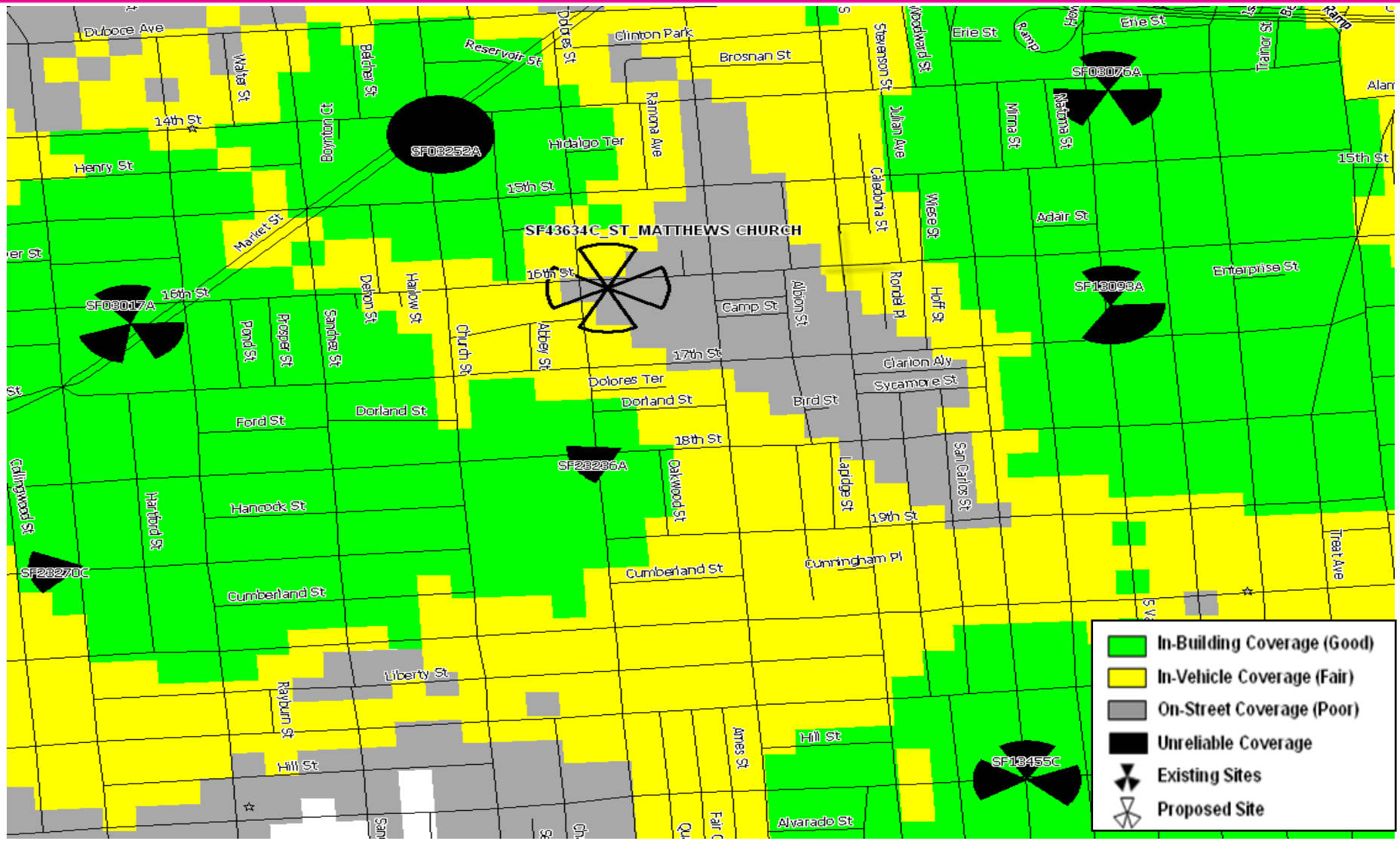
Aerial Map



ROCKSOLID COVERAGE

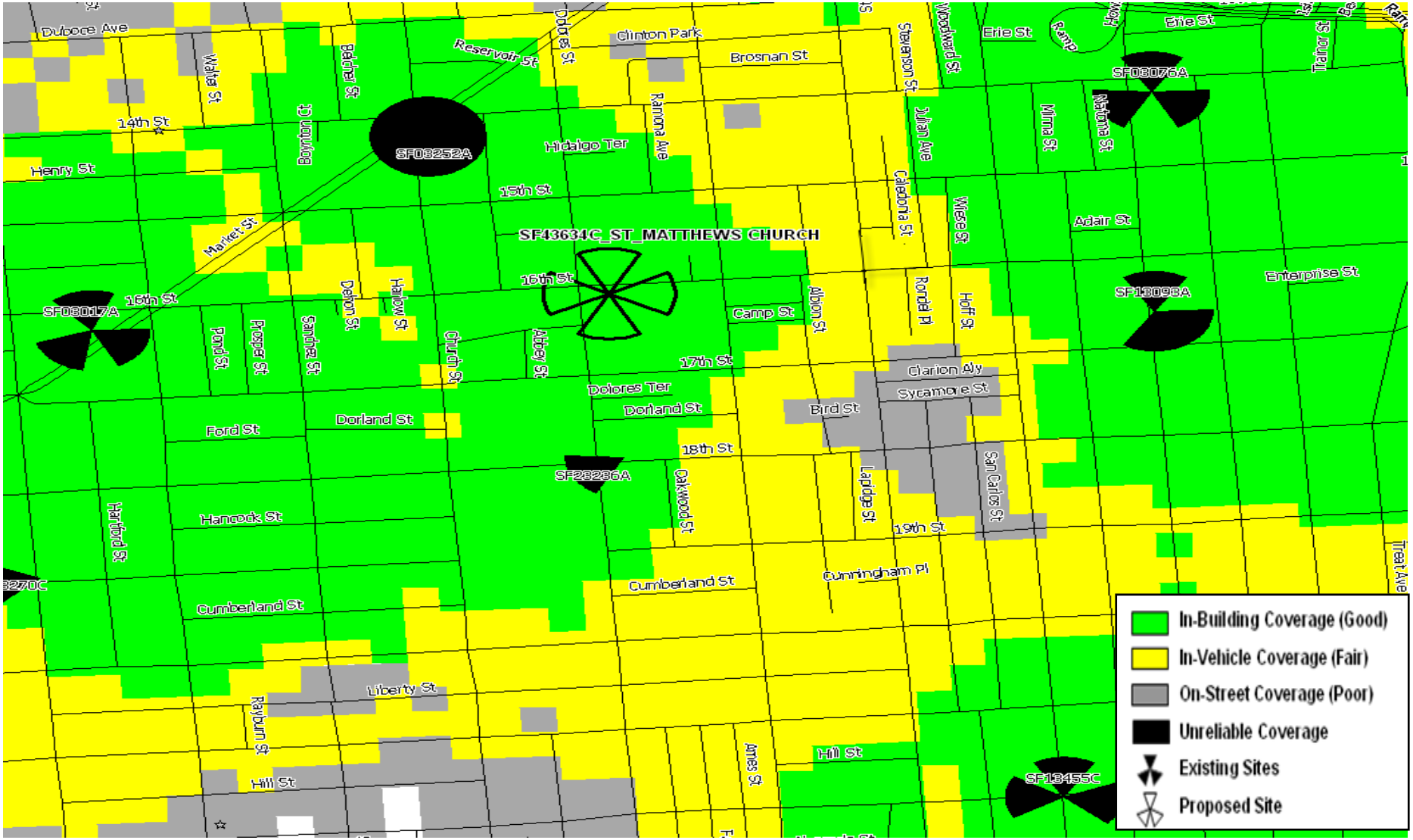
T-Mobile

Existing Coverage



ROCKSOLID COVERAGE

T-Mobile Coverage with Proposed Site



ROCKSOLID COVERAGE

OMNIPOINT
DBA T-Mobile®

1855 GATEWAY BLVD 9TH FLOOR
CONCORD, CA 94520

GREEN CHURCH

SF43634C

PROJECT DESCRIPTION

A (P) UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF (4) (P) ANTENNAS INSTALLED BEHIND A (P) FRP SCREEN, (4) (P) BTS CABINETS, (2) (P) BBU UNITS & A (P) FLOOR INSIDE AN (E) STEEPLE.

PROJECT INFORMATION

SITE NAME:	GREEN CHURCH	SITE #:	SF43634C
COUNTY:	SAN FRANCISCO	JURISDICTION:	CITY OF SAN FRANCISCO
APN:	3567-034	POWER:	PG&E
SITE ADDRESS:	3281 16TH STREET SAN FRANCISCO, CA 94103	TELEPHONE:	AT&T
CURRENT ZONING:	RM-1		
CONSTRUCTION TYPE:	IV		
OCCUPANCY TYPE:	U		
PROPERTY OWNER:	GERMAN EVANGELICAL LUTHERAN CHURCH 3281 16TH STREET SAN FRANCISCO, CA 94103 ATTN: REVERAND PIELHOOP (415) 577-5461		
APPLICANT:	T-MOBILE 1855 GATEWAY BLVD 9TH FLOOR CONCORD, CA 94520-3200		
LEASING CONTACT:	ATTN: CHRISTINE CASEY PERMIT ME INC 3850 23RD STREET SAN FRANCISCO, CA 94114 (415) 806-8750		
ZONING CONTACT:	ATTN: JOE CAMICIA PERMIT ME INC 3850 23RD STREET SAN FRANCISCO, CA 94114 (415) 722-1183		
CONSTRUCTION CONTACT:	ATTN: KRESSTON HAYNES SITE SERVICES LLC 100 TOWER ROAD AMERICAN CANYON, CA 94503 (209) 938-7251		
LATITUDE: LONGITUDE:	N 37° 45' 52.35" NAD 83 W 122° 25' 33.27" NAD 83		
AMSL:	±72'		

VICINITY MAP

DRIVING DIRECTIONS

FROM: 1855 GATEWAY BLVD, CONCORD, CA 94520-3200
TO: 3281 16TH STREET, SAN FRANCISCO, CA 94103

1.	START OUT GOING SOUTHEAST ON GATEWAY BLVD.	0.0 MI
2.	TURN SLIGHT RIGHT ONTO CLAYTON RD.	0.3 MI
3.	MERGE ONTO CA-242 S.	1.0 MI
4.	MERGE ONTO I-680 S VIA THE EXIT ON THE LEFT TOWARD OAKLAND/SAN JOSE.	3.5 MI
5.	MERGE ONTO CA-24 W TOWARD OAKLAND/LAFAYETTE.	13.6 MI
6.	MERGE ONTO I-580 W TOWARD SAN FRANCISCO.	1.5 MI
7.	MERGE ONTO I-80 W VIA THE EXIT ON THE LEFT TOWARD SAN FRANCISCO (PORTIONS TOLL).	8.2 MI
8.	MERGE ONTO US-101 N/CENTRAL FWY TOWARD GOLDEN GATE BRIDGE.	0.7 MI
9.	TAKE THE US-101 N/MISSION ST EXIT, EXIT 434A, TOWARD DUBOCE AVE/G G BR.	0.2 MI
10.	TAKE THE RAMP TOWARD DUBOCE AVE.	0.0 MI
11.	TURN SLIGHT RIGHT ONTO DUBOCE AVE.	0.2 MI
12.	TURN LEFT ONTO GUERRERO ST.	0.3 MI
13.	TURN RIGHT ONTO 16TH ST.	0.1 MI
14.	END AT 3281 16TH ST SAN FRANCISCO, CA 94103-3323	

ESTIMATED TIME: 37 MINUTES ESTIMATED DISTANCE: 29.71 MILES

CODE COMPLIANCE

ALL WORK & MATERIALS SHALL BE PERFORMED & INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

1. 2007 CALIFORNIA ADMINISTRATIVE CODE (INCL. TITLES 24 & 25)
2. 2007 CALIFORNIA BUILDING CODE
3. 2007 CALIFORNIA ELECTRICAL CODE
4. 2007 CALIFORNIA MECHANICAL CODE
5. 2007 CALIFORNIA PLUMBING CODE
6. 2007 CITY OF SAN FRANCISCO FIRE CODE
7. LOCAL BUILDING CODES
8. CITY/COUNTY ORDINANCES
9. ANSI/EIA-TIA-222-F

ALONG WITH ANY OTHER APPLICABLE LOCAL & STATE LAWS AND REGULATIONS

HANDICAP REQUIREMENTS

THIS FACILITY IS UNMANNED & NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS & REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH CALIFORNIA STATE ADMINISTRATIVE CODE, TITLE 24 PART 2, SECTION 1105B.3.4.2, EXCEPTION 1

SHEET INDEX

SHEET	DESCRIPTION	REV
T-1	TITLE SHEET	-
LS-1	SURVEY (BY OTHERS)	-
A-1	SITE PLAN	-
A-2	EQUIPMENT PLAN & ANTENNA PLAN & DETAILS	-
A-3	ELEVATION	-
A-4	ELEVATION	-

APPROVAL

RF

LEASING

ZONING

CONSTRUCTION

T-MOBILE

RF MGR

GREEN CHURCH

SF43634C
3281 16TH STREET
SAN FRANCISCO, CA 94103

ISSUE STATUS

△	DATE	DESCRIPTION	BY
	06-10-09	ZD 90%	
	08-13-09	ZD 100%	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

DRAWN BY:	C. CODY
CHECKED BY:	C. MATHISEN
APPROVED BY:	B. McCOMB
DATE:	08/13/09

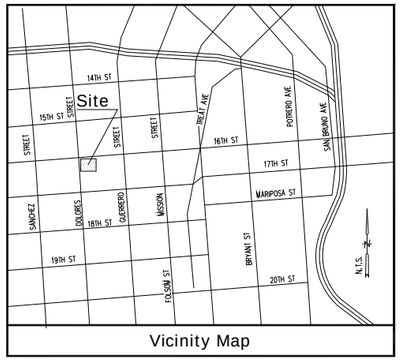
Streamline Engineering and Design, Inc.
11768 Atwood Rd. Suite 20 Auburn, CA 95603
Contact: Larry Houghtby Phone: 916-275-4180
E-Mail: larry@streamlineeng.com Fax: 530-823-8783

OMNIPOINT DBA T-Mobile®

1855 GATEWAY BLVD 9TH FLOOR
CONCORD, CA 94520

SHEET TITLE:
TITLE

SHEET NUMBER:
T-1



Vicinity Map

Title Report

THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF A TITLE REPORT.
PREPARED BY:
ORDER NO.:
DATED:

Legal Description

LOTS 32, 33 & 34 OF PORTION OF BLOCK 3567, IN THE CITY OF SAN FRANCISCO, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, RECORDS OF SAID COUNTY.

Assessor's Parcel Nos.

3567-032, 3567-033 & 3567-034

Easements

NOT AVAILABLE

Access Easement/Lease Area

TO BE DETERMINED

Date of Survey

JUNE 2, 2009

Geographic Coordinates at Existing Cross

1983 DATUM: LATITUDE 37° 45' 52.35"N LONGITUDE 122° 25' 33.27"W
ELEVATION = 75.8 FEET ABOVE MEAN SEA LEVEL

CERTIFICATION:
THE LATITUDE AND LONGITUDE SHOWN ABOVE ARE ACCURATE TO WITHIN +/- 15 FEET HORIZONTALLY AND THAT THE ELEVATIONS SHOWN ABOVE ARE ACCURATE TO WITHIN +/- 3 FEET VERTICALLY. THE HORIZONTAL DATUM (GEOGRAPHIC COORDINATES) IS IN TERMS OF THE NORTH AMERICAN DATUM OF 1983 (NAD 83) AND IS EXPRESSED IN DEGREES (°), MINUTES (') AND SECONDS ("), TO THE NEAREST HUNDREDTH OF A SECOND. THE VERTICAL DATUM (ELEVATIONS) IS IN TERMS OF THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND IS DETERMINED TO THE NEAREST TENTH OF A FOOT.

Basis of Bearings

THE STATE PLANE COORDINATE SYSTEM OF 1983 (NAD 83), CALIFORNIA ZONE 3.

Bench Mark

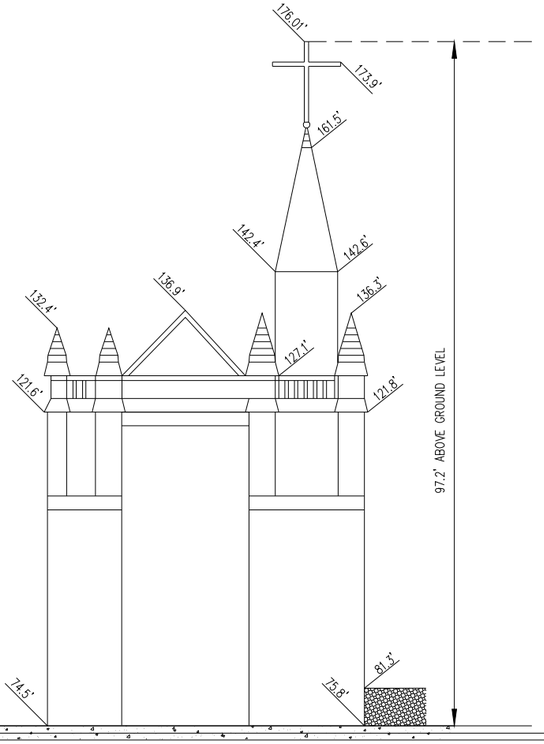
THE CALIFORNIA SPATIAL REFERENCE C.O.R.S "SBRN", ELEVATION = 101.43 FEET (NAVD 88).

Legend

FS	FINISH SURFACE		WOOD FENCE
NG	NATURAL GROUND		CHAIN LINK FENCE
	POWER POLE		LIGHT
	RETAINING/BLOCK WALL		WATER VALVE
	SURVEY CONTROL POINT	TOP	TOP OF STRUCTURE
	CONCRETE PAVEMENT		GEODETIC COORDINATES
	EDGE OF PAVEMENT	TW	TOP OF WALL
	TREE		FIRE HYDRANT/FIRE
TC	TOP OF CURB	OT	OVERHANG TOP
	PROPERTY LINE	R	ROOF

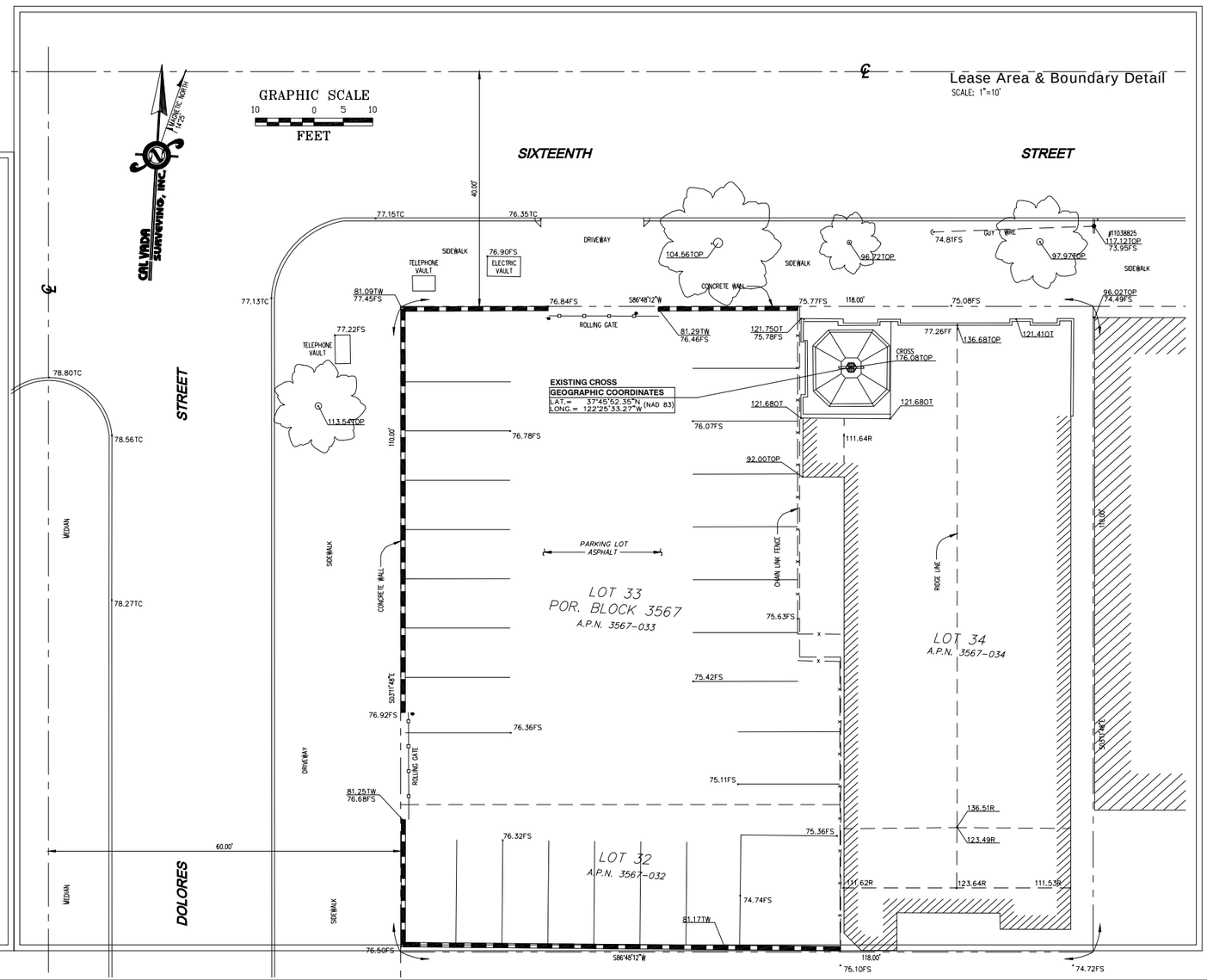
Church Profile

NORTH ELEVATION (N.T.S.)



Lease Area & Boundary Detail

SCALE: 1"=10'



T··Mobile··
Stick Together®

PLANS PREPARED BY:

Streamline Engineering and Design, Inc
11768 Atwood Rd, Suite 20 Auburn, CA 95603
Contact: Larry Houghtby Phone: 916-275-4180
E-Mail: larry@streamlineeng.com Fax: 530-823-8783

CONSULTANT:

CAL VADA SURVEYING, INC.
411 Jenks Cir., Suite 205, Corona, CA 92880
Phone: 951-280-9960 Fax: 951-280-9746
Toll Free: 800-CALVADA www.calvada.com
JOB NO. 09323

NO.	DATE:	DESCRIPTION:	BY:
	06/03/09	PRELIMINARY	HN

SITE INFORMATION:

SF43634C
GREEN CHURCH

3281 16th Street
San Francisco, CA 94103
San Francisco County

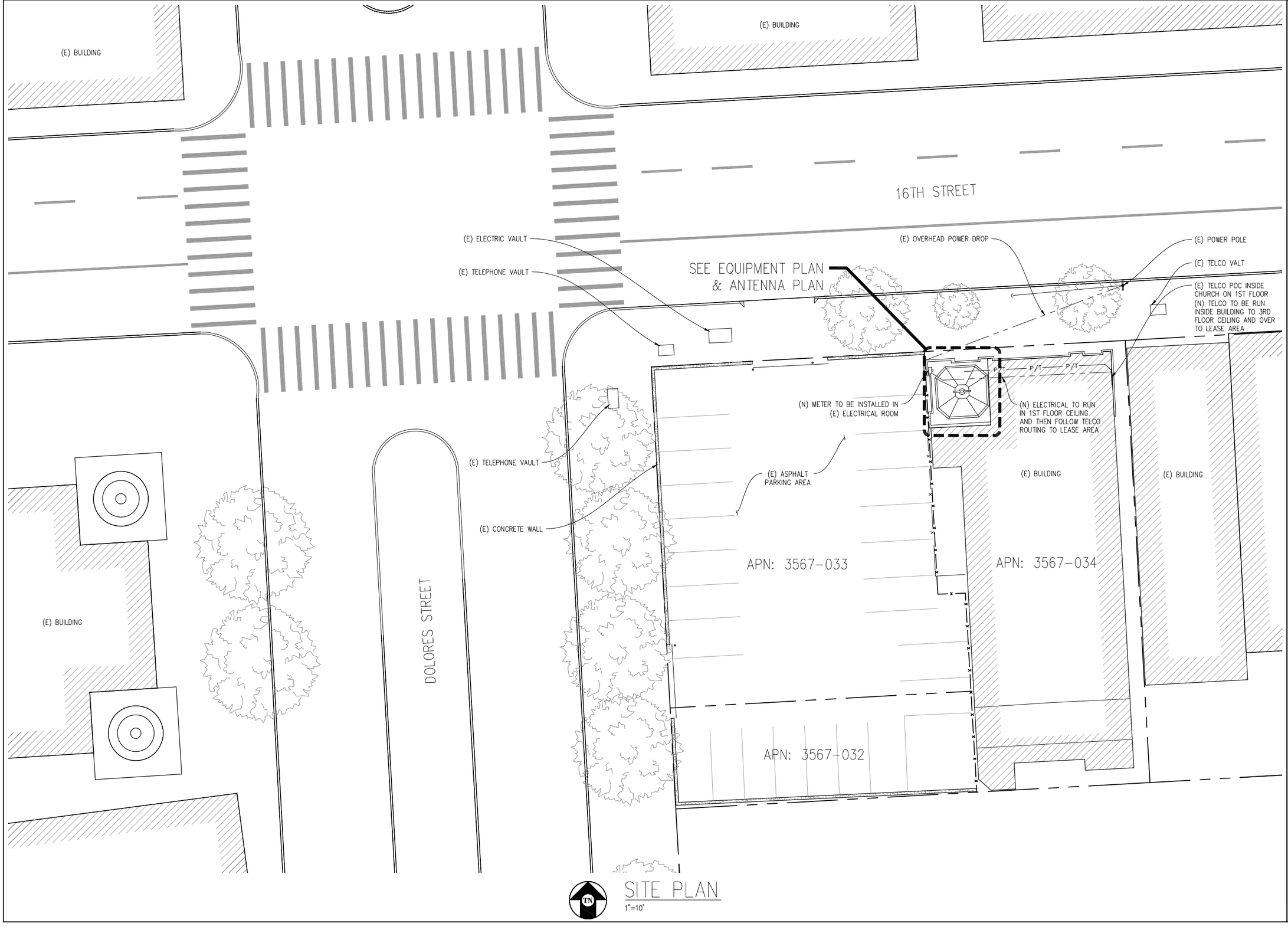
SEAL:

SHEET TITLE:

TOPOGRAPHIC SURVEY

SHEET NUMBER:

LS-1
SHEET 1 OF 1



SITE PLAN

1"=10'

GREEN CHURCH

SF43634C

3281 16TH STREET
SAN FRANCISCO, CA 94103

ISSUE STATUS

△	DATE	DESCRIPTION	BY
	06-10-09	ZD 90%	
	08-13-09	ZD 100%	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

DRAWN BY:	C. CODY
CHECKED BY:	C. MATHISEN
APPROVED BY:	B. McCOMB
DATE:	08/13/09

Streamline Engineering and Design, Inc.
11768 Atwood Rd. Suite 20 Auburn, CA 95603
Contact: Larry Houghtby Phone: 916-275-4180
E-Mail: larry@streamlineeng.com Fax: 530-823-8783

OMNIPOINT dba T-Mobile

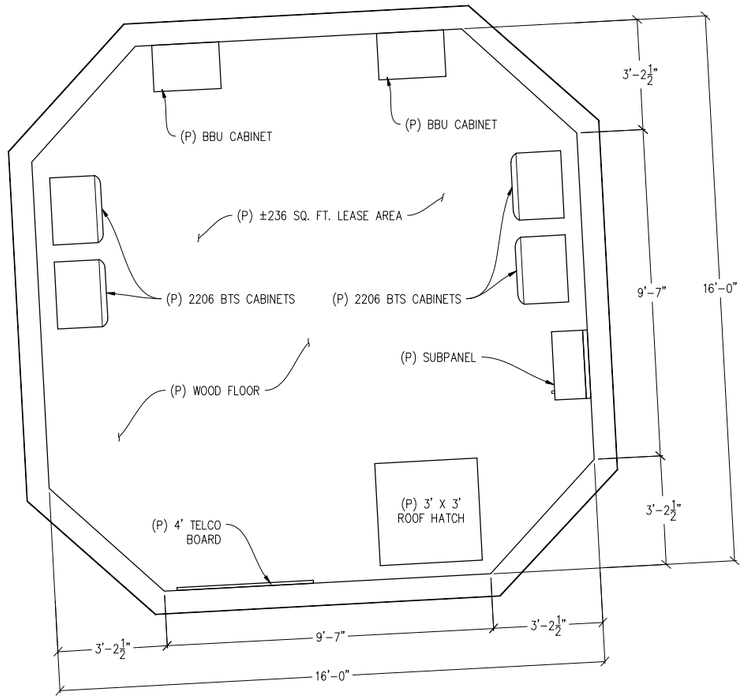
1855 GATEWAY BLVD 9TH FLOOR
CONCORD, CA 94520

SHEET TITLE:

SITE PLAN

SHEET NUMBER:

A-1

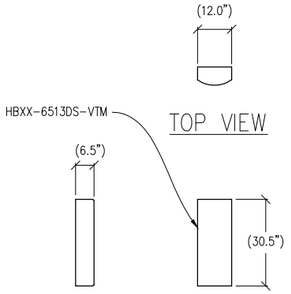


(P) EQUIPMENT PLAN

½"=1'

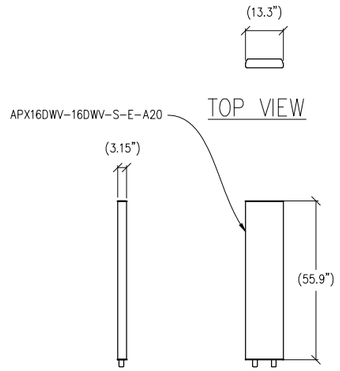
SECTOR	RF CONFIGURATION										
	COAX			ANTENNA							
	#	LENGTH	SIZE	MODEL	#	TMA	MDT	EDT	RET	RAD	AZIMUTH
ALPHA	4	35'	7/8"	APX16DWV-16DWV-S-E-A20	1	2	0°	1°	NO	60'	0°
BETA	4	35'	7/8"	HBXX-6513DS-VTM	1	2	0°	0°	NO	63'	90°
GAMMA	4	35'	7/8"	APX16DWV-16DWV-S-E-A20	1	2	0°	1°	NO	60'	180°
DELTA	4	35'	7/8"	APX16DWV-16DWV-S-E-A20	1	2	0°	1°	NO	60'	270°

NOTE: CONTRACTOR TO VERIFY LATEST RF DESIGN



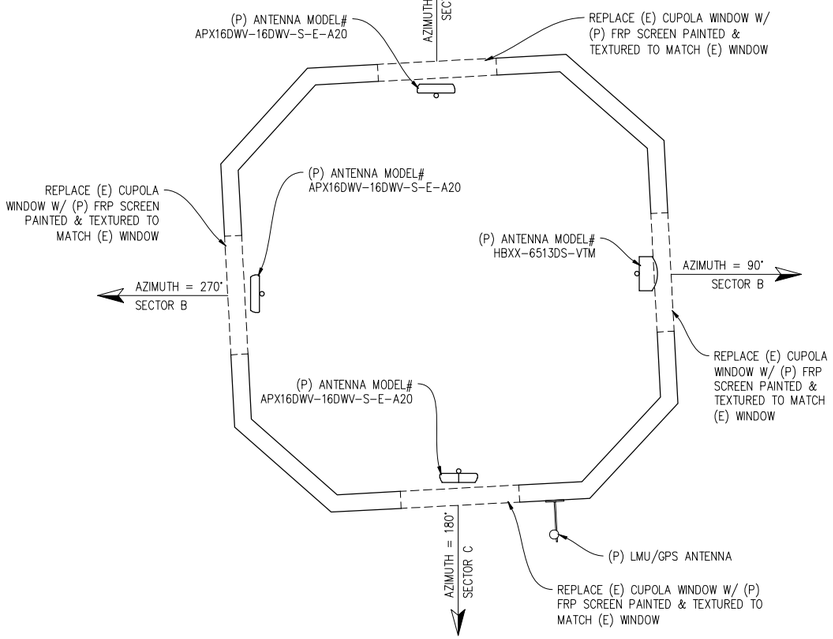
1 ANTENNA DETAIL

½"=1'



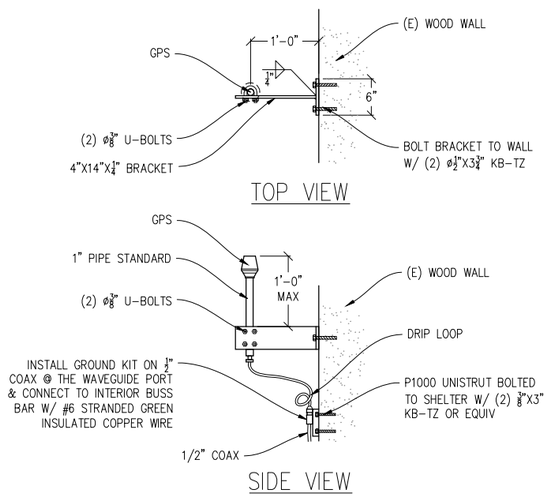
2 ANTENNA DETAIL

½"=1'



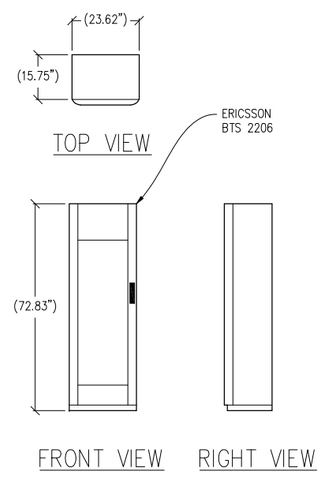
(P) ANTENNA PLAN

½"=1'



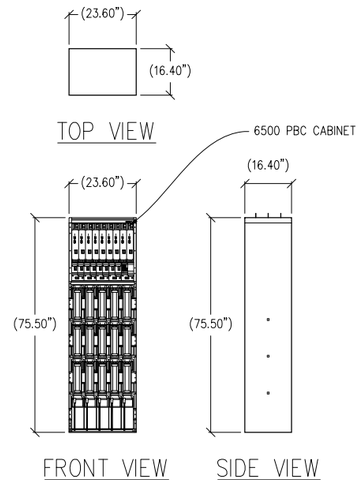
3 GPS ANTENNA DETAIL

1"=1'



4 BTS DETAIL

½"=1'



5 BBU CABINET DETAIL

½"=1'

GREEN CHURCH

SF43634C
3281 16TH STREET
SAN FRANCISCO, CA 94103

ISSUE STATUS

△	DATE	DESCRIPTION	BY
	06-10-09	ZD 90%	
	08-13-09	ZD 100%	–
	–	–	–
	–	–	–
	–	–	–
	–	–	–

DRAWN BY: C. CODY
CHECKED BY: C. MATHISEN
APPROVED BY: B. McCOMB
DATE: 08/13/09

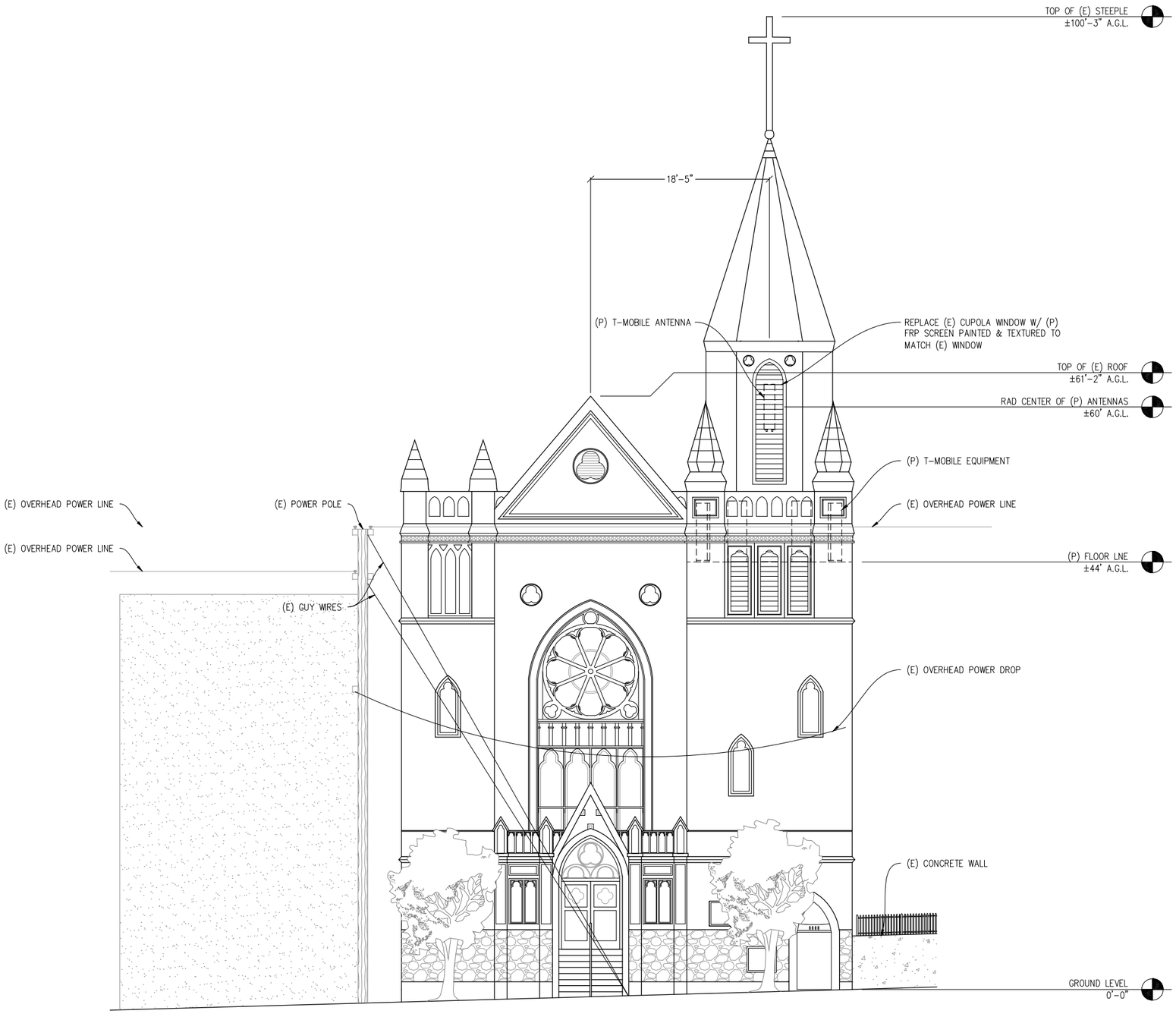
Streamline Engineering and Design, Inc.
11768 Atwood Rd. Suite 20 Auburn, CA 95603
Contact: Larry Houghtby Phone: 916-275-4180
E-Mail: larry@streamlineeng.com Fax: 530-823-8783

OMNIPOINT dba T-Mobile

1855 GATEWAY BLVD 9TH FLOOR
CONCORD, CA 94520

SHEET TITLE:
EQUIPMENT PLAN, ANTENNA PLAN, & DETAILS

SHEET NUMBER:
A-2



NORTH ELEVATION

3/16"=1'

GREEN CHURCH

SF43634C

3281 16TH STREET
SAN FRANCISCO, CA 94103

ISSUE STATUS

△	DATE	DESCRIPTION	BY
	06-10-09	ZD 90%	
	08-13-09	ZD 100%	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

DRAWN BY:	C. CODY
CHECKED BY:	C. MATHISEN
APPROVED BY:	B. McCOMB
DATE:	08/13/09

Streamline Engineering and Design, Inc.
11768 Atwood Rd. Suite 20 Auburn, CA 95603
Contact: Larry Houghtby Phone: 916-275-4180
E-Mail: larry@streamlineeng.com Fax: 530-823-8783

OMNIPOINT DBA T-Mobile

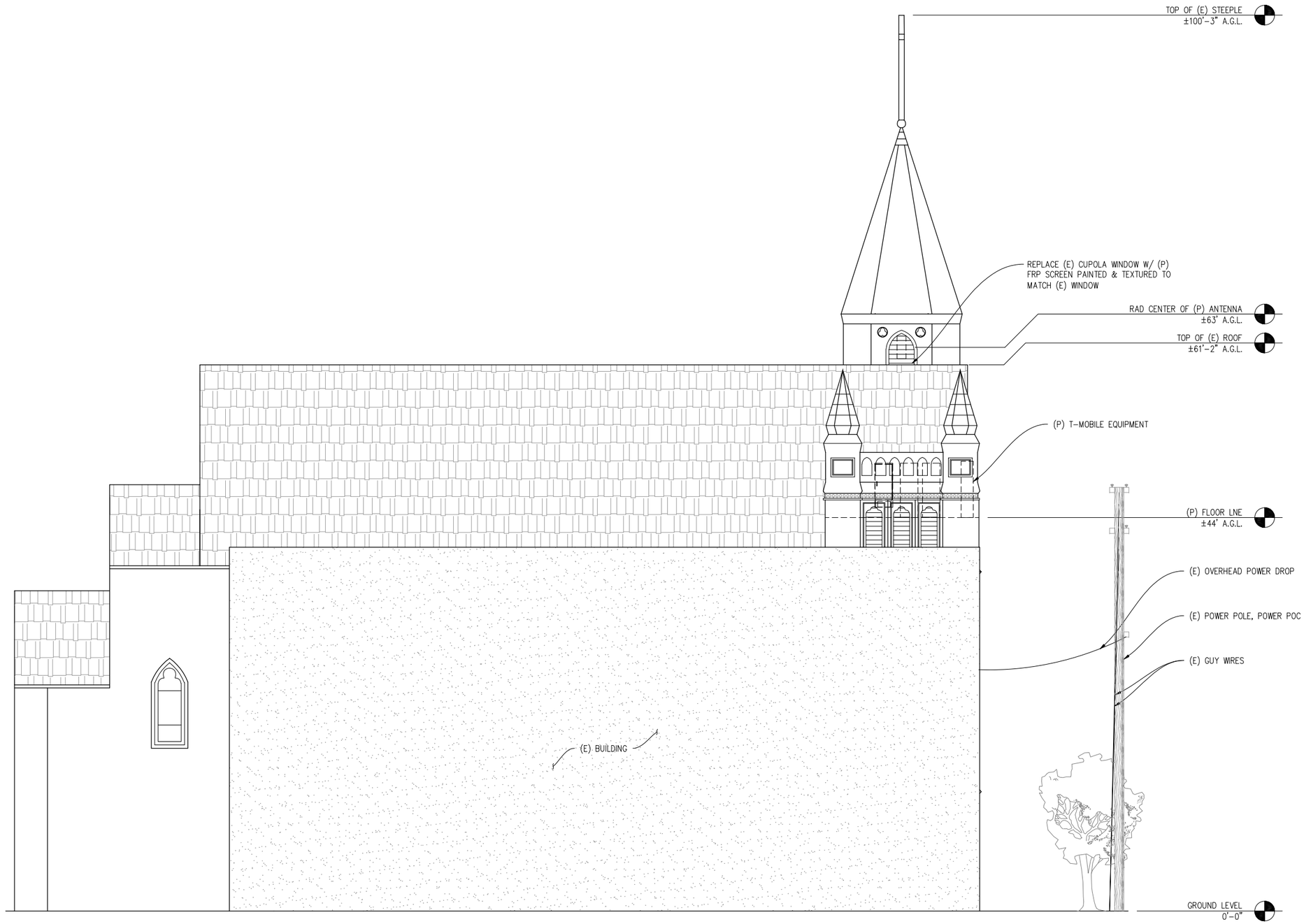
1855 GATEWAY BLVD 9TH FLOOR
CONCORD, CA 94520

SHEET TITLE:

ELEVATION

SHEET NUMBER:

A-3



EAST ELEVATION

3/16"=1'

GREEN CHURCH

SF43634C
3281 16TH STREET
SAN FRANCISCO, CA 94103

ISSUE STATUS

△	DATE	DESCRIPTION	BY
	06-10-09	ZD 90%	
	08-13-09	ZD 100%	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

DRAWN BY:	C. CODY
CHECKED BY:	C. MATHISEN
APPROVED BY:	B. McCOMB
DATE:	08/13/09

Streamline Engineering and Design, Inc.
11768 Atwood Rd. Suite 20 Auburn, CA 95603
Contact: Larry Houghtby Phone: 916-275-4180
E-Mail: larry@streamlineeng.com Fax: 530-823-8783

OMNIPOINT dba T-Mobile

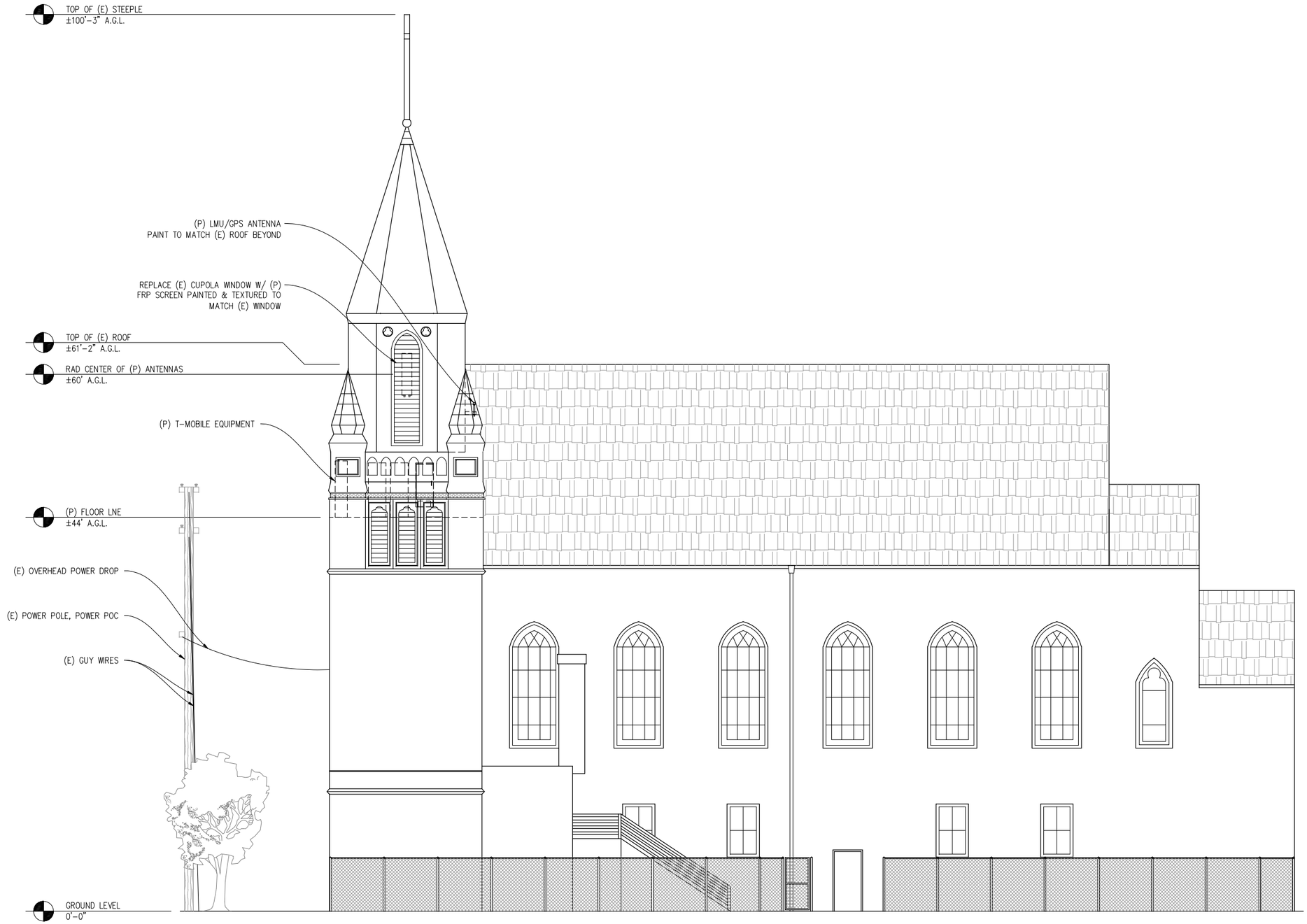
1855 GATEWAY BLVD 9TH FLOOR
CONCORD, CA 94520

SHEET TITLE:

ELEVATION

SHEET NUMBER:

A-4



WEST ELEVATION

3/16"=1'

GREEN CHURCH

SF43634C

3281 16TH STREET
SAN FRANCISCO, CA 94103

ISSUE STATUS

△	DATE	DESCRIPTION	BY
	06-10-09	ZD 90%	
	08-13-09	ZD 100%	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

DRAWN BY:	C. CODY
CHECKED BY:	C. MATHISEN
APPROVED BY:	B. McCOMB
DATE:	08/13/09

Streamline Engineering and Design, Inc.
11768 Atwood Rd. Suite 20 Auburn, CA 95603
Contact: Larry Houghtby Phone: 916-275-4180
E-Mail: larry@streamlineeng.com Fax: 530-823-8783

OMNIPOINT DBA T-Mobile

1855 GATEWAY BLVD 9TH FLOOR
CONCORD, CA 94520

SHEET TITLE:

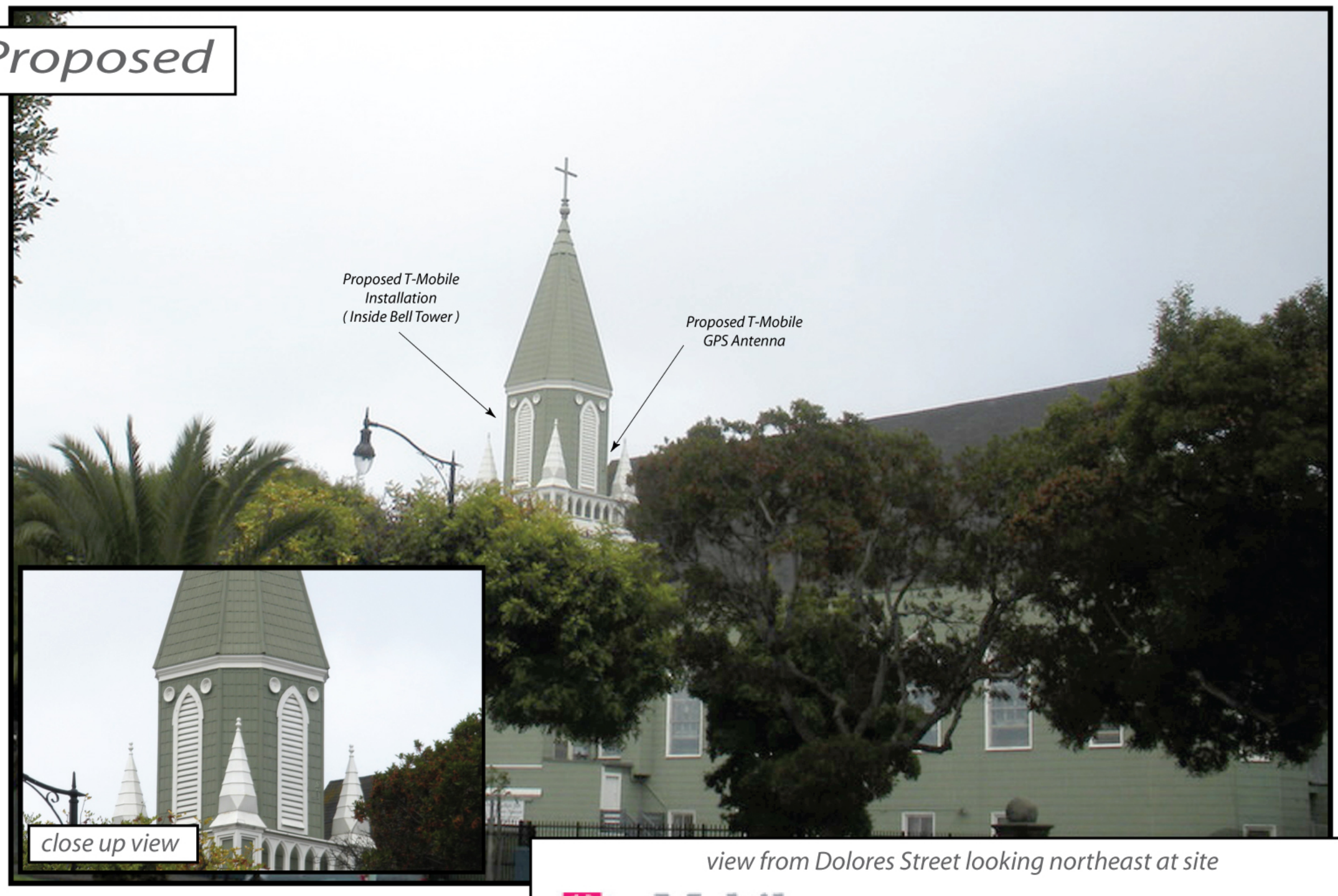
ELEVATION

SHEET NUMBER:

A-5

Existing

Proposed



AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

view from Dolores Street looking northeast at site

T··Mobile·

SF43634 Green Church
3281 16th Street, San Francisco, CA

T-Mobile • Proposed Base Station (Site No. SF43634)
3281 16th Street • San Francisco, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of T-Mobile, a personal wireless telecommunications carrier, to evaluate the base station (Site No. SF43634) proposed to be located at 3281 16th Street in San Francisco, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Background

The San Francisco Department of Public Health has adopted a 10-point checklist for determining compliance of WTS facilities with prevailing safety standards. The acceptable limits set by the FCC for exposures of unlimited duration are:

Personal Wireless Service	Approx. Frequency	Occupational Limit	Public Limit
Broadband Radio ("BRS")	2,600 MHz	5.00 mW/cm^2	1.00 mW/cm^2
Advanced Wireless ("AWS")	2,100	5.00	1.00
Personal Communication ("PCS")	1,950	5.00	1.00
Cellular Telephone	870	2.90	0.58
Specialized Mobile Radio ("SMR")	855	2.85	0.57
Long Term Evolution ("LTE")	700	2.33	0.47
[most restrictive frequency range]	30–300	1.00	0.20

Areas near the site were visited during normal business hours by Mr. Robert W. Hammett, a qualified employee of Hammett & Edison, Inc., on June 18, 2009, a non-holiday weekday, and reference has been made to information provided by T-Mobile, including drawings by Streamline Engineering and Design, Inc., dated June 10, 2009.

Checklist

1. *The location of all existing antennas and facilities at site. Existing RF levels.*

There were noted no existing wireless telecommunications facilities located near the site. Existing RF levels at ground near the site measured less than 1% of the most restrictive public exposure limit.

2. *The location of all approved (but not installed) antennas and facilities. Expected RF levels from approved antennas.*

No other WTS facilities are reported to be approved for this site, but not yet installed.

3. *The number and types of WTS within 100 feet of proposed site and estimates of additive EMR emissions at proposed site.*

There were no other WTS facilities observed within 100 feet of the proposed site.

4. *Location (and number) of Applicant's antennas and back-up facilities per building and location (and number) of other WTS at site.*

It is proposed to mount four RFS Model APX16DWV-16DWV-S-E-A20 directional panel antennas behind screens in the face of the existing steeple of the church located at 3281 16th Street in San Francisco. The antennas would be mounted at an effective height of about 60 feet above ground level and would be oriented at about 90° spacing, to provide service in all directions. There were noted no other wireless telecommunications base stations at the site.

5. *Power rating (maximum and expected operating power) for all existing and proposed backup equipment subject to application.*

The maximum rating of the T-Mobile transmitters is 22 watts. The actual operating power of the transmitters will depend upon the system losses encountered after the physical cabling runs have been installed; the transmitters may operate at a power less than their maximum rating, such that the total power radiated from the antennas does not exceed the level given in Item 6 below.

6. *Total number of watts per installation and total number of watts for all installations at site.*

The maximum effective radiated power in any direction for T-Mobile would be 1,480 watts, representing the simultaneous operation of two channels at 740 watts each.

7. *Plot or roof plan showing method of attachment of antennas, directionality of antennas, and height above roof level. Discuss nearby inhabited buildings.*

The proposed antennas are to be mounted on the building as described in Item 4 above. There was one taller building located nearby, about 190 feet to the west.

8. *Estimated ambient RF levels for proposed site and identify three-dimensional perimeter where exposure standards are exceeded.*

For a person anywhere at ground, the maximum ambient RF exposure level due to the proposed T-Mobile operation is calculated to be 0.00048 mW/cm^2, which is 0.048% of the applicable public exposure limit. The maximum calculated level at any nearby building is 1.4% of the public limit. The three-dimensional perimeter of RF levels equal to the public exposure limit is calculated to extend about 8 feet directly in front of the antennas and to much lesser distances behind, below, above, and to the sides; this does not reach any publicly accessible areas.

9. *Describe proposed signage at site.*

Due to their mounting locations, the T-Mobile antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, no access within 2 feet in front of the T-Mobile antennas themselves, such as might occur during building maintenance activities, should be

allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory warning signs* on the screens in front of the antennas, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet the guidelines adopted by the FCC.

10. *Statement of authorship.*

The undersigned author of this statement is a qualified Professional Engineer, holding California Registrations Nos. E-13026 and M-20676, which expire on June 30, 2011. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.

Conclusion

Based on the information and analysis above, it is my professional opinion that the proposed T-Mobile base station operation at 3281 16th Street in San Francisco can comply with the prevailing standards for limiting human exposure to radio frequency energy and, therefore, need not for this reason cause a significant impact on the environment.

William F. Hammett, P.E.

June 25, 2009

* Warning signs complied with OET-65 color and symbol recommendations. Contact information was provided in English to arrange for access to restricted areas, with Spanish and Chinese translations (not by this firm) included.

City and County of San Francisco
DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION

Gavin Newsom, Mayor
Mitchell H. Katz, MD, Director of Health
Rajiv Bhatia, MD, MPH, Director of EH

Review of Cellular Antenna Site Proposals

Project Sponsor: *T-Mobile* **Planner**: *Sharon Lai*

RF Engineer Consultant: *Bill Hammett, Hammett & Edison* **Phone number** *707-996-5200*

Project Address/Location: *3281 16th Street. (#SF43634)*

The following information is required to be provided before approval of this project can be made. These information requirements are established in the San Francisco Planning Department Wireless Telecommunications Services Facility Siting Guidelines dated August 1996.
In order to facilitate quicker approval of this project, it is recommended that the project sponsor review this document before submitting the proposal to ensure that all requirements are included.

_X_ 1. The location of all existing antennas and facilities. Existing RF levels. (WTS-FSG, Section 11, 2b)

_X_ 2. The location of all approved (but not installed) antennas and facilities. Expected RF levels from the approved antennas. (WTS-FSG Section 11, 2b)

_X_ 3. The number and types of WTS within 100 feet of the proposed site and provide estimates of cumulative EMR emissions at the proposed site. (WTS-FSG, Section 10.5.2)

_X_ 4. Location (and number) of the Applicant's antennas and back-up facilities per building and number and location of other telecommunication facilities on the property (WTS-FSG, Section 10.4.1a)

_X_ 5. Power rating (maximum and expected operating power) for all existing and proposed backup equipment subject to the application (WTS-FSG, Section 10.4.1c)

_X_ 6. The total number of watts per installation and the total number of watts for all installations on the building (roof or side) (WTS-FSG, Section 10.5.1).

_X_ 7. Preferred method of attachment of proposed antenna (roof, wall mounted, monopole) with plot or roof plan. Show directionality of antennas. Indicate height above roof level. Discuss nearby inhabited buildings (particularly in direction of antennas) (WTS-FSG, Section 10.41d)

_X_ 8. Report estimated ambient radio frequency fields for the proposed site (identify the three-dimensional perimeter where the FCC standards are exceeded.) (WTS-FSG, Section 10.5) State FCC standard utilized and power density exposure level (i.e. 1986 NCRP, 200 $\mu w/cm^2$)

_X_ 9. Signage at the facility identifying all WTS equipment and safety precautions for people nearing the equipment as may be required by any applicable FCC-adopted standards. (WTS-FSG, Section 10.9.2). Discuss signage for those who speak languages other than English.

_X_ 10. Statement on who produced this report and qualifications.

_X_ **Approved**. Based on the information provided the following staff believes that the project proposal will comply with the current Federal Communication Commission safety standards for radiofrequency radiation exposure. FCC standard _*1986 - NCRP*_____ **Approval of the subsequent Project Implementation Report is based on project sponsor completing recommendations by project consultant and DPH.**

Comments: *There are currently no existing wireless telecommunications facilities located at this site. T-Mobile proposes to install four RFS Model APX16DWV-16DWV-S-E-A20 antennas. The antennas would be mounted approximately 60 feet above ground level. The estimated ambient RF field from the proposed T-Mobile transmitters at ground level is calculated to be 0.00048 mW/sq. cm., which is .048% of the FCC public exposure limit. The three-dimensional perimeter of RF levels equal to the public exposure limit is expected to extend 8 feet and is not expected to be exceeded at any publicly accessible areas. Warning signs shall be placed on the screens in front of the antennas. Warning signs must be in English, Spanish and Chinese. Worker should not have access within 2 feet of the front of the antennas while they are in operation.*

__ **Not Approved**, additional information required. _____

___ **Not Approved**, does not comply with Federal Communication Commission safety standards for radiofrequency radiation exposure. FCC Standard

__*1*__Hours spent reviewing

__*$167.00*_Charges to Project Sponsor (in addition to previous charges, to be received at time of receipt by Sponsor)

Signed _____ Date *August 18, 2009*

Patrick Fosdahl
Environmental Health Management Section
San Francisco Dept. of Public Health
1390 Market St., Suite 210,
San Francisco, CA. 94102
415-252-3904

NOTICE OF NEIGHBORHOOD MEETING

To: All Neighbors and Owners within a 500 foot radius of 3281 16th Street, San Francisco, CA

Meeting Information
Date: Thursday, November 19, 2009
Time: 6:30 p.m. – 8:00 p.m.
Where: German Evangelical Lutheran Church
3281 16th St.
San Francisco, CA

Site Information
Address: 3281 16th St.
Block/Lot: 3567/034
Zoning: RM-1

Applicant
T-Mobile West Corporation

Contact Information
Joseph Camicia
Permit Me, Inc.
(415) 722-1183

T-Mobile is proposing a wireless communication facility within the German Evangelical Lutheran Church located at 3281 16th Street, San Francisco. The proposed T-Mobile wireless site would be an unmanned facility consisting of 4 antennas mounted inside the church steeple. The existing horizontal slats will be removed and replaced with new fiberglass panels that will resemble the existing slats in color, size, and general appearance. All associated equipment will be installed within a storage area underneath the steeple. This project will be scheduled for a Planning Commission Hearing at a later date.

You are invited and encouraged to attend the Community Outreach Meeting, to be held at the German Evangelical Lutheran Church, 3281 16th St., San Francisco, CA on Thursday, November 19, 2009 at 6:30 p.m. to learn more about the project.

If you have any questions regarding the proposal and are unable to attend the meeting, please contact Joseph Camicia at (415) 722-1183. Please contact Sharon Lai, City of San Francisco Planning Department, at (415) 575-9087, should you have questions regarding the City of San Francisco Planning permit process.

NOTE: If you require an interpreter to be present at the meeting, please contact our office at (415) 377-7826 at your earliest convenience and we will make every effort to provide you with an interpreter.

AVISO DE REUNIÓN EN EL VECINDARIO

A: Vecinos y propietarios dentro de un radio de 500 pies de 3281 16th Street, San Francisco, CA

Información acerca de la reunión
Fecha: Jueves 19 de noviembre de 2009
Hora: 6:30 p.m. – 8:00 p.m.
Lugar: German Evangelical Lutheran Church
3281 16th St.
San Francisco, CA

Información sobre el sitio
Dirección: 3281 16th St.
Bloque/Lote: 3567/034
Zona: RM-1

Solicitante
T-Mobile West Corporation

Información de contacto
Joseph Camicia
Permit Me, Inc.
(415) 722-1183

T-Mobile propone una instalación de comunicaciones inalámbricas dentro de la German Evangelical Lutheran Church ubicada en 3281 16th Street, San Francisco. El sitio inalámbrico propuesto por T-Mobile sería una instalación sin personal que consistiría en 4 antenas montadas dentro del campanario de la iglesia. Los listones horizontales existentes se retirarán y se reemplazarán por nuevos paneles de fibra de vidrio que serán similares a los listones existentes en color, tamaño y apariencia general. Todos los equipos asociados se instalarán dentro de un área de almacenamiento ubicada debajo del campanario. La audiencia sobre este proyecto de la Comisión de Planeación se programará para una fecha posterior.

Le invitamos y recomendamos concurrir a la Reunión Informativa para la Comunidad, que se llevará a cabo en la German Evangelical Lutheran Church, 3281 16th St., San Francisco, CA el jueves 19 de noviembre de 2009 a las 6:30 de la tarde, para informarse mejor sobre el proyecto.

Si tiene alguna pregunta sobre la propuesta y no puede concurrir a la reunión, póngase en contacto con Joseph Camicia al (415) 722-1183. Si tiene alguna pregunta sobre el proceso de planeación de la Ciudad de San Francisco, comuníquese con Sharon Lai, del Departamento de Planeación de la Ciudad de San Francisco, al (415) 575-9087.

NOTA: Si requiere la presencia de un intérprete en la reunión, por favor comuníquese cuanto antes con nuestra oficina al (415) 377-7826 y trataremos de proporcionarle un intérprete.

社區會議通知

致：加州三藩市第 16 街 3281 號周圍五百英尺內的居民和業主

會議詳情
日期： 2009 年 11 月 19 日（星期四）
時間： 晚上 6:30 至 8:00
地點： German Evangelical Lutheran Church
3281 16th St.
San Francisco, CA

設施地點資料
地址： 3281 16th St.
街段 / 地段：3567/034
劃區：RM-1

申請公司
T-Mobile West Corporation

聯絡人
Joseph Camicia
Permit Me, Inc.
(415) 722-1183

T-Mobile 公司建議在三藩市第 16 街 3281 號德國基督教路德會堂 (German Evangelical Lutheran Church) 內設立一無線電通訊設施。建議中的 T-Mobile 無線電設施無需人手操作，包括在教堂尖塔內安裝四條天線。現有水平板將被拆除，並換上新的玻璃纖維板，顏色、大小和整體外觀將與現有水平板一致。所有連帶設備將安裝在尖塔下一儲物區內。本計劃將於日後在規劃委員會聽證會 (Planning Commission Hearing) 上審核。

我們誠意邀請您出席將於 2009 年 11 月 19 日星期四晚上 6:30 在德國基督教路德會堂 (3281 16th St., San Francisco, CA) 舉行的社區諮詢會議，進一步了解本計劃。

若對上述建議有任何疑問，但無法出席社區會議，請致電 (415) 722-1183 與 Joseph Camicia 聯絡；若對三藩市規劃程序有任何疑問，請致電 (415) 575-9087 與三藩市規劃部 (City of San Francisco Planning Department) Sharon Lai 聯絡。

註：如需翻譯人員在會上提供協助，請即致電 (415) 377-7826 與本辦事處聯絡，我們會盡力爲您安排翻譯服務。

ATTACHMENT TO SHPO REVIEW OF PROPOSED FCC UNDERTAKING

Project Identifier: Green Church
Property location: 3281 16th St.
San Francisco, CA

FCC:091210A

Reviewer: Ed Carroll
916-653-9010
ecarroll@parks.ca.gov

☐ SHPO REQUESTS ADDITIONAL INFORMATION AS FOLLOWS:

☐ SHPO DISAGREES WITH RECOMMENDED ELIGIBILITY DETERMINATION BECAUSE:

☐ SHPO OBJECTS TO/DISAGREES WITH RECOMMENDED FINDING OF EFFECT BECAUSE:

****

☐ SHPO CONCURS WITH ELIGIBILITY DETERMINATION
PROPERTY ADDRESS:

☐ Not eligible:

☐ Loss of integrity due to:

X Listed

☐ Eligible under Criteria ___ because:

X SHPO CONCURS WITH RECOMMENDED FINDING OF NO ADVERSE EFFECT BECAUSE:

Six panel antennas will be installed within the candidate's steeple behind RF screening. The screening will replace the existing steeple window and will be painted and textured to match the candidate. Associated equipment will be placed within a lease area located in the base of the steeple. Telco and electrical will not require trenching.

The records search indicates that 12 cultural resource surveys have been conducted within the project's ½ mile APE. Inclusive of the candidate, 34 cultural resource sites have been identified within ½ mile of the project area.

It is my understanding that the steeple's wooden slats, hereby noted as character defining features of this NR listed property, will be replaced with identical slat RF screen material and that this replacement material will not be other than as described and proposed by the project planners. The replacement material should not be a permanent component of the candidate's historic fabric. If this or any other project component is modified, please notify my office immediately. Furthermore, all work should be consistent with the Secretary of the Interior's Standards. As proposed, this project will not adversely affect historic resources.

Approved by OMB
3060-1039

Collocation ("CO") Submission Packet

FCC FORM 621

Introduction

The **CO Submission Packet** is to be completed by or on behalf of Applicants who wish to collocate an antenna or antennas on an existing communications tower or non-tower structure by or for the use of licensees of the Federal Communications Commission ("FCC").[1] **The Packet (including Form CO and attachments) is to be submitted to the State Historic Preservation Office ("SHPO") or to the Tribal Historic Preservation Office ("THPO"), as appropriate, before any construction or other installation activities on the site begin. Failure to provide the Submission Packet and complete the review process under Section 106 of the National Historic Preservation Act ("NHPA")[2] prior to beginning construction or other installation activities may violate Section 110(k) of the NHPA and the Commission's rules.**

The instructions below should be read in conjunction with, and not as a substitute for, the "Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission," dated September 2004, ("Nationwide Agreement"), the "Nationwide Programmatic Agreement for the Collocation of Wireless Antennas" ("Collocation Agreement"),[3] and the relevant rules of the FCC (47 C.F.R. §§ 1.1301-1.1319) and the Advisory Council on Historic Preservation ("ACHP") (36 C.F.R. Part 800).[4]

Exclusions and Scope of Use

The CO Submission Packet should be submitted only for those collocations that are subject to Section 106 review. The CO Submission Packet should not be

---

[1] A "communications tower" is a structure built for the sole or primary purpose of supporting FCC-licensed antennas and their associated facilities; other structures upon which antennas may be collocated are referred to as "non-tower structures."

[2] 16 U.S.C. § 470f.

[3] *Nationwide Programmatic Agreement for the Collocation of Wireless Antennas*, 16 FCC Rcd 5574, 5575-5581 (WTB: March 16, 2001)("Collocation Agreement"); *see also Fact Sheet Regarding the Implementation of the Nationwide Programmatic Agreement with Respect to Collocating Wireless and Broadcast Facilities on Existing Towers and Structures*, Notice, 67 Fed. Reg. 5282 (Feb. 5, 2002).

[4] Section II.A.9. of the Nationwide Agreement defines a "historic property" as: "Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or NHO that meet the National Register criteria."

Approved by OMB
3060-1039

submitted for collocations that have been excluded from Section 106 Review by the Collocation Agreement or the Nationwide Agreement.

Where a collocation is to be completed but no submission will be made to a SHPO or THPO due to the applicability of one or more exclusions, the Applicant should retain in its files documentation of the basis for each exclusion should a question arise as to the Applicant's compliance with Section 106.

The CO Submission Packet is to be used only for the collocation of an antenna or antennas on an existing communications tower or a non-tower structure. New tower constructions that are subject to Section 106 review should be submitted using the New Tower ("NT") Submission Packet (FCC Form 620).

General Instructions: Form CO

Fill out the answers to Questions 1-5 and provide the requested attachments. Attachments should be numbered and provided in the order described below.

For ease of processing, provide the Applicant's Name, Applicant's Project Name, and Applicant's Project Number in the lower right hand corner of each page of Form CO and attachments.[5]

1. Applicant Information

Full Legal Name of Applicant: T-Mobile West Corporation

Name and Title of Contact Person: Sherri Gene

Address of Contact Person (including Zip Code): 1855 Gateway Boulevard, 9th Floor, Concord, CA 94520

Phone: 480-734-9112 Fax:

E-mail address: Sherri.Gene@T-Mobile.com

2. Applicant's Consultant Information

Full Legal Name of Applicant's Section 106 Consulting Firm:

EarthTouch, Inc.

Name of Principal Investigator: Dana E. Supernowicz

Title of Principal Investigator: Cultural Resource Consultant

[5] Some attachments may contain photos or maps on which this information can not be provided.

Approved by OMB
3060-1039

Investigator's Address: 2001 Sheffield Drive

City: El Dorado Hills State: CA Zip Code: 95762-5905

Phone: 916-941-1864 Fax: 916-941-9466

E-mail Address: historic.resource@comcast.net

Does the Principal Investigator satisfy the Secretary of the Interior's Professional Qualifications Standards?[6] **YES** / NO.

Areas in which the Principal Investigator meets the Secretary of the Interior's Professional Qualification Standards: Architectural History, Archaeology, History

Other "Secretary of the Interior qualified" staff who worked on the Submissions Packet (provide name(s) as well as well as the area(s) in which they are qualified):

3. Collocation and Site Information

a. Street Address of Site: 3281 16th Street

City or Township: San Francisco

County / Parish: San Francisco State: CA Zip Code: 94103

b. Nearest Cross Roads: Dolores Street / _____

c. NAD 83 Latitude/Longitude coordinates (to tenth of a second):

N 37° 45' 52.35 "; W 122° 25' 33.27 "

d. Tower or non-tower structure height above ground level, including proposed collocation:[7] 100 feet; _____ meters

---

[6] The Professional Qualification Standards are available on the cultural resources webpage of the National Park Service, Department of the Interior: <http://www.cr.nps.gov/local-law/arch_stnds_9.htm>. The Nationwide Agreement requires use of Secretary-qualified professionals for identification and evaluation of historic properties within the APE for direct effects, and for assessment of effects. The Nationwide Agreement encourages, but does not require, use of Secretary-qualified professionals to identify historic properties within the APE for indirect effects. *See* Nationwide Agreement, §§ VI.D.1.d, VI.D.1.e, VI.D.2.b, VI.E.5.

[7] Include top-mounted attachments such as lightning rods.

Approved by OMB
3060-1039

e. Description of antennas to be collocated (*e.g.*, type, number, shape, dimensions, color): Six antennas mounted within the steeple of the church, covered with a radiofrequency radiation transparent screen, painted and textured to match the building.

f. Approximate height of collocation above ground level: 61 feet; ____ meters; if antennas to be located on different levels, describe their placement.

g. Structure. This Form CO pertains to collocation of antenna(s) on: [ ] a communications tower or [X] a non-tower structure (check one). If a non-tower structure, briefly describe the structure: Gothic Revival, wood shingle, four story church with bays and towers.

h. If the antennas will be collocated on a communications tower, check the appropriate box:

☐ guyed lattice tower ☐ self-supporting lattice ☐ monopole

☐ other (briefly describe tower) _____

i. Structure Completion. Indicate the date that the existing communications tower or non-tower structure was built (date on which construction activities ended): The church was constructed in 1907.

j. Section 106 Review. Has the communications tower or non-tower structure been the subject of SHPO/THPO review pursuant to Section 106 of the National Historic Preservation Act? If so, identify the company that made the submission, the date it was submitted, and the SHPO/THPO reference number.
Section 106 process **not** completed.

k. Based on the Applicant's research (*see* Attachments 8 and 9), is the existing communications tower or non-tower structure listed or eligible for listing in the National Register? ☒ Yes ☐ No

4. Current Status of Collocation:[8]

a. [X] Construction and/or installation not yet commenced;
b. [ ] Construction and/or installation commenced on [date] _____; or,
c. [ ] Construction and/or installation commenced on [date] _____ and completed on [date] _____.

[8] Failure to provide the Submission Packet and complete the review process under Section 106 of the NHPA prior to beginning construction or other installation activities may violate Section 110(k) of the NHPA and the Commission's rules. *See* Section X of the Nationwide Agreement.

Approved by OMB
3060-1039

5. Applicant's Determination of Effect:

a. Direct Effects (check one):

i. [ ] No Historic Properties in Area of Potential Effects ("APE") for direct effects;
ii. [ ] "No effect" on Historic Properties in APE for direct effects;
iii. [X] "No adverse effect" on Historic Properties in APE for direct effects;
iv. [ ] "Adverse effect" on one or more Historic Properties in APE for direct effects.

b. Visual Effects (check one):

i. [ ] No Historic Properties in Area of Potential Effects ("APE") for visual effects;
ii. [X] No effect" on Historic Properties in APE for visual effects;
iii. [ ] "No adverse effect" on Historic Properties in APE for visual effects;
iv. [ ] "Adverse effect" on one or more Historic Properties in APE for visual effects.

Certification and Signature

I certify that all representations on this Form CO (FCC Form 621) and the accompanying attachments are true, correct, and complete.

Dana E Supernowicz
Signature

December 4, 2009
Date

Dana E. Supernowicz
Printed Name

Cultural Resource Consultant
Title

WILLFUL FALSE STATEMENTS MADE ON THIS FORM OR ANY ATTACHMENTS ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. Code, Title 18, Section 1001) AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. Code, Title 47, Section 312(a)(1) AND/ OR FORFEITURE (U.S. Code, Title 47, Section 503).

CONCUR:

Susan F Stratton for
Milford Wayne Donaldson, FAIA
State Historic Preservation Officer
08 March 2010

Applicant's Name: T-Mobile
Project Name: Green Church
Project Number: SF43634C

In Favor of Case #: 2009.0562C - 3281 16th Street
SJ Sullivan
to:
Sharon Lai
06/09/2010 05:03 PM
Show Details

Good day, Ms Lai,

I am in favor of Case # 2009.0562C - 3281 16th Street to install a new wireless telecommunication services facility, consisting of four antennas and associated equipment, located on the tower of a church with a maximum height of 63 feet, as part of T-Mobile's wireless telecommunications network within the RM-1 District and a 40-X Height and Bulk District.

I live and own my home within a 300-foot radius of the church.

I am unable to attend the scheduled Planning Commission hearing in person. I would like to voice my positive view of this **Case # 2009.0562C - 3281 16th Street** to the Planning Commission.

Thank you, sjs

SJ Sullivan
272 Dolores Street
San Francisco, CA 94103-2262

Please vote against the CU Permit for 3281 16th Street (Case #2009.0562C)

Sylvia Augustiniok to: rm, hs.commish, mooreurban, c_olague, wordweaver21, bill.lee, plangsf 06/02/2010 12:02 PM

Cc: sharon.w.lai, linda.avery, Bevan.Dufty

Please respond to Sylvia Augustiniok

History: This message has been replied to and forwarded.

Dear Commissioners,

I am a resident of San Francisco in the Mission Dolores neighborhood. I am writing to you in opposition to the installation of the Cell Phone Antennas proposed for 3281 16th Street (Case # 2009.0562C). This commercial wireless facility is unnecessary and would be incompatible with our mostly residential neighborhood. I do not desire to live near this proposed facility and strongly urge you to vote against the granting of the Conditional Use Permit for this location.

Thank you for your consideration,
Sylvia Augustiniok

3548 18th Street, Apt.3
San Francisco, CA 94110

Fw: Opposition to cell tower installation at St. Matthew's Church at 3281 16th Street

Linda Avery to: Sharon W Lai 05/18/2010 07:43 AM

Linda D. Avery-Herbert
Director of Commission Affairs
SAN FRANCISCO PLANNING COMMISSION &
SAN FRANCISCO HISTORIC PRESERVATION COMMISSION
1650 MISSION STREET – SUITE 400
SAN FRANCISCO, CA 94103-2414
TEL: 415.558.6407 – FAX: 415.558.6409
WEBSITE: www.sfgov.org/planning

----- Forwarded by Linda Avery/CTYPLN/SFGOV on 05/18/2010 07:43 AM -----

"Amy Silverstein" <asilverstein@sptaxlaw.com>
05/18/2010 01:23 AM

To <rm@well.com>, <c_olague@yahoo.com>, <wordweaver21@aol.com>, <plangsf@gmail.com>, <bill.lee@flysfo.com>, <mooreurban@speakeasy.net>, <hs.commish@yahoo.com>
cc <linda.avery@sfgov.org>, "Amy Silverstein" <asilverstein@sptaxlaw.com>
Subject Opposition to cell tower installation at St. Matthew's Church at 3281 16th Street

I strongly object to installation of any cell antennas in the steeple at St. Matthew's Church at 3281 16th Street.

I have three children who attend Children's Day School which is within 300 feet of the church. A growing body of research suggests that prolonged exposure to the electromagnetic radiation emitted by these towers could be harmful to young children. The Board of Supervisors was wise to pass its resolution urging the U.S. EPA to study the health impacts of wireless facilities, and, if appropriate, to establish a safe level of exposure to radiofrequency radiation emissions.

There are many other, non-health reasons to deny the application, especially that the presence of the antennas and batteries inside an old, wooden building, pose a significant fire and safety hazard, particularly if there is an earthquake.

This is a historic neighborhood, and one densely packed with school-aged children. At least 500 children attend four schools within 300 feet of the project, including Children's Day School, Mission Dolores School, Holy Family Day Home and Kinderhaus Pre-school. In short, a more appropriate location for the proposed cell tower can be found.

Please deny this application for conditional use at 3281 16th Street.

Thank you for your consideration.

Amy L. Silverstein
Silverstein & Pomerantz LLP
55 Hawthorne Street, Suite 440
San Francisco, CA 94105

(415) 593-3502 (office)
(415) 593-3501 (fax)
(415) 279-4278 (mobile)
asilverstein@sptaxlaw.com
www.sptaxlaw.com

Mission Dolores Neighborhood Association
72 Landers Street, San Francisco, CA 94114, Ph. 863-3950
Web Site: http://www.missiondna.org Email: missiondna@earthlink.net

May 5, 2010

Ron Miguel, President
San Francisco Planning Commission
1650 Mission Street
San Francisco, 94103

Dear President Miguel and Commissioners:

I am writing on behalf of the Mission Dolores Neighborhood Association to register our objection to the granting of a Conditional Use Permit for the construction of a wireless facility at St. Matthews Lutheran Church, 3281 16th Street (Case# 2009.0562C).

This industrial/commercial facility is unnecessary, undesirable and inappropriate for our predominantly residential neighborhood. As a neighborhood organization dedicated to preservation and enhancing the quality of life for our citizens, MDNA believes that the installation of this wireless facility runs counter to our goals and respectfully requests that you deny the permit application for this site.

Specifically we are concerned that:

- The replacement of portions of the steeple with fiberglass, a non-historic material, would have an adverse impact on the historic and architectural integrity of the building.

- The addition of a GPS antenna on the outside of the steeple would have an adverse aesthetic impact on this historic building.

- T-Mobile has not adequately demonstrated the need for this facility. Field tests and surveys of T-Mobile users by local residents have suggested the facility is unnecessary, that cell phone service in the area generally bounded by 14th Street on the north, Sanchez Street on the west, 20th Street on the south and South Van Ness Avenue on the east is already excellent.

- Studies have shown potential loss of property value ranging from 2 to 20% for properties near such wireless facilities.

SafeCleanGreen

PROMOTING QUALITY OF LIFE IN THE HISTORIC MISSION DOLORES NEIGHBORHOOD

Ron Miguel, President
San Francisco Planning Commission
1650 Mission Street
San Francisco, 94103

May 4, 2010

Dear President Miguel and Commissioners:

I am writing on behalf of SafeCleanGreen Mission Dolores to register our organization's objection to the granting of a Conditional Use Permit for the construction of a wireless facility at St. Matthews Lutheran Church, 3281 16th Street (Case# 2009.0562C).

This cell phone tower is unnecessary, undesirable and inappropriate for our predominantly residential neighborhood. As a neighborhood organization dedicated to enhancing the quality of life for our citizens, SafeCleanGreen believes that the installation of this facility runs counter to our goals and respectfully requests that you deny the permit application for this site. Specifically we are concerned that:

- The addition of a GPS antenna on the outside of the steeple would have an adverse aesthetic impact on this historic building.
- T-Mobile has not adequately demonstrated the need for this facility. Field tests and surveys of T-Mobile users by local residents have suggested the facility is unnecessary, and that cell phone service in the area is already excellent.
- Studies show potential loss of property value for properties near such wireless facilities.
- The safety of nearby residents and students at the numerous schools within 1000 feet, particularly with respect to the volatile back-up batteries and other industrial equipment which would be located directly under the steeple and not in a more climate-controlled environment.
- Many residents, local business owners and parents of students have objected by petition and letter.
- The antennas may cause customers of local businesses to stay away, counter to the spirit of Prop. M (1986), which requires that any change to a neighborhood not have an adverse impact on existing retail businesses.
- Resolution 102-10, passed unanimously by the Board of Supervisors and signed into law by the Mayor In April, 2010, calls on the USEPA to perform appropriate studies to determine the effects of non-ionizing radiation (the kind emitted by this facility) on the health of adults and children due to continuing uncertainties about possible health risks.

We hope you will consider all these factors and conclude that T-Mobile's permit application should be denied. Thank you for your help on this matter.

Sincerely,

Gideon Kramer, President
SafeCleanGreen Mission Dolores
www.safecleangreen.com
Tel: 415-861-2480
gykramer@earthlink.net

Cc Sharon W. Lai, city planner

Laughing Lotus Yoga Center
3271 16th Street
SF, CA 94103

May 3, 2010

Dear Sharon Lai and Commissioners:

I am a business owner at 327116th Street and am writing in opposition to the granting of a Conditional Use Permit for the construction of a wireless facility at St. Matthews Lutheran Church, 3281 16th Street (Case# 2009.0562C), less than 100 feet away from my business. This facility is unneccessary and inappropriate for our neighborhood, and the local community clearly does not want it.

As a business owner I am particularly concerned with the potential negative impact this facility will have on myself, my business and my customers. While there is much debate and uncertainty about the safety of cell phone antennas, I am afraid that at least the perception of danger will have an adverse economic effect on my business as customers may choose to stay away. This detrimental effect runs counter to the spirit of Proposition M (1986) which requires that any change in the neighborhood not have an adverse impact on existing retail businesses.

I strongly urge the Planning Commission to reject the application for a Conditional Use Permit at this location.

Sincerely,

Dana Flynn, Owner
Laughing Lotus Yoga Center

16th & Dolores Against Cell Towers in Our Neighborhood
3237 16th Street
San Francisco, CA 94103

June 3, 2010

Sharon Lai, Planner
San Francisco Planning Commission
1650 Mission Street, Room 400
San Francisco, CA 94103

Dear Sharon Lai:

On behalf of myself and the over 230 signers of the attached petitions who are opposed to the installation of the T-Mobile wireless facility in the steeple of St. Matthews Lutheran Church, 3281 16th Street (Case # 2009.0562C), I hereby register our opposition to the Planning Commission's issuance of a Conditional Use Permit at this location.

Pursuant to San Francisco Planning Code Section 303(c)(1), we assert that the proposed development is neither necessary, desirable for, nor compatible with our predominantly residential and historic neighborhood. In fact, we consider the proposed facility to be a grotesquely out-of-character, inappropriate, and potentially dangerous commercial use of an aged, wooden, religious resource.

We believe that the addition of an unsightly GPS antenna to the south side of the steeple, as well as the addition of the necessary safety signage to the exterior of each side of the steeple, runs counter to the goals expressed in Section 7, LU4 of the WTS Facilities Siting Policies, to "protect landmark structures, historically-significant structures, architecturally significant structures, landmark vistas or scenery, and view corridors from visually-obtrusive WTS antennas and 'back-up' equipment."

Additionally, we believe that the replacement of portions of the steeple with fiberglass, a non-historic material, would have an adverse impact on the historic and architectural integrity of the building.

We are also concerned about the safety of nearby residents and students at the numerous nearby schools, particularly with respect to the volatile back-up batteries and other industrial equipment which would be located directly under the steeple and not in a more climate-controlled environment. There are numerous examples of cell phone antennas catching fire during such activities as routine maintenance, which could lead to disaster in this old wood-constructed building.

We believe that the proposed site, located in what would normally be a disfavored RM-1 (Residential, Mixed) district, should not necessarily be declared a "preferred location" because Section 8.1 of the WTS Facilities Siting Guidelines, lacking clarity, reads, "Where the installation complies with all FCC regulations and standards...places of worship...*should also be*

considered." It is explicitly not stated in the Guidelines that places of worship *must always be considered.*

Regarding the necessity for the proposed wireless facility, reports from current T-Mobile customers indicate the proposed cell phone antennas are *unnecessary* because coverage in the area is already very good to excellent, and the signals from the many existing nearby T-Mobile facilities are adequate to service existing customers. In the documents submitted with its Conditional Use Permit application, T-Mobile has not sufficiently demonstrated the need for this facility and has merely stated the desire to install it at this location.

That this facility is *undesirable* to the neighborhood is evidenced by the attached petitions signed by many local residents and business owners, the opposition of prominent neighborhood groups including the Mission Dolores Neighborhood Association and SafeCleanGreen Mission Dolores, the opposition of the Trustees of the adjacent Children's Day School, and the opposition of many of the parents of the over 2500 students who would daily reside within 1000 feet of the proposed facility.

Those of us who are property owners are concerned that our property values will be negatively impacted. Studies have shown a potential loss of property values ranging from 2 to 20% for properties located close to cell phone antennas.

Those of us who are business owners are concerned that the fear engendered by the known presence of these antennas, even though they may be "stealthed," may cause customers of local businesses to stay away, counter to the spirit of Proposition M (1986), which requires that any change to a neighborhood not have an adverse impact on existing retail businesses.

Finally, we assert that the subject building at 3281 16th Street was never posted with a notice identifying the subject matter, time and place of the Community Outreach Meeting held on November 19, 2009, as required by Planning Commission Resolution 16539, Paragraph 1, adopted March 13, 2003. This lack of notice clearly contributed to most of the neighborhood remaining "in the dark" about the proposed facility, particularly the 85 senior residents of the adjacent Notre Dame Senior Plaza, many of whom readily signed our petitions once informed.

This proposal has caused a great deal of emotional discomfort and anxiety among those who live, work, play and pray in our neighborhood. Out of a desire to restore peace-of-mind to our beleaguered community, maintain our safety, and preserve our neighborhood's historic architectural legacy, we respectfully urge the Planning Commission to reject the application for a Conditional Use Permit for a wireless facility at this location.

Thank you for your consideration,

Rob Geller

Rob Geller
16DOACTION@gmail.com

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
MURRAY JOHN A	734 ALABAMA	
ALEX PEÑA	417 LAKEVIEW AVE	
Amanda Sommers	63 Lapidge St., SF	
Randy Snider RANDY SNIDER	3321 17TH ST SF CA	
Pat Dwyer	577 Capp St 94110	
Karen Markus	30 Dearborn St, 94110	
Francesca Rosa	165 Dolores Ave #402 SF 94103	
Elena Montenegro	576 Shotwell #3 SF 94110	
Liz Glanville	455A Valencia	
Kri Kri L.H.	455A Valencia St	
Mark Sellos	870 S Van Ness Ave 94110	
Linda Walsh WALSH	53 Landers #3	
Shellie Storts	971 Fell St	SF CA 94117
Angelo Rosas	1225 Willard St	SF 94117
Ted Woodward	2333 Folsom	
Ed FRANENHEIM	3592 18th St, SF, CA	
Fred Fishman	360 Guerrero St #210	
Lotta Garrity	632 Guerrero St. SF	SF Lotta Garrity

Please email: 16DOACTION@gmail.com for more information and to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
GIDEON KRAMER	48A DORLAND ST.	
Ted Olsson	30 Sheston St.	Ted Olsson
Stephen Haug	Stephen B. Haug	940 Page St
MARIUS STARKEY	11 Dolores #15	
JESSICA HELLER	52 LANDERS	
Lucia Bogatay	3676-20th St	Lucia Bogatay
Arnold Lerner	527 Dolores St. #3	
STEVE HWANG	54 LANDERS	STEVE HWANG
Peter Lewis	72 Landers St.	
Gary Hobish	23 Juri St #1	
MARGRIT FICHLER	3127B Mission	
Pamela Ow [personal]	(Eureka Valley Lib.) 1 Jose Sarria Ct.	Pamela J. Ow
Karen Saha	46 Lapidge SF 94110	Karen Saha
Aaron Hall	504 Liberty St.	
MIRA HELLER	211 LEXINGTON	
James Geppert	67 CHOFF ST SF 94110	James Geppert
NATHAN CORBIN	1150 Clay St SF 94108	
Robert Tookey	1060 Broderick	Robert Tookey
Steve Pineda	1101 Pine st #203	

Please email: 16DOACTION@gmail.com for more information and to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
CLAUDETTE OUIMET	1500-11th ave	
MEGHA SAHGAL	76 Ramona Ave.	
Purva Dandona	1511 9th Ave #9 SF 94122	
Jared Galanis	3327 16th St #3 SFCA 94114	
	1288 mission St	
	848 S. Lamatre Albany CA	
Amy Scharf	1911 Eddy St, SF CA	
	407 Cortland Ave	
	271 [illegible] St	
	273 Dolores St	
Julia Weber	12 Joy St.	
Charles Finebergg	12 Joy St	
	1855 15th St.	
	3235 16th S.F.	

Please email: 16DOACTION@gmail.com for more information and to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
MATT WILSON	21 BIRD ST	
Ann Clegg	49 Linda Street	Ann Clegg
Marc Nolan	620 Guerrero #4	
SYLVIA AUGUSTINOK	3548 18TH ST.	S. August
Alan Paxton	504 Fourth St, S.F.	A Paxton
Denise Campanaro	3221 16th St 94103	Denise Campanaro
Doug Brown	3432 16th 94114	
MURRAY SPORK	931 B Bosworth St.	
ISABEL MORENO	278 WILLARD N. S.I.	
Cheryl Porro	16th Town Ave	
Steven R Krolik	400 Locust St Studio 1	
Karen Reuel	75 Dolores Apt 1	

Please email: 16DOACTION@gmail.com for more information and to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
Karen Travis	123 Randall St, SF 94131	
ROBERT BRAY	53 LANDERS ST. #2 SFCA 94114	
MICHAEL YAMASHITA	53 LANDERS #5 SFCA 94114	
Stephanie Martling	53 Landers St #4 94114	
Laura Forest	53 Landers St #4 94114	
Bobby Singh	355 1st St, Unit 5707 San Francisco CA 94105	
Pamela Gee	432 Guerrero ST SF. CA 94110	
Jocelyn Berger	637 Guerrero St SF CA 94110	
DIXIE TRACY-KINNEY	3765 A 16th ST SF CA 94103	

Please email: 16DOACTION@gmail.com for more information and to get involved.

PLEASE, NO CELL PHONE TOWER IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
CHRIS CNETTL	77 LANDERS 94114	
RICK HOFFMAN	100 CLOVER	
PAUL HAYES	633 PERALTA	
Beth Graubard	364 Sanchez	
Judy Siff	667 Anderson 94110	
[illegible]	474 Dolores Ave. 94117	
Cameron Knudson	161 Glenview Drive	
Lele Peppin	951 Dolores St	
Shannon Stevens	3312 A 16th St.	
Robin Lewis	245 Dorland st SF 94114	Robin Lewis
Paul Reeder	245 Dorland St 94114	
Lynn Gallen	3220 16th St Apt 75	
Myra Levy	31 Chattanooga St SF 94114	
Charlie Field		
AMY BRADAC	2766 DOLORES ST	
Donnie Gardner	611 Shotwell St	
Lisa Chin	3520 18th St.	
Greg Jewett	24 Belcher #3	
Simone Lee	331C 16th St apt B	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

PLEASE, NO CELL PHONE TOWER IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
PATRICIA NARCISO	3177 16th st	
PATRICIA FALCON	3177 16th st	
JAMES SLATER	610 - SOUTH VINESS	
Uzma Malik	4 winfield st	
[illegible]	3198 16th St	
MATTHEW VON MEETER	320A 14th	
Shasta Wesob	16th St	
BRIAN ZOBEL	16TH STREET	
ANNA STROM	16th Street 3153	
Jemma Swater	16th street 3153	
JASON KONIK	116 San Carlos St.	
Elizabeth A. Kittle	116 San Carlos St.	
Chris Ziemba	[illegible]	
Anthony Sullivan	3237 16th St.	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

PLEASE, NO CELL PHONE TOWER IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
ANDREW MCKINLEY	3166 16th ST. 94103	
J. CANHAM	323 GUERRERO ST	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

PLEASE, NO CELL PHONE TOWER IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
John Cummings	3879 17th St.	
RON GREGOR	110 CAPP	
[illegible]	95 Dolores St	
NIV KOHEN	380 Dolores	
Greg Marquez	3733 26th Street	
Javed Perez	67 Landers St	
Astrid Sanchez	1910 15th St.	
Ralph E. Herring	220 Dolores	
Chad Dawson	615 Fillmore St.	
ZACHARY PACE	615 Fillmore	
Shawna O'Donnell	456 Ellsworth St	
Richard Resma	3362A 16th St.	
Atsuko Williams	2 Copper St	
ABEZ	315 T 16th	
R H MARTIN	2684 DOLORES	
Carla Garcia	3310 16th St.	
Carrie Nathinger	226 Eureka St	
ALEX A ITY	1800 Pacific Ave #301	
ROBERT BARBER	59 ALBION ST.	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
Stephen Braidwein	3649 18th st Apt 12 SF 94110	Stephen Braidwein
ANNIE CA	398 DOLORES ST. CA 94110	ANNIE CA
Heather McCarty	365 Guerrero St #3	
Olivia Coombs	393 Dolores St	
Christopher Werner	391 Dolores St	
Olga Arias	392 Dolores	
	441 - Valencia	
	525 Filmore St.	
	3253 16TH ST. SF	
Laurence Lenciani	380 Dolores St #5 SF	
Tasneem Shaikh	181 Bertita St, SF	
	839 Hayes St	SF 94117
	3233 16th st	SF 94103
Sarah Schwitalis	1369 Stevenson ST SF CA 94103	
	386 11th st SF	
	337 21	
	523-1 16st	
A. Fulp	16th St, 3246	
P. St Pauli	11th St, 3195	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
BERT KATZ	240 DOLORES	
	3520 17th	
Stephen Scafani	163 B Noe St.	
Lillie Paquette	163 B Noe St.	
Yulia Kovbasyuk	~~388~~ 398 Dolores st	
GEOFF KOZIOL	485 DOLORES ST	
ATUL VARMA	620 GUERRERO	
Greg Vincent	1 Polk Street	
IRISH LOWDER	241 DOLORES ST	
MANUEL MUÑOZ	MISSION DOLORES.	
Cathy Bogdan	Mission Dolores	
Ros Daniels	524 Guerrero	
SPENCER ST	380 GUERRERO	
Chong Liu	3156 Camille ct	
Amy Ly	3227 16 St:	
Pui	3227 16st	
	6853227 16st	Gustavo S.
Jane Logan	60 Coop St	
Obo Help	1531 FULTON	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
Rob Geller	3237A 16th St	
David Gonçalves	same 04 @ gmail.com	
Su Su	dorder.cxg@hotmail	
Alice Garber	3227 16th St.	
Eric Hensley	" "	
Renee Missikos	3251 16th St	
SUSAN STOKELD	3235A 16th ST SF	
Greg Quatannens	55 Highland 94110	
Mark Serpas	3362A 24th St 94110.	
Michael Collins	375 Guerrero St #2	
Ellen Nour	4611 Cabrillo	
MARTIN ECONOMON	3248-16th ST	
Robin Evans	3778 20th St	
Robert Evans	3778 25th St	
Will Shanken	4199 Cesar Chavez	
Tana Hibbs	3253 16th St	
Janelle Schwartz	3235 16TH ST C	
Sofia Herron Geller	3237#A 16 SF	
Alana Herron	3237 16th St	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

PLEASE, NO CELL PHONE TOWER IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
Linda Buckley	347 Dolores Street	Linda Buckley
	347 Dolores St	
Bill Fox	812 - Dolores St S.F. CA. 94110	
RC Sheets	347 Dolores St	
Ofana Lorenzi	347 Dolores St.	Ofana Lorenzi
Doris Atkinson	347 Dolores St #221	Doris Atkinson
Pat Ryan	apt 304 347 Dolores	Pat Ryan
Jaime Fernandez	318 347 Dolores	
Esca Fernandez	438 Camillo Ct.	
Amparo Fernandez	318 Dolores	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
Maria Dal	347 Dolores	
	347 Dolores St #201	
	363,	
Alex & Tylga Fayer	berg 115	
Tatyana Shvolnic	347 Dolores St. #214	
Vlastimir Shvolnic	"	
Virginia Mezquida	347 Dolores St # 106	
Michele Lefevre	347 Dolores St # 320	
	347 Dolores # 116	
	114	
Rita Trigoyen	347 Dolores st apt # 203	
	347 Dolores # 117	

Please Email: No16thStreetCellTower@yahoo.com for more information or to get involved.

16th & Dolores Against Cell Towers in OUR Neighborhood say:

NO CELL PHONE ANTENNAS IN THE STEEPLE!

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for our residential neighborhood, We the Undersigned are opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
Doris Atkinson	347 Dolores St #321	Doris M Atkinson
Jaime Fernandez	Apartment #318	
Amparo Fernandez	" #318	
Hilda Rodriguez	Apt. 213	
Margarita Hernandez	" "	
Tomasa Fuentes	APT 311	
Balina	apt 218	
Rita IRIGOYEN	apt 203	
	APT 113	
	#322	
AWadelia	320	
Maria Salazar	AR208	

Please Email: 16DOACTION@gmail.com for more information or to get involved.

June 9, 2010

Ron Miguel, President
San Francisco Planning Commission
1650 Mission Street. Suite 400
San Francisco, California 94103-2479

RE: Request for Denial of C.U.P application #2009.0562C

Dear President Miguel and Planning Commissioners:

I am writing on behalf of the Board of Trustees of Children's Day School (CDS) to strongly urge you to deny T-Mobile's application for a Conditional Use Permit to install a cellular base station in the steeple of St. Matthew's Lutheran Church, 3281 16th Street, which is immediately adjacent to our school. We oppose the Conditional Use Permit for the following reasons:

1. The proposed cellular base station is not necessary because existing infrastructure supports adequate service according to T-Mobile's own studies and federal guidelines.
2. The proposed cellular base station is not desirable because it would be located in a dense residential neighborhood, contrary to the Planning Commission's siting policy.
3. The proposed cellular base station is not desirable because it would have adverse visual impacts one of the most historically significant corners of the city – **impacts that were not considered in the historical preservation analysis.**
4. Even if T-Mobile proves necessity, there are alternative sites not located within such a high concentration of schools, residences and historic landmarks.
5. In light of open questions regarding potential health effects of such towers, and the likely availability of superior alternate locations, we recommend application of the Precautionary Principle, as required by the San Francisco Board of Supervisors.
6. Increasing the risk of fire to an already at-risk old wooden church, which in turn raises the risk to our adjacent wooden building, is unwise and risky.
7. Installation of this cell tower would pose an undue burden and interferes with our operation of the school due to a high level of concern among parents.
8. T-Mobile has failed to meet some of the requirements of the application process.

Children's Day School's Long Tradition of Community Service

CDS has been serving local families for over 20 years at the same Mission Dolores site, where educational organizations have served local residents since approximately 1856. CDS is carrying on a long tradition of providing educational services for the community, as well as serving the community by engaging in a myriad of charitable activities, including collecting food and clothing for the homeless; working with local environmental groups to help preserve the City's natural landscape and

333 Dolores Street • San Francisco, California 94110 • ph 415-861-5432 • fx 415-861-5419

beauty; raising money to provide food for disadvantaged families in America and abroad; and through an active partnership with the Columbia Park Boys and Girls Club.

CDS continues to renew and strengthen our relationships with our neighbors at Marshall Elementary School, Mission High School, Holy Family Day Home and Notre Dame Plaza. Indeed, CDS has received significant grant support and been recognized for its valuable contributions to the local community by numerous organizations including the William G. Irwin Charitable Foundation, Willow Springs Charitable Trust, Mary A. Crocker Trust, Herbst Foundation, Inc., Stanley S. Langendorf Foundation, McKenzie Foundation, Fleishhacker Foundation, and the May and Stanley Smith Charitable Trust. Moreover, the school has sought to incorporate these community service and charitable activities into the core curriculum, thereby further enriching the education experience for our students and helping them form strong bonds to the community.

CDS's Approach to Education

CDS is committed to developing students with a sense of caring for self, for others, for the community, the environment, and for the world. Toward this end, CDS has dedicated itself to being a positive, active force in the community and to developing a strong community-based learning program that fosters involvement with its neighbors, while advancing the education and perspective of our students. In addition, the school's farm with sheep and chickens and its organic garden are at the core of the school's commitment to environmental education and instill a sense of responsibility for public health and the larger environment.

Community-based learning is education in action, combining experiential learning with community service. Guided by teachers, community members and Vanessa Lyons, our Community-Based Learning Coordinator, our students address real community needs — both within and outside our school community — by planning and executing service projects that are carefully tied to curricula. All projects are developmentally appropriate for the age groups involved.

Recent examples of CDS's community service include:

- The Starfish preschool class organized and distributed 500 new, free books for 4 community schools: Holy Family Day Home, Sanchez Elementary School, Mission Dolores School, Marshall Elementary School and Mission High School with share reading activities between CDS students and from neighboring schools. Through Project Night, the class collected blankets, books and stuffed animals for children in shelters.

- The Leaping Lizards preschool class in cooperation with the San Francisco Firefighter's Toy Program hosted Toy Collection for families in need.

- The Teddy Bears Preschool class with the San Francisco Food Bank collected food for families in need.

- The 1st grade planted native Butterfly plants to support a community effort to grow butterfly gardens to support butterfly populations.

- The 2nd grade worked in conjunction with GGNRA to clean-up sections of Ocean Beach on 4 different clean-up days; planted and harvested food from Kid Power Park and CDS to feed the homeless at Martin De Porres House of Hospitality; adopted and cleaned up the street

between CDS and the Boys and Girls club, collecting over 48 lbs. of garbage; and organized a bake sale to raise $380 to adopt 4 marine mammals: a Beluga whale, an Amazonian river dolphin, a seal and a manatee..

- The 3rd grade organized a bake sale and raised $500 dollars for Project Homeless Connect; volunteered for a Project Homeless Connect Event; and held a school-wide assembly to raise awareness about homelessness. With the Bay Institute and the STRAW project, students along with the 6th graders planted 1,000 native plants at Redwood Creek.

- The 4th grade conducted school-wide education along with SF Environment to investigate the school's waste process and worked with the city agency to increase the school community's waste diversion to recycling and composting.

- The 5th grade, as part of a hunger study, organized the bins for the San Francisco Food Bank and collected over 337 lbs. of food.

- Working with the Homeless Prenatal Program and the STRAW Project, the 6th grade built a garden by installing beds, bringing in soil, and planting.

- The 7th grade with the Leukemia and Lymphoma Society organized school-wide a "Pennies for Patients" penny drive.

- The 8th grade successfully registered 20 voters and gave voter information and registration information to over 200 others on behalf of the "Get out the Vote" program of the Registrar of Voters.

The School's Significant Role in San Francisco Education

CDS has also played an important role to the City of San Francisco in general. As a June 22, 2008 article in the *San Francisco Chronicle* noted, the City is currently facing an exodus of its low- and middle-income residents, a large percentage of whom are ethnically diverse families. Over 50% of families surveyed cited concerns about public schools as a reason for leaving San Francisco. CDS has and will continue to play a significant role in attempting to reduce this exodus of middle and lower class families from San Francisco, as it provides a first-rate education to its students and offers significant financial aid to a diverse group of students who could not otherwise afford CDS, thus, keeping these students and their families in San Francisco.

An Unparalleled Commitment to Diversity

CDS is grounded in the belief that the best educational environment for all children is a community that encompasses a broad socioeconomic spectrum. For this reason, CDS leads Bay Area independent schools in its commitment to providing a true sliding scale tuition structure that supports both middle and lower income families. Tuition at CDS ranges from $2,225 to $22,250 and approximately 40% of the students at CDS pay less than full tuition, a significantly higher percentage than any comparable independent school in the Bay Area. This achievement is truly remarkable considering that CDS has no endowment and relies primarily on the support of its current families.

CDS also has an unparalleled commitment to other forms of diversity. The Board of Trustees has set a policy that no single racial or ethnic group should make up a majority of students in any class and that

no single child should be the class's sole representative of his or her racial or ethnic group. These goals are being realized in an increasing number of grades. Forty-six percent (46%) of our students next year are students of color and the incoming classes in preschool and kindergarten next September are more than 50% students of color. In addition 8% of students are from lesbian and gay families and the school is working on a goal to increase this percentage in coming years.

Opposition to the Proposed Cellular Base Station

As we have demonstrated, CDS is committed to maintaining good relations with both the immediate and wider community. It is therefore unfortunate that we are writing today to oppose T-Mobile's plans to install a cellular base station in the steeple of St. Matthew's Church, our immediate neighbors. We have met with the leaders of St. Matthew's and explained our reasons for respectfully urging you to deny the Conditional Use Permit including the following:

1. The cellular base station is unnecessary.

T-Mobile has failed to demonstrate the need for this particular tower on this particular corner. The company's own service maps indicate that voice and data service is excellent in this area. This finding is supported by evidence from T-Mobile customers within our own parent body and from the broader neighborhood.

2. The cellular base station is undesirable because it impacts a densely residential neighborhood. The Planning Commission's own policy discourages placement of cellular towers in dense residential neighborhoods such as this one.[1] The proposed location is zoned for mixed residential and the majority of neighboring property is in residential use. All of the land use considerations – appropriateness, visual impact, property value impact – that would apply to other residential neighborhoods apply to this site. While the policy does encourage co-location of stations with churches and schools, the Commission should balance the preference for the church location and the policy to avoid residential impacts by directing T-Mobile to find a more appropriate location for this station.

3. The proposed cellular base station is not desirable because it would have adverse visual impacts one of the most historically significant corners of the city – impacts that were not considered in the historical preservation analysis.

The proposed site would create an inappropriate visual impact in a location of great historical significance. The proposed station would place a visible, modern antenna noticeably sticking out of the side of the historic St. Matthew's Lutheran Church. Located across the street from the oldest European structure in San Francisco, this antenna will mar one of the most photographed areas of the City. Tour buses follow one after the other at this intersection, with tourists photographing the entire area. Mission Dolores parishioners come out the main cathedral doors after Mass to stare right at the proposed antenna location across the street.

---

[1] Wireless Telecommunications Services (WTS) Facilities Siting Guidelines, August 15, 1996

The Planning Commission can and should deny this application, despite the "no adverse effect" finding of the State Historical Preservation Officer – a finding that appears misinformed. The SHPO finding states that "six panel antennas will be installed within the candidate's steeple behind RF screening" (Form CO, Attachment to SHPO Review of Proposed FCC Undertaking, paragraph 1). The officer did not evaluate any visible antennas in this finding. In fact, the officer made it clear that the visible RF screening must be "painted and textured to match the candidate [steeple]" and states that the "slats [are] hereby noted as character defining features of this NR listed property" (Form CO, Attachment to SHPO Review of Proposed FCC Undertaking, paragraphs 1 and 3.) Clearly, a space-age looking GPS antenna sticking out of the side of the steeple does not match these slats, nor did the officer find that this antenna creates "no adverse impact." The Commission should independently review this aspect of the proposal and reject it based on the clearly adverse visual impact on this historical location. The FCC regulations make clear that co-location is not to override historical concerns (47 CFR 1.1313(b)). The Planning Commission should reject this proposal as they would any similarly inappropriate building feature.

4. Even if T-Mobile proves necessity, certainly there are alternative sites not located within such a high concentration of schools, residences and historic landmarks.

St. Matthew's Church is located in the middle of a particularly high concentration of schools. Within 300 feet of St. Matthew's Church are three schools with about 517 children, many of them of preschool age. Within 500 feet is another school with 270 children, in addition to the Boys & Girls Club, which has 160 children present after school. Everett Middle School with 497 children is within 1000 feet and Mission High and Sanchez Elementary Schools with 1,194 students are within 1,500 feet for a grand total of 2,600 children within 1,500 feet. And, as described above, the proposed site is virtually surrounded by historic landmarks. Certainly there are alternative sites not located within such a high concentration of schools, residences and historic landmarks.

5. In light of open questions regarding potential health effects of such towers, and the likely availability of superior alternate locations, we recommend application of the Precautionary Principle, as required by the San Francisco Board of Supervisors.

We recognize that FTC regulations do not allow consideration of health impacts in the C.U.P approval process. However, in light of the ongoing scientific debate, the Precautionary Principle prescribes limiting exposure to the impacts of cell towers, particularly to sensitive individuals, such as children. It should be noted that the Precautionary Principle was adopted by the San Francisco Board of Supervisors in 2003 as a guiding policy to be implemented by all City and County agencies.

6. The base station is a fire hazard.

Given its vulnerability to fire, a wooden church is an inappropriate site for high voltage electric equipment. Old wooden churches such as St. Matthew's are at risk of fires that could not be extinguished, according to firefighters who are CDS parents. Placement of a base station with its multiple back-up batteries in the Church's wooden steeple increases the risk of fire, one that could easily spread to our adjacent wooden building which houses the school library and music room as well as administrative offices. Doing anything at an already at-risk site that would increase such a risk of fire simply makes no sense.

7. Installation of this cell tower would pose an undue burden and interferes with our operation of the school.

The proposal to install a cell tower in such close proximity to our school has already created significant concern among our parents; addressing these concerns diverts scarce and precious time and financial resources from the primary mission of the school. The public concerns regarding cell tower location are well known to the Commission. Should the proposal be approved, dealing with these concerns would subject our faculty and administration to unnecessary and excessive burdens, which would further interfere with the operation of our school.

Placing this station next to several schools should be treated as a use incompatible with the existing businesses and neighborhood character. We expect that the Commission would reject placing a pub or a marijuana dispensary near a school, even though other safety regulations would prevent children's exposure to these items. Such co-location would be incompatible with the pre-existing uses and character of the neighborhood. Similarly, given the level of public concern regarding cellular base stations, locating a base station in the center of this group of schools should be considered an incompatible use.

8. T-Mobile has failed to furnish adequate information and meet the requirements of the application process.

The application contains many inconsistencies, and fails to show sufficient respect for both the community and the Commission's permitting process. For example:

- The historical preservation certification states that all the antennas are inside the steeple, but the drawings submitted to the Commission appear to show otherwise. (See Form CO, Attachment to SHPO Review of Proposed FCC Undertaking and see Equipment Plan, Antenna Plan and Details, Sheet A-2, dated June 23, 2009, figure 3 "GPS Antenna Detail.")
- The Engineering assessment and Department of Public Health Review of Cellular Antenna Proposal appear to be based on different antennas than those shown in later drawings. The Hammett and Edison review and the Department of Health Review refer to the placement of "four RFS Model APX16DWV-16DWV-S-E-A20 antennas." However, the drawings dated June 23, 2009 refer to three such antennas and one HBXX-6513DS-VTM antenna. This is relevant because the fourth antenna is under 20 meters from occupied space in our building.
- The application includes a three-year-old preliminary fact sheet on the HBXX-6513DS-VTM antenna, while the antenna manufacturer's current data sheet rates the antenna at 20 percent higher power than the old data submitted to the planning department. (The provided fact sheet is dated 2/16/2007 and lists the input power as 250W; the manufacturer's sheet lists the input power as 300W, accessed June 8, 2010 at http://awapps.commscope.com/catalog/andrew/print_product_details.aspx?keepThis=true&id=16096&TB_iframe=true&height=500&width=900)

Conclusion

For all these reasons, we believe that the proposed cellular base station installation at St. Matthew's is both unnecessary and undesirable, particularly in light of alternative locations that are not within such a high concentration of schools and historic landmarks. Representatives of the Board of Trustees have met with the Church Council of St. Matthew's to express our willingness to seek out alternative ways

to help the Church generate revenue. We have also written to T-Mobile to urge the company to seek an alternative location.

We strongly urge the Planning Commission to find that T-Mobile's proposed St. Matthew's Church base station installation is neither necessary nor desirable and deny the Conditional Use Permit for it.

Sincerely,

Matthew Schwartz
Chair, Board of Trustees
Children's Day School

Concerned Parents Opposed to Cell Tower at St. Matthews Lutheran Church

June 9, 2010

Via Hand-Delivery

Ron Miguel
President, San Francisco Planning Commission
1650 Mission Street, Suite 400
San Francisco, CA 94103

Re: **3281 16th Street - No. 2009.0562C**
Objections to Conditional Use Permit Application
June 17, 2010 Hearing

Dear Mr. Miguel and All Planning Commission Members:

On behalf of hundreds of parents who are San Francisco residents, we submit this letter in opposition to T-Mobile's proposed cell antenna tower at St. Matthew's Lutheran Church at 3281 16th Street, San Francisco, California. The Planning Commission is scheduled to hear Conditional Use Permit Application No. 2009.0562C on June 17, 2010.

Planning Code Section 303(c) requires that an applicant for a conditional use permit demonstrate the proposed project is "necessary or desirable for, and compatible with, the neighborhood or the community," and that it is not "detrimental to the health, safety, convenience or general welfare of persons residing or working in the vicinity, or injurious to property, improvements or potential development in the vicinity."

The Application fails to meet this standard and should be denied for several independent reasons, each of which is sufficient to deny the Application, as described below in the following sections of this letter:

As a brief introduction, we are parents of schoolchildren in the immediate area of the proposed base station installation. Our coalition represents people from every walk of life - from attorneys to architects, firefighters to corporate executives, schoolteachers to public health professionals. We are all residents of this wonderful city, and we are unified in our opposition to this project. Since learning of this T-Mobile application only eight weeks ago, we have formed a strong coalition with neighborhood institutions and residents opposing this application.

I. Strong Community Opposition

The project is vigorously opposed by the community in the immediate vicinity of the Church, including the parent community for the many schools at this intersection. This letter encloses 376 petition signatures in opposition (within Exhibit J), and hundreds more will be submitted by others in the community who oppose.

Over 900 children attend schools within a 500 foot radius of the church steeple, and over 2,600 children attend schools within 1,500 feet. This immediate area houses the highest concentration of preschool students in the entire city:[1] 240 children ages 2-5 attend school within a 300 foot radius. Attached within Exhibit A is a graphic that depicts each nearby school and the number of children within close proximity. As discussed further below, no notice of this proposed project was provided by St. Matthew's Church or T-Mobile to any parents of these children, or the residents of the adjacent senior residence.

This property is zoned RM-1, which is the most-disfavored location for a cell antenna facility among the seven categories described in the City's Wireless Telecommunications Services (WTS) Facilities Siting Guidelines adopted in 1996. Those same Guidelines contain an exception whereby certain public institutions, including churches, are deemed most-favored locations. Respectfully, we submit that exception should be disregarded in these circumstances given the nature of the surrounding community, given the church is a recognized historic resource and given the fire and safety risks described below.

---

[1] Per "Finding a Preschool for Your Child in San Francisco" (Rifkin, Obermeyer and Byrne) and www.savvysource.com, the only other comparable concentration in the City is the preschool at the Jewish Community Center on California Street which enrolls 240 preschool students. However, because they have separate am/pm schedules, they likely have less preschool students present at any given time.

We first learned of this application approximately eight weeks ago. Since then, widespread opposition to this project has arisen among the nearby parents and residents. We believe a more thorough community process would only generate more opposition. The opposition includes:

Children's Day School (CDS). CDS, which directly abuts the Church, opposes this project. The school's annex building on 16th Street is directly adjacent and shares the Church's east wall, and the main campus is within three hundred feet. 315 children currently attend CDS: 72 in preschool, 161 in elementary school, and 82 in middle school.

The school reflects the diversity of the community. 44% of the children are from families of color, the LGBTQ community is strongly represented, and over 40% of the students participate in its sliding scale tuition program. Half live in the Mission, Castro, Glen Park, Bernal Heights and Noe Valley neighborhoods.

The CDS Board of Trustees opposes this project, and is submitting a separate letter voicing the school's formal opposition. 233 parents, staff and other members of the CDS community have signed a Petition opposing the project. Their Petition signatures are enclosed within Exhibit J.

Holy Family Day Home (Holy Family). Holy Family is San Francisco's oldest early educational childcare center and, since 1912, has been located at Dolores and 16th Street directly across from the Church. 150 children ages 2–6 years attend preschool and kindergarten in the newly constructed campus. These children are ethnically diverse and the vast majority are low income (reportedly up to 30% are from homeless families).

56 parents, teachers, staff and other members of the Holy Family community have signed a Petition opposing the project, including its executive director. Their Petition signatures are enclosed within Exhibit J.

Notre Dame Senior Plaza (Notre Dame). Originally built in 1907, Notre Dame contains 66 units of HUD 202 affordable senior housing and is located 50 feet to the south of the project site. Over 50 senior residents have signed a Petition opposing the project. Their Petition signatures have been submitted separately by another project opponent.

Notre Dame's Property Manager, and its Residence Service Coordinator who acts as an advocate on behalf of Notre Dame residents, each oppose this project and each has submitted a letter voicing their respective oppositions (see Exhibit C).

Numerous other residents of the Mission Dolores community oppose the project. Our group has collected 87 signatures to a Petition opposing the project, and their Petition signatures are enclosed within Exhibit J. These signatures are in addition to the other community residents who have signed petitions collected by others that are being separately submitted.

The Mission Dolores Neighborhood Association (MDNA), a local historic preservation association, opposes the project. A copy of the MDNA's letter is enclosed as part of Exhibit C.

Thirteen physicians who are parents of nearby schoolchildren have signed a letter opposing the project. A copy of their letter is enclosed at Exhibit F.

SafeCleanGreen Mission Dolores, a local community organization, opposes the project. SafeCleanGreen is a group of several hundred residents of the Dolores Park/Mission Dolores neighborhood who have common concerns about safety and health issues in their community. A copy of their letter is enclosed as part of Exhibit C.

II. Deficient Application by T-Mobile

There are numerous technical deficiencies in T-Mobile's Application. Enclosed is a letter report from Sage Associates, a consulting firm retained by several parents, to the Planning Department identifying several deficiencies with the project application materials. A copy of the letter report is enclosed as Exhibit B.

Some of the key deficiencies described in this exhibit include:

- Inadequate visual analysis by T-Mobile
- Incompatibility with surrounding land uses
- Proposed project is neither necessary nor desirable
- Ignoring the City of San Francisco's adoption of the Precautionary Principle
- Negative impact upon property values
- Increased liability of the Church
- Absence of documented consideration of alternative sites
- No significant gap in coverage
- Inadequate RF Emissions report

Other deficiencies have come to light. Subsequent to the Department of Public Health (DPH) review, T-Mobile changed its drawings to add a much more powerful antenna. Specifically, the east-facing antenna was changed to a different one (HBXX-6513-D5-VTM) that emits 20 percent higher emissions than the antenna described in the initial submission.

This is important for two reasons. One, the DPH review was based upon inaccurate drawings. Second, this east-facing antenna is by far the closest to a public accessible area. It is less than 15 meters from the office space in the adjacent three-story CDS building on 16th Street.

In light of these several substantial deficiencies, the project application should be denied.

III. Absence of Necessity

T-Mobile has failed to demonstrate that the project is necessary and specifically that the services are necessary for this neighborhood within San Francisco. The Planning Code requires that a conditional use permit applicant demonstrate the proposed project is "necessary." The federal Ninth Circuit Court of Appeals has defined that threshold, in the context of a proposed cell site, to mean a "significant gap" in coverage in the immediate area of the proposed antennas. *MetroPCS v City and County of San Francisco*, 400 F.3d 715 (2005).

For many reasons, it is apparent the proposed cell antennas are not necessary and that no significant gap in coverage exists here. First, T-Mobile's own website indicates strong voice and data coverage in this immediate area.

Second, parents have conducted their own testing in the area, and have determined there is no need for an additional cell tower at this location. Their systematic survey of neighborhood coverage shows no significant gap in coverage, and the results of their research will be presented in more detail at the hearing. In addition, we have letters from several T-Mobile users attesting to the fact that they are satisfied with the current coverage in this neighborhood. Attached as Exhibit D are copies of those letters.

Third, there are innumerable cell antennas in this area, and citywide. At least 631 cell antenna sites are currently operational across San Francisco, according to Planning Department records.[2] Because each site can host from 1 to 20+ antennas, the total number of individual antennas is in the range of 2,500 to 3,000. In a city of only 46.7 square miles, that means an average of 13.5 cell sites and 58.8 antennas every square mile.

---

[2] Per each company's most recent Five Year Plan on file with the Planning Department, as follows: T-Mobile (212); AT&T (173); Sprint (109); Verizon (66); MetroPCS (58); Clearwire (13).

T-Mobile dominates the citywide market, with the largest number of existing cell antenna sites already in operation (212 sites with 582 antennas – one-third of the total sites) and the largest number of proposed cell sites (124) for installation within the next five years. Just within a one-mile radius of the Church, there are an enormous number of cell antenna sites. 54 cell antenna sites currently operate within a one-mile radius. T-Mobile already owns and operates 41% of those sites (22 of the 54).

These numbers far exceed the estimated number of cell sites when the 1996 WTS Guidelines were adopted. At the time, the Commission estimated a total of 360 cell sites across the city within ten years, and that each wireless company would require approximately 40 to 45 cell sites (*See* WTS Guidelines, p. 3). T-Mobile has three times that estimated allotment, with another 124 sites being proposed.

Attached within Exhibit A are two color graphics that vividly demonstrate the existing and proposed cell antenna sites within a one mile radius of this project location, and across San Francisco. There is no need for yet another cell site in this neighborhood, and it is apparent the wireless companies are running rampant throughout the city without any master planning or effective oversight.

Finally, we anticipate the applicant will assert additional antennas are "necessary" in the event of a natural disaster or other major emergency. The Communications Annex to the City's own Emergency Response Plan makes clear, however, that cellular communications are disfavored in these circumstances: "Cellular services in general are prone to disruptions due to user overload, system failures at times of disasters, emergencies and large special events, and therefore may not typically be fully reliable / dependable at such times."[3] The City report cites several more reliable communication systems for emergencies.[4]

Similarly, the Communications Plan for the Bay Area Regional Emergency Coordination Plan describes in detail numerous emergency communication systems.[5] None are cellular communications. Indeed, the words "cell" or "cellular" appear only twice in the entire 155-page document. Neither emergency plan recommends the installation of additional cell towers.

This argument by the cellular companies also overlooks the vast cellular network already installed within the City, and in this area, as summarized above.

---

[3] http://www.sfdem.org/ftp/uploadedfiles/DEM/PlansReports/ESF2-Communications.pdf
[4] The identified preferred communication systems are the Government Emergency Telecommunications System (GETS); the Mayor Emergency Telephone System (METS); the National Warning Alert System (NAWAS) / California Warning Alert System (CALWAS); OAISIS; the Plain Old Telephone System (POTS); Satellite Phones; Voice Over Internet Protocol (VOIP).
[5] http://www.sfdem.org/ftp/uploadedfiles/DEM/PlansReports/CommunicationsAnnex.pdf

IV. The Church Should Be Protected as a Historic Resource, and the Historic Resource Review Has Been Inadequate.

The Application disregards the significance of the Church as a historic resource, and the historic resource review has been inadequate. St. Matthew's Lutheran Church is a historic resource listed in the California Historic Resource Information System (CHRIS), and has been determined to be eligible for the California Register as an individual resource. The basis for eligibility for the California Register is its high architectural merit.

Notably, per the attached letter, the Mission Dolores Neighborhood Association (MDNA) opposes this project. The MDNA is a local historic preservation association that was created for the specific purpose of facilitating completion of the historic survey work in this neighborhood.

Built soon after the 1906 Fire, St. Matthew's Lutheran Church is an irreplaceable historical record of the large German immigrant population who inhabited the Mission during that time. The building is a unique interpretation of Gothic elements into the wood construction standards of Victorian times. The Church's website contains a detailed narrative of the church's history, including the following description of its historic design:[6] "Supposedly St. Matthew's was modeled after Pastor Gehrcke's home church in Hildesheim, Germany. Although St. Matthew's is built almost entirely of wood, the echoes of North German masonry churches are clearly evident."

It is the only remaining German Lutheran Church in the Mission, and possibly all of Northern California. St. Matthew's advertises itself as the only Lutheran church offering weekly German-language services in Northern California. Indeed, as long ago as 1968, the publication "Here Today" by the Junior League of San Francisco identified the church as a historic resource of San Francisco that was the "only Church in the city offering complete services in both German and English."

St. Matthew's Church is one of the last examples of this building type within the City. The church building is a wood frame assembly structure with wood shingle siding, and might be considered a Neo-Gothic structure. Its exterior elements follow those found in Gothic Architecture, including a rose window, pointed arch windows, a tower, secondary spires, and stained glass windows along the nave. These medieval elements were interpreted into the wood construction techniques prevalent in 1907, making the structure a unique fusion between the old and new world.

---

[6] http://www.stmatthews-sf.org/images/pdf/history.pdf

The steeple is of particular symbolic value, and the proposed metal exterior antenna will be a visible projection from the building that will compete with the metal cross at the top of the steeple. That new antenna also would be visible from Mission Dolores Church (California Landmark #327) directly across the street, which is arguably the most historically significant corner of the city. Notably, this exterior antenna has not been reviewed by the State Historic Preservation Officer, as the limited historical review thus far was based upon outdated drawings that understate the actual visual impact. The Form CO approved by the State Historic Preservation Officer incorrectly describes the antennas as completely behind the RF screening painted to look like the existing steeple. It does not describe or assess the impact of a visible metal antenna.

In general, Planning Department policy allows existing non-conforming building elements to be replaced, but not altered or enlarged. In the proposed project, we do not see reason to depart from this policy. Rather than serving the public good, the addition of the cell tower panel serves the interests of two private parties, while eroding the historic and aesthetic beauty of the building and the block.

The project should be denied on these grounds alone. To the extent that does not occur, the historic significance of the structure, as well as the other structures in the neighborhood, justifies a full review at a hearing before the Historic Preservation Commission. The Historic Preservation Commission was created for the specific purpose of reviewing applications that involve construction, alteration or demolition of landmark sites and historic resources.

V. Fire and Safety Risk From Church's Age, Wood Construction and Location

From reviewed records, it appears the Church has not undergone seismic strengthening and that no modern fire protection measures (i.e. sprinklers) have been installed. In a fire the church would burn very quickly, as did two other Lutheran churches in San Francisco of similar wooden construction as described below. The fire risk here arises from an evaluation of the appropriate uses within a historically significant, non-rated, non upgraded structure that houses public assemblies and a preschool. The proposed project seeks to add a new, hazardous use to a historic resource that is already vulnerable to fire.

The existing building was constructed in 1907, and appears to be a non-rated wood frame structure. The framing and exterior are non-fire treated wood and are highly flammable. No sprinkler heads are visible in the main worship hall, or in the community space on the ground floor. The property line wall with the adjacent building (which is owned and used by the CDS school) is not fire-rated to current standards, making the CDS school building especially vulnerable to a potential fire. These conditions fall woefully short of meeting current code requirements for fire-safety in an assembly-use building.

The project will involve hazardous materials contained within the several batteries to be installed in the church steeple. According to Planning Department staff, T-Mobile has identified Northstar NSB100FT as an example of the battery they are likely to use for this project, and estimates 8-10 batteries will be installed at this location. T-Mobile has not identified, however, the types or amounts of hazardous materials that will be used. It is therefore impossible to ascertain whether the hazardous materials in the project equipment will be less than, or will exceed, the 50 gallon threshold for an "H" (Hazardous) occupancy which would trigger a number of further upgrades.

The Northstar NSB100FT battery contains sulfuric acid, lead, lead oxide, and electrolyte. The safety sheet provided for all Northstar batteries contains various warnings which include:

- HEALTH HAZARD INFORMATION:
    - …internally exposed material during production or case breakage or extreme heat (fire) may be hazardous to your health.
    - Lead and its components may cause damage to kidneys and nervous system. Acid and its components may cause lung damage and pulmonary conditions.
    - The International Agency for Research on Cancer has classified "strong inorganic acid mist containing sulfuric acid" as a Category 1 carcinogen...Inorganic acid mist is not generated under normal use of this product. Misuse of the product, such as overcharging, may however result in the generation of sulfuric acid mist.
- HANDLING AND STORAGE
    - Safe Storage: Store in a cool, dry place in closed containers. Keep away from ignition sources and high temperatures.
- FIRE AND EXPLOSION HAZARD DATA:
    - Unusual Fire and Explosion Hazards: Hydrogen and oxygen gases are produced in the cells during normal battery operation (hydrogen is flammable and oxygen supports combustion). These gases enter the air through the vent caps. To avoid the chance of a fire or explosion, keep sparks and other sources of ignition away from the battery.
- REACTIVITY DATA:

- Conditions to Avoid: High temperature. Battery electrolyte (acid) will react with water to produce heat. Can react with oxidizing or reducing agents.

- ECOLOGICAL INFORMATION:

  - Lead and its compounds can pose a threat if released to the environment.

These warnings underscore the industrial and hazardous nature of the proposed batteries, despite the fact that the batteries are not considered flammable under normal use.

High heat from a major fire at St. Matthew's Church would result in the release of chemical and heavy metal fumes that would pose a serious threat to the hundreds of children at nearby schools. The Northstar NSB100FT battery contains 34.5 pounds of lead and 17.7 pounds of lead oxide - multiplied by 10 batteries, the site will house 345 pounds of lead and 177 pounds of lead oxide.

Lead is a neurotoxin that has immediate and permanent impacts on the brain. Children are particularly vulnerable to brain damage as a result of lead exposure in minute amounts (10 to 15 μg/dL). In only 3.5 minutes, a house fire can exceed 1100 degrees Fahrenheit.[7] The temperature at which lead fumes become significant is 932 degrees Fahrenheit (500 degrees Celsius).[8] Lead is more readily absorbed when it is inhaled than when ingested. Indeed 50 to 70 percent of inhaled lead (in the form of fumes, dusts, vapors) is absorbed – in comparison 5 to 15 percent of ingested lead[9]

In addition, a full-time preschool of 17 young children operates within the Church, thereby requiring that the structure should be considered a separate Group E occupancy pursuant to Building Code Section 305, which states "The use of a building or structure, or portion thereof, for educational, supervision, or personal care services for more than six children older than 2 1/2 years of age, shall be classified as a Group E Occupancy". It appears from the building records that this change has never been made.

Moreover, a fire at St. Matthews would pose immediate danger to the adjacent structure which is owned by Children's Day School. A fire at St. Matthews would block the exit driveway for residents at Notre Dame Senior Plaza and children in school at Children's Day School.

San Francisco is located in an active seismic region. The earthquake "shaking potential" for the land under the church is rated as "violent" (2nd highest rating) according to ABAG

---

[7] http://www.sf-fire.org/index.aspx?page=234
[8] http://www.admin.ox.ac.uk/safety/9804.shtml
[9] http://www.inchem.org/documents/pims/chemical/inorglea.htm#SectionTitle:5.2 Inhalation

Earthquake and Hazard Maps.[10] The church exceeds the City's height limit, has not undergone a seismic retrofit, and has open space on three sides – characteristics which make it vulnerable to collapse in an earthquake. In a major earthquake, the industrial batteries have the potential to increase the risk of fire and/or the severity of a fire through battery case breakage and/or sparks (or other sources of ignition).

It is worth noting that, only two blocks away, a similar Lutheran Church of wooden construction was destroyed by fire in 1993. It is now an empty lot. Two years later in 1995 another historic Lutheran Church, St. Paulus Lutheran Church (National Register #82002251), also was destroyed by fire (it previously suffered another devastating fire in 1940).

The T-Mobile base station proposed for St. Matthew's Lutheran Church is undesirable and incompatible on the grounds of fire risk and safety. We are confident that there is more appropriate location for the proposed T-Mobile base station, and one that is not in close proximity to so many schoolchildren. Many of these concerns regarding fire risk and safety may appear to be under the jurisdiction of other agencies. They all represent, however, legitimate planning issues that the Planning Department must consider.

VI. Inadequate CEQA Review

Review under the California Environmental Quality Act (CEQA) has not occurred. CEQA review must occur given the project's impact to the environment, health and safety, and because the Church is on the California Registry and thus considered by the City and the State to be a historic resource under CEQA and thus subject to environmental review.

San Francisco's Preservation Bulletin No. 18 states that, by definition, any property listed on the California Registry is a "historical resource" for purposes of CEQA. Here, both the interior and the exterior of the church are character-defining features of the resource.

In addition, the church steeple is visible from Mission Dolores Church which is on the National Register of Historic Places (California Landmark #327).

To the extent the Planning Department has determined a categorical exemption applies, neither that determination, nor the basis for the determination, is adequately documented in the project file.

---

[10] Associate of Bay Area Governments (ABAG) Earthquake and Hazard Maps. Shaking Maps: Shaking Potential. http://gis.abag.ca.gov/Website/Shaking_Prob/viewer.htm

VII. Inadequate Five Year Plan

T-Mobile's April 2010 Five Year Plan does not comply with the requirements of the City's WTS Facilities Siting Guidelines.

Section 10.1.4 of the Guidelines requires that the semiannual report provide "a list of all existing, existing to be upgraded or replaced, and proposed cell sites within the City for these services by your company." Per Section 10.1.5, the list must identify the address and Assessor's Block and Lot, among many other things. To the extent the company does not yet know the specific cell site locations, it still must list the Assessor's Blocks contained within the geographic service area for each neighborhood where cell antennas are anticipated.

Contrary to the Guideline's requirements, T-Mobile's Plan omits all of this information for its proposed cell sites within the City. Instead, it lists an internal T-Mobile code for each proposed site, and fails to provide any address information, any specific equipment information, or any building information. Indeed, even though almost one year has passed since T-Mobile submitted its application for this project in June 2009, the company's April 2010 Plan still omits any information on this project other than its internal T-Mobile code (SF43634). Of the 124 proposed cell antenna listings in T-Mobile's Plan, only 12 provide a street address.

VIII. Inadequate Notice

In fulfilling its responsibility to the City's residents, this Commission should review with the utmost scrutiny the project applicant's behavior with respect to notice to the Community surrounding the project site. At best the project application only minimally satisfied the literal language of the Planning Code's notification requirements.

It is certain that the project applicant knew of the existence of many schools and elderly residents in the immediate vicinity of the project--over 900 children attend schools within a 500 foot radius of the church steeple, and over 2,600 children attend schools within 1,500 feet, as well as over 80 senior residents of the adjacent Notre Dame residential facility.

Without question, these are the people who actually would be affected by the project, and any reasonable person would agree that ethically, if not legally, they should have been notified of the project directly by the applicant in a timely manner and as part of a thorough community process. And yet, the project applicant did not even attempt such a notification.

Specifically, we have been informed that:

- The school at Holy Family Day Home, located directly across the street from the project site, never received notice of the project from the project applicant.

- Neither the staff nor individual residents of Notre Dame Senior Plaza, located adjacent to the project site, received notice of the project from the project applicant.

- None of the parents of the children enrolled in the KinderHaus preschool, located inside the very same building as the project location, received any notice from the project applicant.

Surely the project applicant anticipated that these populations would critically analyze the project and its affect on them, and that they would need sufficient time to do so. Based on recent experience, the project applicant may even have anticipated opposition. In fact, while we learned about the application only at the 11th hour nearly by accident, we jumped into action immediately, mounting a significant opposition in just a few short weeks.

In failing to provide notice to those affected most by the proposal, the project applicant may have believed it could avoid this dialogue altogether. At a minimum, it intentionally stifled the dialogue that should have occurred long ago about the project. Had that occurred, perhaps the tremendous resources and time that have been spent could have been utilized for other worthwhile purposes. This Commission should not sanction this behavior.

We do not seek postponement of the hearing on these grounds. That said, we urge the Commission not to let this behavior persist without consequence.

IX. Concerns About Children's Health and Safety

Incompatible Location

As noted above, this project is proposed for an intersection densely populated by children and other vulnerable populations throughout the day. Several schools, day care centers, houses of worships, low-income senior citizen's housing, and residences are located in this immediate area. The proposed base station is a commercial, industrial use that is incompatible with surrounding land uses. The surrounding area is zoned RM-1, the most disfavored location for such an installation.

Studies Raise Concerns about Children's Exposure to Radiofrequency Radiation

Numerous studies have shown that radiofrequency (RF) emissions from cell antennas may have harmful effects on health. Research links low-dose RF exposure to headaches, insomnia, lack of concentration, and cognitive and behavioral impairments; as well as

reproductive problems and neurodegenerative disorders.[11] Both epidemiological and laboratory studies demonstrate possible links to cancer. Laboratory studies, for example, show that low-dose RF exposure may cause single and double DNA strand breaks[12] - it is widely understood that an accumulation of changes or mutations to DNA is associated with cancer.

Because of their small stature, thin skulls, and developing bodies and minds, children are likely most vulnerable to RF exposures. This is of particular concern when these exposures are cumulative and occur during critical windows of development such as early childhood and puberty, as would be the case for those students who attend local schools full-time from preschool through eighth grade.

Enclosed are several exhibits for your reference:

Exhibit G: Letters of opposition by four nationally-recognized scientists from Columbia University, SUNY at Albany, Trent University (Ontario, Canada), and University of Washington.

Exhibit H: Summary sheet and compilation of references summarizing credible scientific studies and resolutions to date identified by parents concerning the current state of the science regarding RF emissions.

Exhibit F: Letter by 13 physicians who are parents of nearby schoolchildren.

Federal Safety Standards Are Inadequate

The federal RF exposure standard was established in 1992 by the American National Standards Institute and adopted by the FCC in 1996, with only slight modifications since then. This standard has been criticized by the U.S. Radiofrequency Interagency Working Group (RFIAWG),[13] among others, as being inadequate to protect health. Criticism primarily stems from the concern that these standards are designed to protect people from the thermal (tissue-warming) effects of radiofrequency radiation. They do not, however, protect from the biological impacts of non-thermal (low-intensity) RF exposure.

---

[11] Frei, et al, (2009) Temporal and spatial variability of personal exposure to radio frequency electromagnetic fields (Environmental Research, 109 (6): 779-785); Kundi, M., & Hutter, H.P. (2009) Mobile base stations – effects on well-being and health; Pathophysiology, 16 (2,3), 123-135. For a summary of studies, see "Biological Effects of Radiation Frequency from Wireless Transmission Towers," Dr. Henry Lai, University of Washington (2001)

[12] J.L. Phillips, et al, 2009, "Electromagnetic Fields and DNA Damage," Journal of Pathophysiology 16 (2009) 79-88

[13] U.S. Radiofrequency Interagency Working Group Guidelines Statement, June 17, 1999. RFIAWG is a workgroup comprised of federal agency staff.

In 1999, RFIAWG issued a Guidelines Statement that concluded the present RF standard "may not adequately protect the public."[14] In 2002, Norbert Hankin, chief EMF scientist at the U.S. EPA, stated: "The FCC's exposure guideline is considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified." [15] (emphasis added).

In 2007, scientists reviewed the literature on RF and recommended an alternative safe level for cumulative RF exposure of 0.1 $\mu w/cm^2$ – a level which has been endorsed by the European Environmental Agency, and which is 10,000 times lower than the FCC exposure limit level.[16]

Applicant Has Failed to Submit Sufficient and Consistent Information

T-Mobile has not submitted sufficient or consistent information to enable parents and neighbors to properly assess potential RF exposure levels at this site:

1. As discussed above, T-Mobile changed its drawings to add a much more powerful antenna, which renders the DPH review inaccurate, particularly given the close proximity of this antenna to a publicly accessible area. It would be less than 15 meters from the office space in the neighboring three-story CDS building on 16th Street, which houses the school's library, music room and administrative offices.

2. A supplemental analysis of RF emissions has not been supplied. This makes it impossible for parents and neighbors to properly evaluate RF exposure levels at specific areas of the site based on the application.

Supplemental RF Analysis

Due to the paucity of information supplied by T-Mobile, parents commissioned a supplemental analysis by an independent consultant (Sage Associates). This study was conducted based on the information provided in T-Mobile's engineering report. The supplemental analysis identifies specific areas where projected RF emissions are particularly high. Exhibit E contains the report with supplemental analysis of RF emissions.

---

[14] *Id.*
[15] Letter (2002) from Norbert Hankin, Center for Risk Assessment Radiation Protection Division, US EPA, to Janet Newton, then-President of The EMR Network, http://www.emrpolicy.org/faq/noi_epa_response.pdf
[16] BioInitiative Working Group, Cindy Sage & David O. Carpenter, Editors, "BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields," August 31, 2007

At the third floor of Holy Family Day Home, and at the third floor of St Joseph's Hall (CDS main school building), projected RF emissions may exceed the alternative safety standard (of 0.1 $\mu w/cm^{2)}$ by up to 131 times. Nowhere on the CDS campus do the calculated RF emissions fall below this safety standard.

Schools Should be a Disfavored Site

Substantial uncertainty surrounds the science on RF emissions and potential health effects. The National Research Council,[17] the President's Cancer Panel,[18] the San Francisco Board of Supervisors[19] and numerous other entities have called for more research, particularly as it relates to children. Indeed, T-Mobile's own parent company conceded in an SEC filing this year that "We cannot give any assurance that research in the future will not establish links between radio frequency emissions and health."[20]

As a result of this uncertainty, many entities recommend precautionary measures where schools are concerned. The World Health Organization states in its Fact Sheet 193 that "Siting base stations near kindergartens, schools and playgrounds may need special consideration." The Los Angeles Unified School District, the European Parliament, and other entities have passed resolutions recommending buffer zones between cell towers and schools.

At Exhibit I, we provide a reference list with the results of our preliminary research of legislation and resolution adopted by government agencies in other jurisdictions. We urge you to review, and for the Planning Department to adopt the same buffer requirement that has been adopted elsewhere which bars cell antennas from close proximity to schools.

In summary, we are well aware, and trust you are well aware, that the federal Telecommunications Act of 1996 provides that local governments may not base decisions about the placement of cell towers on health concerns, as long as RF emissions comply with FCC standards. We are not asking you to do that. Health concerns are one small part of the overall picture and, in the several prior sections of this letter, we have provided you with many compelling reasons to deny this application.

---

[17] National Research Council Report (2008) "Identification of Research Needs Relating to Potential Biological or Adverse Health Effects of Wireless Communication."
[18] President's Cancer Panel 2008-2009 Annual Report, "Reducing Environmental Cancer Risk: What We Can Do Now," May 2010.
[19] San Francisco Board of Supervisors Resolution 102-10, March 23, 2010.
[20] Deutsche Telekom AG, 20-F February 25, 2010, p. 33.

X. Requested Permit Conditions

T-Mobile's Application should be denied for all of the reasons set forth above. However, if the Commission is inclined to approve the Application, it should only be approved with the addition of the following conditions.

1. Addition of use classification Group H1 (Hazardous material storage) or S-1 (Moderate hazard storage) for the battery storage closet when applying for a building permit.

2. Requirement to upgrade fire protection system at the Church to current code requirements for all current and proposed uses and occupancies, including adding sprinklers throughout the building including the steeple and new closets. Any windows within 5 feet of the property line are required to be sprinklered or fire rated.

3. The project applicant cannot install more than the 8-10 batteries indicated in its proposal and correspondence with Planning staff.

4. Given that the Church is a historic resource, the Conditional Use Permit should preclude the co-location of additional cell antennas at this location.

5. Impose the most stringent schedule and requirements possible for regular testing/monitoring and maintenance of the antennas, batteries and other equipment associated with the wireless facility to ensure that all equipment is functioning as intended. This should include rigorous RF emissions testing/monitoring. In addition, require that if there is an unusual event that might disturb the equipment (such as a minor temblor), the equipment is to be checked at the earliest opportunity possible. All of this is reasonable given that the site is located in close proximity to many schools.

6. A Community Liaison appointed by the project applicant is specifically required to communicate with the staff and parents of children at the schools within 500 feet, and staff and residents at the Notre Dame Senior Plaza, concerning any issues of concern with the construction and operation of the project. This Liaison should provide such staff and parents and residents with copies of its testing/monitoring and maintenance schedule; evidence of adherence to this schedule; and the results of emissions testing and other testing performed by the project applicant. All of this is reasonable given that the site is located in close proximity to many schools, there is widespread neighborhood concern about the proposed base station, and community right-to-know is a principle shared by many City agencies.

7. The appearance, size and spacing of the proposed synthetic louvers for the steeple must match the appearance, size and spacing of the existing louvers on the steeple.

Thank you for your review and consideration of our request that the Application be denied.

Sincerely,

Steering Committee of the Concerned Parents
Opposed to Cell Tower at St. Matthew's Church

James H. Colopy, on behalf of myself and the following Steering Committee members

Beverly Choe
Jocelyn F. Colopy
Angela Jolie
Lynda Marton
Beth Saiki
Amy Silverstein
Rachel Swain Yeaman
Eric Young
Victoria Martin Young

cc: Supervisor Bevan Dufty, San Francisco Board of Supervisors
Planner Sharon Lai, San Francisco Planning Department

Exhibits:

Exh. A: Graphics:

- Depicting schools and number of children within 300/1500 feet
- Existing and proposed cell sites within one-mile radius of project (color)
- Existing and proposed cell sites across San Francisco (color)

Exh. B: Sage Associates report summarizing technical deficiencies in application

Exh. C: Opposition letters by:

- Mission Dolores Neighborhood Association
- Notre Dame Senior Plaza's Property Manager
- Notre Dame Senior Plaza's Resident Service Coordinator
- SafeCleanGreen Mission Dolores

Exh. D: Letters by T-Mobile users regarding coverage in the area

Exh. E: Sage Associates letter report with projected RF emissions from St. Matthew's cell antennas

Exh. F: Letter by 13 San Francisco physicians who are parents of nearby schoolchildren

Exh. G: Open letters to City of San Francisco regarding RF emissions and anticipated health impacts, authored by:

- Dr. Martin Blank, Ph.D. (Associate Professor, Physiology and Cellular Biophysics, Columbia University),
- Dr. David O. Carpenter, M.D. (Director, Institute for Health and the Environment, SUNY at Albany),
- Dr. Magda Havas, Ph.D. (Associate Professor, Environmental & Resource Studies, Trent University), and
- Dr. Henry Lai, Ph.D. (Research Professor, Department of Bioengineering, University of Washington).

Exh. H: Summary of current state of the science regarding RF emissions and anticipated health impacts, followed by reference list of scientific literature regarding RF emissions and anticipated health impacts

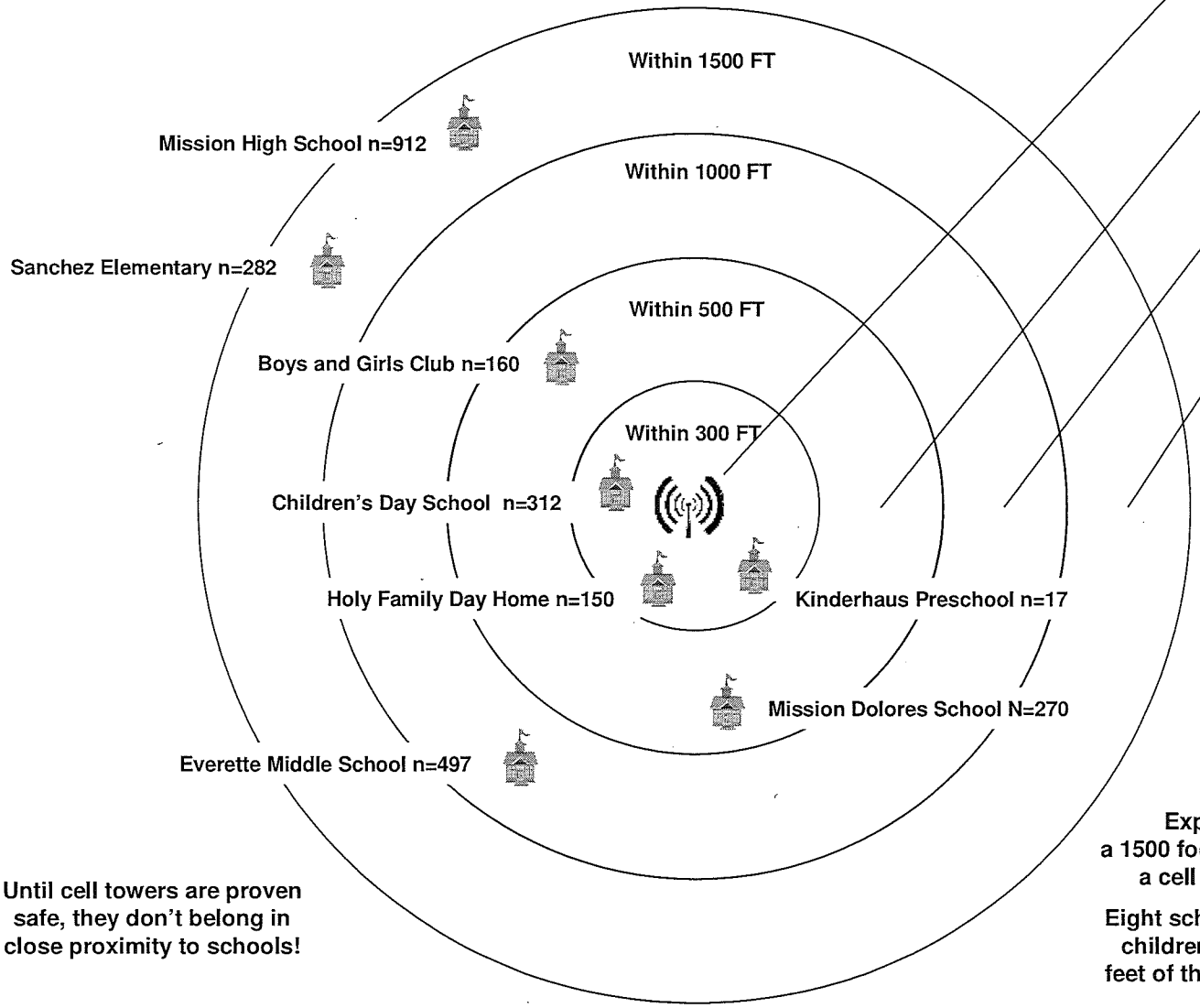
Exh. I: Reference list of legislation and resolutions in other jurisdictions regulating cell antennas around schools

Exh. J: 376 Petition signatures opposing proposed cell antennas at St. Matthews

Exhibit

A

Number of School Children Near Proposed Cell Tower on St. Mathew's Church Steeple



3 schools and 479 children within 300 FT of cell tower

5 schools and 909 children within 500 FT of cell tower

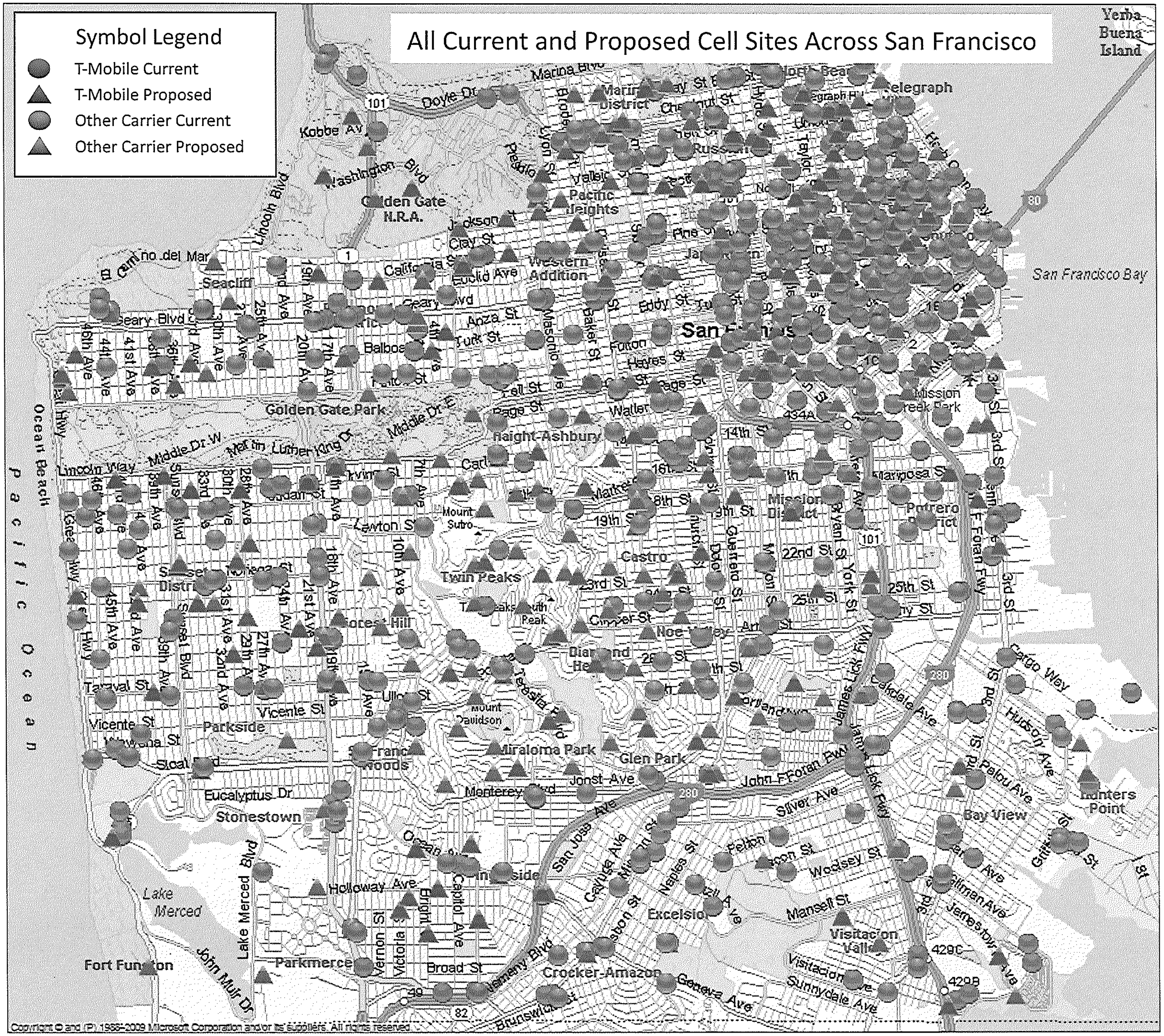
6 schools and 1406 children within 1000 FT of cell tower

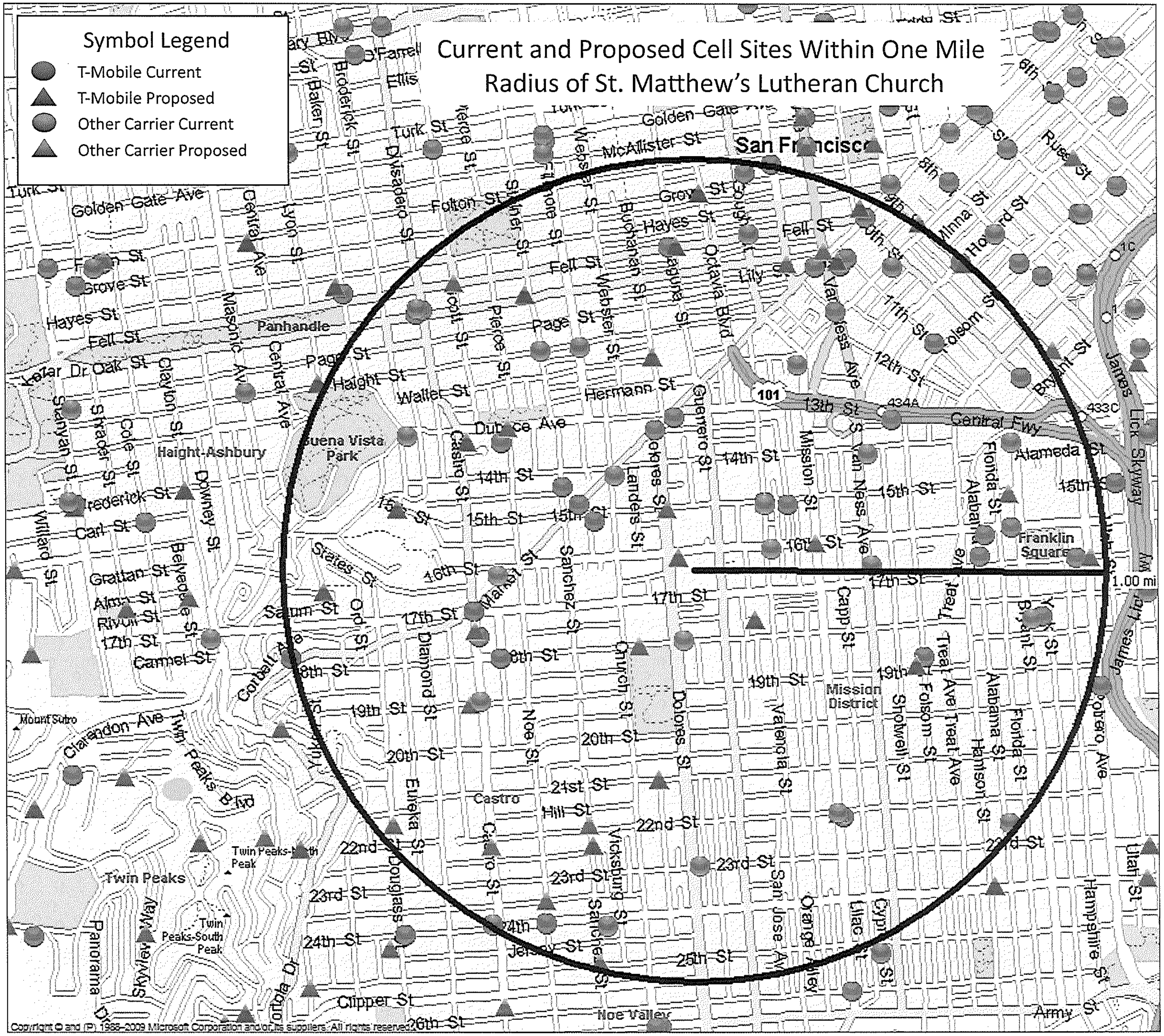
8 schools and 2600 children within 1500 FT of cell tower

Until cell towers are proven safe, they don't belong in close proximity to schools!

Experts recommend a 1500 foot buffer zone between a cell tower and schools.

Eight schools and 2,600 school children will fall within 1,500 feet of the proposed cell tower!


All Current and Proposed Cell Sites Across San Francisco
Symbol Legend
T-Mobile Current
T-Mobile Proposed
Other Carrier Current
Other Carrier Proposed
San Francisco Bay
Pacific Ocean
Ocean Beach
Golden Gate Park
Golden Gate N.R.A.
Yerba Buena Island
Twin Peaks
Hunters Point
Lake Merced
Fort Funston
Stonestown
Parkside
Castro
Glen Park
Excelsior
Crocker-Amazon
Visitacion Valley
Bay View
Mission District
Potrero District
Haight-Ashbury
Western Addition
Pacific Heights
Miraloma Park
Copyright © and (P) 1988–2009 Microsoft Corporation and/or its suppliers. All rights reserved.


Current and Proposed Cell Sites Within One Mile
Radius of St. Matthew's Lutheran Church
Symbol Legend
T-Mobile Current
T-Mobile Proposed
Other Carrier Current
Other Carrier Proposed
1.00 mi
San Francisco
Mission District
Castro
Haight-Ashbury
Buena Vista Park
Panhandle
Franklin Square
Twin Peaks
Noe Valley
Copyright © and (P) 1988–2009 Microsoft Corporation and/or its suppliers. All rights reserved.

Exhibit

B

SAGE
Associates
ENVIRONMENTAL CONSULTANTS

May 17, 2010

City and County of San Francisco
Planning Department
1650 Mission Street
San Francisco, CA 94103-2414

Subject: Proposed Cell Site (Stealth) T-Mobile Site #43634
St. Matthews Lutheran Church, Corner of Dolores and 16th Streets,
San Francisco, CA (3281 16th Street)

Sage Associates has been requested to provide a letter of comment on the stealth wireless antenna site proposed by T-Mobile at St. Matthews Lutheran Church. This site is located within a residential and mixed-use neighborhood with eight schools and 2,600 school children in the near vicinity. The purpose of this letter is to outline conditions specific to this proposal that render the site unsuitable for a new wireless antenna facility. It is within the authority of the City and County of San Francisco to reject applications for sites that are unsuitable due to general community and neighborhood incompatibility issues in preference for a more suitable location.

Potential unmitigatable impacts of the wireless facility at St. Matthews Lutheran Church include the introduction of incompatible land uses, loss of neighborhood goodwill, strong parental opposition, interference with enjoyment and use of properties, loss of property utility and value, and adverse financial impacts on schools and businesses that are sensitive to environmental blight (schools and health facilities, and residences). Cell towers and their impacts are considered an environmental blight whether they can be seen or not, because of their invisible and potentially harmful emissions.

After review of the available file materials, topics where information appears to be insufficient to draw conclusions on the acceptability of this site for use as a proposed wireless antenna facility are discussed below. We request that the City and County of San Francisco ask T-Mobile for additional information on the following, in order to make a determination about whether this site is:

a) consistent with City policies and findings required for a conditional use permit,

b) would pose unacceptable impacts to the community,

c) whether T-Mobile has provided sufficient data for the City's decisionmakers to decide the issue,

d) whether the need for additional gap coverage is adequately demonstrated,

e) and whether there might be alternate locations that are more suitable.

Photo Simulations (Visual Impairment and Aesthetic Issues)

The visual analysis provided by T-Mobile is not adequate. Photographs should be included that show the location of the proposed wireless site and its ancillary equipment area(s) from ground level in relation to buildings up to fourth floor heights (since there are numerous buildings along 16th street and Dolores Street with mixed use and residential uses, and school and institutional uses at all four stories). There are few or no photo location points or photosimulations depicting views in relation to the neighborhood.

The Hammett & Edison, Inc RF report indicates the need "*to prevent occupational exposures in excess of FCC guidelines, with no access within 2 feet in front of the T-Mobile antennas themselves, such as might occur during building maintenance activities.*"

"*Posting explanatory warning signs on the screens in front of the antennas, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet the guidelines adopted by the FCC.*"

How and where does the Church intend to post warning signs for excessive RF exposure on its steeple in order to protect any future workers that could include painters, maintenance personnel or others? How visible will the signs be from nearby vantage points? Has T-Mobile submitted photosimulations from all angles depicting how these signs may impact views of the Church steeple?

Without additional data, the file does not contain sufficient information to document that the proposed use minimizes visibility, nor preserves or promotes the visual character of the residential area in which it is to be located.

Incompatibility with Surrounding Land Uses

The presence of several schools in the immediate vicinity of the proposed site of the T-Mobile wireless installation, and the very large number of school-aged children who spend significant time in the area, makes this a highly unsuitable location. Within about 1500' of St. Matthews Lutheran Church, there are eight (8) schools and 2600 school children (Table 1).

Because the closest schools, Children's Day School and Holy Family Day Home, hold classes and school functions in multi-story buildings directly adjacent, their upper floors are disproportionately affected by elevated radiofrequency and microwave radiation.

Table 1 Schools and Children in the Vicinity of the Proposed T-Mobile Site

School	Number of Children	Distance (feet)
Children's Day School	312	Within 300'
Holy Family Day Home	150	Within 300'
Kinderhaus Preschool	17	Within 300'
Boys and Girls Club	160	Within 500'
Mission Dolores School	270	Within 500'
Everette Middle School	497	Within 1000'
Mission High School	912	Within 1500'
Sanchez Elementary	282	Within 1500'

Conditional Use Permit Findings

The City and County of San Francisco must make 'findings' that a proposed use within an area that requires a Conditional Use Permit, is, in fact, consistent with protection of values, land use compatibility, safety, and the general welfare of the community.

When a CUP has already been issued for a use like a church within a residential neighborhood, and then the church proposes to commercialize its holding further with land uses that are irksome, annoying, a nuisance, a visual blight, that have the potential to devalue property and require disclosure in real property sales, or interfere with the use and enjoyment of properties nearby, it becomes a contentious issue for local municipalities and their citizens. The burden of proof should fall on T-Mobile to demonstrate to decision-makers and the public that this new wireless

antenna facility on church property, in the middle of a residential neighborhood, with at least three schools within 300' and eight schools within 1500' of the church, will not cause harm, or diminution of property value, nor cause visual blight, or other adverse impacts (Table 1). It is within the City's authority and responsibility to request such information for a complete administrative record.

The City lacks sufficient information to approve this site for a stealth wireless installation in the St. Matthews Lutheran Church steeple because there is no basis for justification of finding:

1) *"the proposed use or feature, at the size and intensity contemplated and at the proposed location, will provide a development that is necessary or desirable for, and compatible with, the neighborhood or the community."*

The proposed wireless antenna use of St. Matthews Lutheran Church steeple is not desirable to many members of this community that are directly affected. This proposed use will interfere with the use and enjoyment of land uses and properties nearby, and has created community concern and intense opposition.

Families whose children attend the Mission Dolores School at 16th and Dolores, and also Children's Day School at 333 Dolores Street, are immediately affected. The Holy Family Day Home is also a close neighbor. Children are considered sensitive populations. The Children's Council of San Francisco office is housed nearby on Chula Lane, and Congregation Sha'ar Zahav is located across the street (see Table 1).

The proposed use is neither necessary or desirable at this location. There is insufficient information provided by the applicant of gaps in coverage that would justify this project. There is no showing that the site is desirable within this neighborhood of residential and school uses. In fact, there is substantial neighborhood concern and opposition to the proposed use because it is incompatible with the existing social fabric and cohesion of the community directly affected, with property values, and with enjoyment and use of nearby properties. Families with children at local schools have substantial and justified concerns over possible health and safety impacts, which are not assuaged by positive assertions of safety by the applicant based on outdated and obsolete FCC public safety limits.

Despite some Section 704 limitations of the 1996 Telecommunications Act, the City has authority to intepret when a site fails to meet the City's conditional use findings. The City and County of San Francisco has adopted the use of the "Precautionary Principle" in evaluating and adopting new plans and policies. This letter report details scientific studies and reviews document the evolving scientific and public health basis for determining whether there is sufficient evidence to invoke a policy of prudent avoidance (The Precautionary Principle). The evidence is sufficient. Enough is known about potential risks to health, learning, memory, concentration and other cognitive functions essential to classroom studies.

The fear-of potential health effects which are still unresolved in conjunction with siting of a new wireless facility so close to homes and elementary schools in the heart of this neighborhood should be given weight under the City's conditional use findings.

2) "*such use or feature as proposed will not be detrimental to the health, safety, convenience, or general welfare of persons residing or working in the vicinity, or injurious to property, improvements, or potential development in the vicinity;*

The site is not desirable to many members of this community that are directly affected, and who believe there is sufficient reason to question long-term impacts to health, safety, community cohesion and social fabric, and continued use and enjoyment of nearby properties.

Such concern is legitimately based on fears about health and safety, about concerns about the many children who go to school and/or church activities in the area, and for property owners who may likely suffer lowered property value and suitability for development.

Neither the World Health Organization, nor the National Toxicology Program have issued their findings on the carcinogenicity and neurotoxicity of chronic exposure to low-intensity radiofrequency and microwave radiation. Both institutions have on-going research programs to determine the toxicity of chronic exposures. Current FCC public safety limits never anticipated wireless technology health impacts and no longer provide a basis for unilateral judgment of safety or risk.

The proposed use will not provide a development that is desirable for, or compatible with the neighborhood or the community with respect to neighboring land uses that will be negatively

impacted. It is difficult to reconcile how this proposed use promotes, preserves or enhances the integrity of established neighborhoods, and whether it is reasonable to conclude that wireless antenna uses are consistent with neighborhood concerns regarding privacy and safety.

When a CUP has already been issued for a use like a church within a residential neighborhood, and then the church proposes to commercialize its holding further with land uses that are irksome, annoying, a nuisance, a visual blight, that have the potential to devalue property and require disclosure in real property sales, or interfere with the use and enjoyment of properties nearby, it becomes a contentious issue for local municipalities and their citizens. The burden of proof should fall on T-Mobile to demonstrate to the decision-makers and the public that this new wireless antenna facility on church property, in the middle of a residential neighborhood, with at least eight schools and 2,600 school children within 1500' of the church, will not cause harm, or diminution of property value, nor cause visual blight, or other adverse impacts. It is within the City's authority and responsibility to request such information for a complete administrative record.

The Conditional Use Findings indicate that "*landmarks and historic buildings be preserved.*" Given the age and historic value of St. Matthews Lutheran Church, a structural engineering study of the structural integrity of the Church and the steeple and access, in particular, should be required before making a finding of compatibility with protection and preservation of the site.

Impacts on Property Values and Real Property

It is probable steeple-mounted antennas will cause negative impacts to property values, chill real estate transactions for adjacent properties, require disclosure in real estate transactions, create liability risks for St. Matthews, negatively affect public perception of St Matthews Church and its leadership, and introduce land use compatibilities (a controversial and potentially hazardous condition for elementary schools in the area) and negatively affect the health and welfare of neighbors.

Appraisal studies that look at effects of wireless antenna facilities on residential properties generally find there are adverse effects on valuation. A 10% - 20% reduction in property values for neighboring properties is possible.

"It has been shown that aesthetic and health concerns about electric lines and towers lead to a reduction in the valuation of nearby residential properties. There are similar concerns about wireless towers; these concerns are widespread and have been expressed in multiple venues. Therefore, proximity to a wireless tower needs to be considered as a negative amenity that may reduce residential property valuation."

"Perceived risks are a function of subjective risk factors as well as statistical risks; whether the source of the perception is quantitative or subjective, the effect on property values may be the same."

Source: Carol C. McDonough, PhD, 2003. The Impact of Wireless Towers on Residential Property Values, Assessment Journal

Impact on decisions to purchase or lease residential properties near wireless antenna facilities were profiled in The Appraisal Journal (2005). In the case study areas, the tower was visible from the residences of 46% of the respondents, yet two-thirds (66%) of these said it was barely noticeable, and one-quarter said it mildly obstructed their view. When asked in what way the wireless facility impacts the enjoyment of living in their home, 37% responded that its impact was related to health concerns, 21% said it impacted neighborhood aesthetics, 20% said it impacted property value, and 12% said it impacted the view from their property. When asked about the impact that the facility had on the price/rent they were prepared to pay for their property, over half the case study respondents (53.1%) said that the tower was not constructed at the time of purchase/rental, and 51.4% of the respondents said the proximity to the facility did not affect the price they were prepared to pay for the property. Nearly 3% said they were prepared to pay a little less, 2% said they were prepared to pay a little more. For the control group respondents, 45% of the respondents would pay substantially less for a property if a facility were located nearby, over one-third (38%) were prepared to pay just a little less for such a property, and 17% responded that a wireless facility would not influence the price they would pay.
Only 10% of the case study respondents gave an indication of the impact that the wireless facility had on the price/rent they were prepared to pay for the property; one-third of these felt it would decrease price/rent by 1% to 9%. For the control group, over one-third (38%) of the respondents felt that a wireless facility would decrease price/rent by more than 20%, and a similar number (36%) said they would be prepared to pay 10% to 19% less for property located near a wireless facility (Tables 2 and 3).

Table 2 - Impact of a Wireless Facility on Purchase/Rental

Price Decision	Percent of Case Study Respondents (Control Group Price/Rent Responses)
20% more	5% (3%)
10–19% more	10% (2%)
1–9% more	14% (2%)
1–9% less	33% (19%)
10–19% less	24% (36%)
20% or greater reduction in price/rent	14% (38%)

Source: Appraisal Journal, 2005. The Impact of Cell Phone Towers on Prices in Residential Neighborhoods. Sandy Bond, PhD and Ko-Kang Wang.

Table 3 - Concerns about Living Near a Wireless Antenna Facility

Concern	Does not worry me	Worries me somewhat	Worries me a lot
Possibility of harmful health effects	50% (20%)	38% (38%)	12% (42%)
Stigma effect	55% (21%)	34% (45%)	12% (34%)
Effect on future property values	61% (15%)	25% (37%)	13% (47%)
Aesthetics	63% (18%)	25% (37%)	11% (45%)

Source: Appraisal Journal, 2005. The Impact of Cell Phone Towers on Prices in Residential Neighborhoods. Sandy Bond, PhD and Ko-Kang Wang

Liability

No warnings are currently mandated under either State or Federal law for exposures at RF levels calculated from the antennas. However, there are numerous scientific resolutions and statements

by international bodies and experts that make clear there is justifiable health concern with chronic exposure to pulsed RF, suggesting the public may not be sufficiently protected.

The question of liability for real or perceived health consequences of long-term exposure to elevated RF has not yet been fully resolved. There may be liability issues related to Church business, the Church's pre-school, any administrative staff or employees and other maintenance workers (window cleaners, maintenance staff, painters, etc) of the Church or adjacent buildings. Exposures on and around the top floor areas where antennas and related appurtenances are located, and on the rooftop may place people in jeopardy where RF exposure levels may in some areas exceed existing federal exposure limits. If someone believes they have developed a disability or illness related to chronic RF exposure, it could be become an issue for all parties involved in the permitting and leasing arrangements.

No positive assertion of safety can be made today with respect to chronic, low-intensity RF exposure. Based on credible scientific reports on health risk, the Church may face increased liability issues involving neighboring residences, schools, pre-schools, day-care and other sensitive land uses with respect to telecom leases.

Adequacy of Alternatives

The consideration of alternatives is minimal. Little evidence is provided that T-Mobile conducted any in-depth review of alternative siting opportunities. T-Mobile merely states its preference for this site, and the application is silent about other locations that might be more suitable from a neighborhood standpoint, and whether other locations were even considered. Alternate sites that may exist to lessen or eliminate many of the undesirable aspects of the proposed project are lacking. Further documentation about the depth of assessment of alternative locations, as well as need for additional coverage, should be requested from T-Mobile. If there are alternate sites that could meet the goals for coverage that cause fewer community concerns, they should be evaluated as a part of this application process.

The Planning Department is encouraged to request additional information from T-Mobile about their study of alternative sites, which sites were considered, what property owners were contacted, which property owners either accepted or declined (including written documentation), and why other alternative sites were rejected by T-Mobile in favor of the St. Matthews Lutheran

Church.

Adequacy of Coverage (Gap Analysis)

The submittal by T-Mobile that addresses the need for additional cell phone and data transmission coverage is minimal at best. No 'significant gap' is established. T-Mobile should be requested to provide additional backup on the need for new coverage and/or capacity. Studies on coverage and capacity need are critical components. Residents report good to excellent coverage already, so that the need for this installation is unclear.

Further, the basis for asserting the need for additional coverage should be specified by T-Mobile. Even if T-Mobile believes that it has a service gap (i.e., there is no demonstrated T-Mobile wireless service above –100 dBm in this neighborhood) courts have ruled that another service may provide functionally equivalent service (Nextel v. Unity Township at). The Federal Communications Commission (FCC) regulations governing cellular and PCS service recognize approximately –100 dBm as a minimum acceptable signal strength level (Flack + Kurtz, April 12, 2001). The technical literature consistently refers to approximately –100 dBm as a minimal signal level threshold for acceptable service (see for example, Lee, 1995).

Flack + Kurtz Engineers, Walter A. Cooper, Senior Vice President, Letter Report dated April 12, 2001 prepared under contract to the Town of Concord, MA.

Lee WCY, Mobile Cellular Telecommunications 2nd Ed. McGraw-Hill Book Company, 1995. 240-241.

Radiofrequency Radiation/Microwave Radiation Information

The RF report by Hammett & Edison, Inc. dated June 25, 2009 is a compliance report – in that it determines whether the site as proposed would violate or be in compliance with current FCC public safety limits. The information contained within the report signed by William F. Hammett, PE documents the T-Mobile wireless installation would be in compliance with FCC public safety limits.

The application for T-Mobile (four antennas) does not include an adequate RF Emissions report as required by the City's own checklist for wireless antenna sites.

The City's "Wireless Telecommunications Services (WTS) Facilities Siting Guidelines Application Checklist for Conditional Use Applications" specifies that the "radiofrequencies to be used for each technology" must be specified. No transmit frequencies are specified in the City's *Review of Cellular Antenna Site Proposals* (the review of the application signed by Sharon Lai). No frequencies are specified in the Hammett and Edison, Inc. radiofrequency radiation report either.

The RF Emissions report by Hammett & Edison, Inc gives minimal information. The City should request that H&E provide supplemental information for the community. It would be more informative to the community if the report contained run-out tables of radiofrequency (power density in microwatts per centimeter squared) as a function of distance from the proposed wireless site. This would allow residents and others in the community to identify what, if any, elevated radiofrequency radiation levels might occur at their residence, or children's school.

Such additional information should provide radiofrequency radiation power density levels (in microwatts per centimeter squared) out to a distance of 2000' at one, two, three and four-story heights AGL. This will allow neighboring property owners, parents of school children, school administrators, and homeowners and renters of residential properties to inspect and assess what chronic radiofrequency radiation exposures may result from this project. Elevated levels of radiofrequency radiation may affect schools, residences, elder care facilities, church facilities and other sensitive receptors in the immediate area (within 1000'-2000' feet or more of St. Matthews Church), even if the levels are not so high as to be in violation of FCC public safety limits.

Decision-makers and the public are reasonably aware of the controversy about chronic exposure to low-intensity radiofrequency and microwave radiation from wireless antenna sites. It provides a community benefit to have more substantial information on actual RF projections (computer modeling) so that individuals, schools, businesses and residents can look up their particular location.

Although wireless antenna applications cannot be denied solely on the basis of local agency or public concerns over RF health risks, public inquiry about actual exposure levels is reasonable and warranted. The World Health Organization and the US National Toxicology Program both have active research programs into the carcinogenicity (cancer-causing) and neurotoxicity (nervous system toxicity) of low-intensity radiofrequency radiation, and do not expect to have

answers or conclusions for several more years. Thus, there can be no positive assertion of safety (no one can say these cell towers are safe) or how harmful the exposures may be when the major national and international health bodies have not yet decided.

For this reason, we request that the H&E RF report be supplemented with additional information, in the form of tables showing RF (microwatts/cm2) at intervals of 10' outward to 2000', at one-, two-, three- and four-story height (6', 16', 26', 40' and 50' AGL) is suggested for vertical offset in the tables. Effective radiated power and downtilt should be consistent with what is proposed for the T-Mobile project description.

Thank you for the opportunity to comment.

Very sincerely,

Cindy Sage. MA
Sage Associates

References

McDonough CC. 2003. The Impact of Wireless Towers on Residential Property Values, Assessment Journal.

Bond S Wang K. 2005. The Impact of Cell Phone Towers on Prices in Residential Neighborhoods. Appraisal Journal.

Exhibit

C

Mission Dolores Neighborhood Association
72 Landers Street, San Francisco, CA 94114, Ph. 863-3950
Web Site: http://www.missiondna.org Email: missiondna@earthlink.net

May 5, 2010

Ron Miguel, President
San Francisco Planning Commission
1650 Mission Street
San Francisco, 94103

Dear President Miguel and Commissioners:

I am writing on behalf of the Mission Dolores Neighborhood Association to register our objection to the granting of a Conditional Use Permit for the construction of a wireless facility at St. Matthews Lutheran Church, 3281 16th Street (Case# 2009.0562C).

This industrial/commercial facility is unnecessary, undesirable and inappropriate for our predominantly residential neighborhood. As a neighborhood organization dedicated to preservation and enhancing the quality of life for our citizens, MDNA believes that the installation of this wireless facility runs counter to our goals and respectfully requests that you deny the permit application for this site.

Specifically we are concerned that:

- The replacement of portions of the steeple with fiberglass, a non-historic material, would have an adverse impact on the historic and architectural integrity of the building.

- The addition of a GPS antenna on the outside of the steeple would have an adverse aesthetic impact on this historic building.

- T-Mobile has not adequately demonstrated the need for this facility. Field tests and surveys of T-Mobile users by local residents have suggested the facility is unnecessary, that cell phone service in the area generally bounded by 14th Street on the north, Sanchez Street on the west, 20th Street on the south and South Van Ness Avenue on the east is already excellent.

- Studies have shown potential loss of property value ranging from 2 to 20% for properties near such wireless facilities.

- The safety of nearby residents and students at the numerous schools within 1000 feet, particularly with respect to the volatile back-up batteries and other industrial equipment which would be located directly under the steeple and not in a more climate-controlled environment.

- This proposal has caused a great deal of emotional discomfort among the residents of the Mission Dolores neighborhood, including members of our organization, and is clearly not desirable as many residents, local business owners and parents of students have expressed their objection by petition and letter.

- The fear engendered by the presence of these antennas may cause customers of local businesses to stay away, counter to the spirit of Proposition M (1986), which requires that any change to a neighborhood not have an adverse impact on existing retail businesses.

- Resolution 102-10, passed unanimously by the San Francisco Board of Supervisors and signed into law by the Mayor on April 2, 2010, calls on the U.S. Environmental Protection Agency to perform the appropriate research and experimentation to determine the effects of non-ionizing radiation - such as would be emitted by this facility - on the health of adults and children due to continuing uncertainties about possible health risks.

Sincerely,

Peter Lewis, President

Cc Sharon W. Lai, Bevan Dufty, John Rahaim, and Rob Geller

Mercy Housing

Notre Dame Senior Plaza

April 30, 2010

Dear Members of St. Matthew's Church:

Notre Dame Senior Plaza, which is located directly behind your church, was converted into 66 individual housing units in 1997. Our residence provides affordable rental housing and social services to more than 80 senior citizens. Our community is predominately low income and many residents have waited years for a home at Notre Dame Senior Plaza.

We have serious concerns about the cell phone antennas that T-Mobile plans to install in your church steeple. As you know, these antennas emit radiation and pose a potential health hazard to our residents and the larger community around your church. Many of the seniors we serve are in frail health and we do not want them to be exposed to this health risk. Perhaps you are not aware that most of our residents signed a petition opposing the installation of these towers.

Please help us protect our community. We are asking you to reach out to Pastor Pielhoop and members of your Church Council and tell them to stop the cell phone antennas from being placed in your church. These antennas can be placed in another location that is not in such close proximity to so many children and seniors.

Thank you for your support.

Sincerely,

Lawrence Lencioni
Property Manager
Notre Dame Senior Plaza

347 Dolores Street
San Francisco, CA 94110
415 437-0370 Fax 415 437-0392
415 355-7104 TTY
www.mercyhousing.org
Mercy Housing is sponsored by communities of Catholic Sisters.

Mercy Housing

Notre Dame Senior Plaza

San Francisco Planning Commission
1650 Mission Street, Suite 400
San Francisco, CA 94103

June 1, 2010

Dear Members of the San Francisco Planning Commission:

I am writing on behalf of Notre Dame Senior Plaza to express our strong objection to the proposal to place a T-Mobile cell tower in St. Matthew's Church at 3281 16th Street.

Notre Dame Senior Plaza, which is located directly behind St. Matthew's Church, was converted into 66 individual senior housing units (HUD 202) in 1997. Our residence provides affordable rental housing and social

services to more than 80 senior citizens. Our community is predominately low income and residents wait as long as 13 years to obtain housing at NDSP.

We are extremely troubled by the T-Mobile proposal to install 4 PCS antennas the St. Matthew's church steeple. As you know, these antennas emit radiation and pose a potential health hazard to our residents and the larger community. Many of the seniors we serve are in frail health and we do not want them to be exposed to any additional health risks.

Furthermore, it is our understanding that T-Mobile should have notified Notre Dame Senior Plaza in the fall of 2009 about this proposal. None of our residents received notification about this project and members of our staff were also not informed. A neighborhood petition, opposing the cell tower installation, was recently circulated in our building and a majority of our residents have signed it.

347 Dolores Street
San Francisco, CA 94110
415 437-0370 Fax 415 437-0392
415 355-7104 TTY
www.mercyhousing.org

Mercy Housing

Notre Dame Senior Plaza

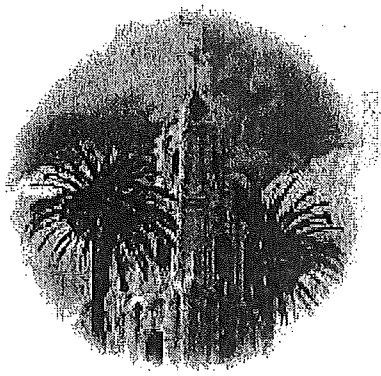
Please help us protect our community. This is not the appropriate location for a cell tower. I urge you to deny the application for a conditional us permit at 3281 16th Street. Thank you for your consideration.

Sincerely,

Linda Buckley Linda Buckley.
Resident Service Coordinator,
Notre Dame Senior Plaza

Cc:
Supervisor Bevan Dufty

347 Dolores Street
San Francisco, CA 94110
415 437-0370 Fax 415 437-0392
415 355-7104 TTY
www.mercyhousing.org
Mercy Housing is sponsored by communities of Catholic Sisters.



SafeCleanGreen

PROMOTING QUALITY OF LIFE IN THE HISTORIC MISSION DOLORES NEIGHBORHOOD

Ron Miguel, President
San Francisco Planning Commission
1650 Mission Street
San Francisco, 94103

May 4, 2010

Dear President Miguel and Commissioners:

I am writing on behalf of SafeCleanGreen Mission Dolores to register our organization's objection to the granting of a Conditional Use Permit for the construction of a wireless facility at St. Matthews Lutheran Church, 3281 16th Street (Case# 2009.0562C).

This cell phone tower is unnecessary, undesirable and inappropriate for our predominantly residential neighborhood. As a neighborhood organization dedicated to enhancing the quality of life for our citizens, SafeCleanGreen believes that the installation of this facility runs counter to our goals and respectfully requests that you deny the permit application for this site. Specifically we are concerned that:

- The addition of a GPS antenna on the outside of the steeple would have an adverse aesthetic impact on this historic building.
- T-Mobile has not adequately demonstrated the need for this facility. Field tests and surveys of T-Mobile users by local residents have suggested the facility is unnecessary, and that cell phone service in the area is already excellent.
- Studies show potential loss of property value for properties near such wireless facilities.
- The safety of nearby residents and students at the numerous schools within 1000 feet, particularly with respect to the volatile back-up batteries and other industrial equipment which would be located directly under the steeple and not in a more climate-controlled environment.
- Many residents, local business owners and parents of students have objected by petition and letter.
- The antennas may cause customers of local businesses to stay away, counter to the spirit of Prop. M (1986), which requires that any change to a neighborhood not have an adverse impact on existing retail businesses.
- Resolution 102-10, passed unanimously by the Board of Supervisors and signed into law by the Mayor In April, 2010, calls on the USEPA to perform appropriate studies to determine the effects of non-ionizing radiation (the kind emitted by this facility) on the health of adults and children due to continuing uncertainties about possible health risks.

We hope you will consider all these factors and conclude that T-Mobile's permit application should be denied. Thank you for your help on this matter.

Sincerely,

Gideon Kramer, President
SafeCleanGreen Mission Dolores
www.safecleangreen.com
Tel: 415-861-2480
gykramer@earthlink.net

Cc Sharon W. Lai, city planner

Exhibit

D

3752 20th Street

San Francisco, CA 94110

June 4, 2010

Dear Planning Commissioners,

I live on 20th Street between Dolores and Guerrero Streets, and have been a T Mobile customer for about 6 years. I have two children, ages 4 and 6, and have been a resided at this location for 11 years. I write to describe my experience with the reception on my T-Mobile cellphone, because it is at odds with T-Mobile's argument for necessity for the proposed cell tower.

My reception has been consistently excellent, which is why I have remained a customer for this length of time. I use my phone about 6 days a week, on average. I have been checking the number of squares (similar to bars) that appear on my screen at different locations around the neighborhood. The maximum number of squares is 7. I have made the following observations:
-When outside, either near the school (16th and Dolores), or near my home, I consistently get about 6-7 (out of 7) squares.
-When indoors, 5-7 (out of 7) bars usually appear on the screen, and reception is still very good.
-I work out of my basement. This is where I most often use my phone. I usually get about 4-6 bars in my basement, and the reception is still very good.

My coverage throughout the city has been very good. I find the addition of a cell tower in my neighborhood unnecessary, particularly in a historic structure so close to many schools. I urge that you not pass the proposal for the new cell tower.

Sincerely,

Beverly Choe

Dear Planning Commissioners,

I live on 25th and Douglass in San Francisco and spend a fair amount of my time during the week due to school and work around Dolores and 17th Street. We, my daughter who is 5 years old and I often bike or walk to school from Noe Valley to Dolores Park neighborhood.

I have been a T-Mobile customer for the past 6 years. I currently have a Tokia phone serviced by T-Mobile, which has four bars as indicator for good reception.

My cell phone reception in and around Dolores Park and in front of Mission High School is full 4 bars. My reception at Dolores and 17th is full 4 bars. My reception inside and around my daughter's School, which is located at 333 Dolores Street, is full 4 bars. I often frequent Taqueria's around 17 the Street and Valencia or Mission Street. I also often drive for work through Dolores Street and Market into Franklin and never had a problem with reception. It always is on four bars.

Do I have good reception with T- Mobile through out the city? NO I Don't. I have very bad reception, which is one bar or none at my own house on 25th Street and Douglass. But four to three bar reception around most Noe Valley Streets. I have no reception on Eureka Street where we often take our dog for a walk. And I have interrupted reception in Cole Valley, especifically around 17th Street and Stanyan, a street I drive 5-8 times a week for work.

As a customer of T-Mobile and member of the community at Dolores and 16th Street, I urge you that you NOT pass the proposal of a new Cell Tower in the historical St. Matthew's Steeple. There is no need for an additional cell tower. The reception is most reliable in this area of the city. The Cell tower is unnecessary.

Thank you.

Zahra Ghayour-Kelly

Colopy, Jim (20) x4978

From: Sarah Cooper [sarah@adventurous.com]
Sent: Tuesday, June 08, 2010 12:40 PM
To: Colopy, Jim (20) x4978; Sarah Cooper; Rachel Swain
Subject: T-mobile customer very pleased with coverage

Dear Jim,
I am a T-mobile customer and I'm already quite happy with the coverage in and surrounding the Children's Day School location at 333 Dolores Street in San Francisco. In fact, I was able to drive a 10-block perimeter to verify coverage and have attached the data for your use.

Please let me know if I can provide any further data that would be helpful to the Planning Commission.

Sarah Cooper
245 Upper Terrace
San Francisco CA 94117

--
Sarah Cooper
Adventurous Sports
adventurous.com
415.397.7678

T-mobile Coverage Metrics from Sarah Cooper (sarah@adventurous.com

Main Road artery	intersection	# bars of coverage
14th &	Castro	4
14th &	Noe	2
14th &	Sanchez	4
14th &	Duboce	3
Market &	14th	3
Market &	15th	3
Dolores &	16th	4
Dolores &	18th	5
Dolores &	19th	4
Dolores &	20th	4
Dolores &	21st	4
Dolores &	23rd	4
Dolores &	25th	2
Dolores &	26th	2-3
Dolores &	29th	2
Dolores &	Chavez	2-3
Laguna &	Market	1
Laguna &	Haight	4
Laguna &	Page	3
Laguna &	Oak	2
Laguna &	Fell	2
Laguna &	Hayes	4
15th &	Dolores	4
17th &	Guerrero	1
17th &	Valencia	3
17th &	Cap	4
17th &	S. Van Ness	4
17th &	Fulsom	4
17th &	Harrison	5
17th &	Alabama	4
17th &	Florida	4
18th &	Florida	5
16th &	Bryant	5

Exhibit

E

SAGE
Associates
ENVIRONMENTAL CONSULTANTS

May 17, 2010

Children's Day School
333 Dolores Avenue
San Francisco, CA

Radiofrequency and Microwave Radiation – Low-Intensity Effects Report for the proposed St. Matthews Lutheran Church Steeple

This letter report has been prepared at the request of families from Children's Day School and provides specific levels of radiofrequency radiation for locations near the St. Matthews Lutheran Church. The computer modeling has been prepared for your review, and to share with members of the community and with Church leaders.

Sage Associates has prepared a supplemental computer modeling of maximum radiofrequency radiation levels associated with the proposed St. Matthews Lutheran Church (T-Mobile) wireless antenna site according to FCC OET Bulletin 65 requirements. This has been done to provide fuller information to the community about what level of elevated radiofrequency radiation may be present at locations in close proximity to the proposed T-Mobile wireless facility at St. Matthews Lutheran Church. The Hammett & Edison, Inc. RF compliance report gave only sketchy information, and this report is intended to give more information to the affected public. Five modeling heights above ground level were considered to take into account radiofrequency radiation levels at 6', 16', 26', 40' and 53' heights, allowing for one-, two-, three-, and four-story building floors to be assessed. Radiofrequency radiation levels are expressed in microwatts per centimeter squared ($\mu W/cm^2$) out to power densities around 0.01 $\mu W/cm^2$. In this way, people near the proposed facility can identify what their elevated radiofrequency radiation levels may be. (*A milliwatt per centimeter squared or mW/cm^2 is equal to 1000 microwatts per centimeter squared or $\mu W/cm^2$*).

Current FCC public safety limits never anticipated wireless technology health impacts and no longer provide a basis for unilateral judgment of safety or risk. For radiofrequency radiation exposures, they are based only on thermal heating injury to tissue (what burns, damages). They do not recognize or take into account non-thermal (or preferably, low-intensity) RF exposures that are reported to cause biological effects that can, with chronic exposure, reasonably be presumed to result in adverse health effects.

Compliance with existing and obsolete FCC standards for exposure to radiofrequency radiation is no longer a basis for assuring safety. The City is clearly aware of international and national controversy about the inadequacy of existing FCC and ICNIRP safety limits with respect to wireless technologies. ICNIRP is the International Commission on Non-Ionizing Radiation Protection and specifies public safety limits for many European countries.

Even the FCC's own consumer website is now updated to caution that exposures to cell phone

frequency radiation from devices may warrant precautionary action by individuals. Since these devices are cleared for use by the FCC on the basis that they comply with existing safety limits, it is instructive to learn that precautionary advice has been issued anyway, based on new reports that such limits are insufficient to protect public health.

"Recent reports by some health and safety interest groups have suggested that wireless device use can be linked to cancer and other illnesses. These questions have become more pressing as more and younger people are using the devices, and for longer periods of time. No scientific evidence currently establishes a definite link between wireless device use and cancer or other illnesses, but almost all parties debating the risks of using wireless devices agree that more and longer-term studies are needed. After listening to several expert witnesses, a United States Senate committee recently came to this same conclusion."

"Even though no scientific evidence currently establishes a definite link between wireless device use and cancer or other illnesses, some parties recommend taking the precautions listed below. When considering these precautions, remember that your wireless device only emits RF energy when you are using it and that the closer the device is to you, the more energy you will absorb. Also, some parties assert that any potential health risks are probably greater for children than for adults. Finally, some experts think that low frequency magnetic fields rather than RF energy measured by the SAR possibly are responsible for any potential risk associated with wireless devices."

Long-term exposure to whole-body radiofrequency and microwave radiation should not be considered benign or of no public health importance (Kundi and Hutter, 2009).

"The most important difference between mobile phone use and exposure from base station signals is duration of exposure. While mobile phones are used intermittently with exposure duration seldom exceeding 1 h per day, exposure to base stations is continuous and for up to 24 h a day. It has also to be mentioned that the exposure of mobile phone users is in the near field and localized at the head region, while base stations expose the whole body to the far field. Strictly speaking exposure from mobile phones and their base stations have almost nothing in common except for the almost equal carrier frequency that is likely of no importance for biological effects."

"Despite some methodological limitations of the different studies there are still strong indications that long-term exposure near base stations affects wellbeing. Symptoms most often associated with exposure were headaches, concentration difficulties, restlessness, and tremor. Sleeping problems were also related to distance from base station or power density, but it is possible that these results are confounded by concerns about adverse effects of the base station, or more generally, by specific personality traits. While the data are insufficient to delineate a threshold for adverse effects the lack of observed effects at fractions of a mW/m2 power density suggests that, at least with respect to wellbeing, around 0.5–1mW/m2 must be exceeded in order to observe an effect. This figure is also compatible with experimental studies of wellbeing that found effects at 2.7 and 10mW/m2.

"Overall results of investigations into the effects of exposure to base station signals are mirroring the broader spectrum of studies on handsets and on RF-EMF in general. There are indications from epidemiology that such exposures affect wellbeing and health weakly supported by human provocation studies and an inconclusive body of evidence from animal and in vitro studies."

The conversion to the more-recognized microwatts per centimeter squared is 0.05 to 0.1 microwatt per centimeter squared (*0.5–1 mW/m^2*).

Maximum Fields as Calculated by Computer Modeling

Computer modeling by Sage Associates has calculated the maximum RF levels anticipated from the proposed base station at St. Matthews Lutheran Church. A building to the west at 190' height in the main beam will have its maximum field on some floor (this is referenced from the Hammett Report). The maximum RF is about 22.98 $\mu W/cm^2$ at about 53' above ground level ("AGL") (our work extrapolated from H&E Report data point).

The maximum field anywhere in the main beams of 0 (due north) 90, 180, and 270 degrees is 91.62 $\mu W/cm^2$ at 75'-76' distance from the tower. This is higher than the Hammett Report, perhaps because they think there is a building at 190' distance that gives them a reference point to discuss. If there are buildings of height at around 53' AGL in the 50' – 200' range, the RF levels range from 37 to 20.5 $\mu W/cm^2$, with the maximum at 75'-76' distance away. This is significantly higher than any H&E maximum reported RF level.

A run-out table of RF vs distance for the 53' elevation has been completed. We have RF vs distance out to 2000' at one-foot intervals (at 53' AGL).

We have run-out tables at 6', 16', 26' and 40' AGL simulating one- to four-story building heights AGL. These run out to distances of several thousand feet, giving RF predictions at 20' intervals.

The RF fields may be higher at greater distance so that at 240' the field is 3.29, but at 500' it is 9.59 at this height AGL.

Fields at 53 Feet Above Ground Level (the maximum)

At 100' distance in the main beam = 71.42 $\mu W/cm^2$. At 150' distance in the main beam = 36.32 $\mu W/cm^2$. At 175' distance = 27 $\mu W/cm2$. At 200' distance = 20.53 $\mu W/cm^2$.

This should also hold true for any buildings of same height at 0 degrees, 90 degrees, 180 degrees and 270 degrees (all in the main beam) at a distance of about 190 feet distance away from St. Matthews Church. If the facility is operating at full power, there is little difference in the RF levels "between" these angles of transmission.

The RF power density does not drop to or below the BioInitiative Report recommendation of 0.1 $\mu W/cm2$ within the 2000' limit of this modeling. At 2000', it is estimated to be 0.25 $\mu W/cm^2$.

Fields at 40 Feet Above Ground Level

At 100' distance in the main beam = 2.58 $\mu W/cm^2$. At 160' distance in the main beam = 5.6 $\mu W/cm^2$. At 180' distance = 7.99 $\mu W/cm^2$. At 200' distance = 9.34 $\mu W/cm^2$. At 300' = 7.89 $\mu W/cm^2$.

At 400' = 5.05 $\mu W/cm^2$. At 500' = 3.29 $\mu W/cm^2$. At 880' = 1 $\mu W/cm^2$. At 1000' = 0.76 $\mu W/cm^2$.

The BioInitiative Report recommended level for cumulative, outdoor RF exposure from all cell phone and PCS frequencies (and other AM, FM, TV broadcast frequencies) is 0.1 $\mu W/cm^2$ for chronic exposure. It is reached at 2720' distance at 40' AGL.

Fields at 26 Feet Above Ground Level

At 100' distance in the main beam = 0.66 $\mu W/cm^2$. At 160' distance in the main beam = 1.6 $\mu W/cm^2$. At 180' distance = 0.35 $\mu W/cm^2$. At 200' distance = 0.1 $\mu W/cm^2$. At 300' = 2.64 $\mu W/cm^2$.

At 400' = 3.36 $\mu W/cm^2$. At 500' = 2.81 $\mu W/cm^2$. At 900' = 1 $\mu W/cm^2$. At 1000' = 0.83 $\mu W/cm^2$.

The BioInitiative Report recommended level for cumulative, outdoor RF exposure from all cell phone and PCS frequencies (and other AM, FM, TV broadcast frequencies) is 0.1 $\mu W/cm^2$ for chronic exposure. That level is not reached until 2620' distance at 26' AGL.

Fields at 16 Feet Above Ground Level

At 100' distance in the main beam = 0.96 $\mu W/cm^2$. At 160' distance in the main beam = 0.78 $\mu W/cm^2$. At 180' distance = 1.39 $\mu W/cm^2$. At 200' distance = 1.1 $\mu W/cm^2$. At 300' = 0.31 $\mu W/cm^2$.

At 400' = 1.69 $\mu W/cm^2$. At 500' = 2.04 $\mu W/cm^2$. At 900' = 1 $\mu W/cm^2$. At 1000' = 0.82 $\mu W/cm^2$.

The BioInitiative Report recommended level for cumulative, outdoor RF exposure from all cell phone and PCS frequencies (and other AM, FM, TV broadcast frequencies) is 0.1 $\mu W/cm^2$ for chronic exposure. It is reached at 2680' distance at 16' AGL.

Fields at 6 Feet Above Ground Level

At 100' distance in the main beam = 0.38 $\mu W/cm^2$. At 160' distance in the main beam = 0.22 $\mu W/cm^2$. At 180' distance = 0.13 $\mu W/cm2$. At 200' distance = 0.63 $\mu W/cm2$. At 300' = 0.05 $\mu W/cm^2$.

At 400' = 0.49 $\mu W/cm^2$. At 500' = 1.17 $\mu W/cm^2$. At 840' = 1.03 $\mu W/cm^2$. At 1000' = 0.79 $\mu W/cm^2$.

The BioInitiative Report recommended level for cumulative, outdoor RF exposure from all cell phone and PCS frequencies (and other AM, FM, TV broadcast frequencies) is 0.1 $\mu W/cm^2$ for chronic exposure. It is reached at 2720' distance at 6' AGL.

Table 1 ***Distance of Sensitive Land Use Receptors (Schools and Residences) vs Radiofrequency Radiation Power Density*** *(microwatts/cm^2)*

Facility	***Distance (feet)***	***Elevations Affected***	***RF Power Density (μW/cm2)***
St. Matthews Lutheran Church 3281 16th St. San Francisco, CA (site of antennas)	*0'*	*60' CR*	
Any building nearby	*At 100'*	*If highest floor (53')*	*71.42*
	At 200'	*If highest floor (53')*	*20.53*
	At 300'	*If highest floor (53')*	*8.55*
	At 400'	*If highest floor (53')*	*4.63*
	At 500'	*If highest floor (53')*	*2.84*
	At 600'	*If highest floor (53')*	*1.92*
Children's Day School Main Building 333 Dolores St.	*240' – 500'*	*If highest floor (50')*	*13 - 3*
	240' – 500'	*If highest floor (40')*	*3.29 - 9.59*
	240'- 500'	*Third Floor (26')*	*0.86 – 2.81*
	250'-500'	*Second Floor (16')*	*0.11 – 2.04*
	250'-500'	*First Floor (6')*	*0.80 – 1.17*
Children's Garden	*160' – 400'*	*Ground level*	*0.22 – 0.49*
Children's Garden	*maximum within*	*Ground level*	*1.35*
Children's Playground Childrens Pre-school	*1000'*	*Ground level*	*0.79*
Holy Family Day Home 299 Dolores St. (415) 861-5361		*If highest floor (40')*	*9.34*
	At 200'	*Third floor (26')*	*0.10*
	At 200'	*Second floor (16')*	*1.10*
	At 200'	*First floor (6')*	*0.63*
Mission Dolores Elementary School 3371 16th Street	*At 240' - 300'*	*If highest floor (40')*	*9.59-7.89*
	At 240'- 300'	*If highest floor (26')*	*0.86-2.64*
	At 240' – 300'	*Second floor (16')*	*0.11- 0.31*
	At 240'- 300'	*First floor (6')*	*0.8 – 0.05*

Note: The RF fields may be higher at greater distance so that at 240' the field is 3.29, but at 500' it is 9.59 at this height above ground level or (AGL).

Sensitive Receptor Land Uses in the Vicinity

The presence of several schools in the immediate vicinity of the proposed site of the T-Mobile wireless installation, and the very large number of school-aged children who spend significant time in the area makes this a less suitable location. Within about 1500' of St. Matthews Lutheran Church, there are eight (8) schools and 2600 school children.

Because the closest schools, Children's Day School and Holy Family Day Home, hold classes and school functions in multi-story buildings directly adjacent, their upper floors are disproportionately affected by elevated radiofrequency and microwave radiation.

Table 1 Schools and Children in the Vicinity of the Proposed T-Mobile Site

School	Number of Children	Distance (feet)
Children's Day School	312	Within 300'
Holy Family Day Home	150	Within 300'
Kinderhaus Preschool	17	Within 300'
Boys and Girls Club	160	Within 500'
Mission Dolores School	270	Within 500'
Everette Middle School	497	Within 1000'
Mission High School	912	Within 1500'
Sanchez Elementary	282	Within 1500'

The Conditional Use Permit (CUP) process is intended to provide a high degree of scrutiny for projects in order to maintain compatibility with surrounding land uses. There is ample evidence that the location of a wireless antenna facility raises public concern and is perceived as incompatible with the residential character of neighborhoods, particularly where many school-aged children reside or go to school. Surrounding land uses will likely be perceived as blighted, with the uncertainty about health risks and lowered property values. No positive assertion of safety can be made about potential health risks, or risks to learning, memory, concentration, attention and behavior in children exposed to chronic, low-intensity radiofrequency radiation, based on studies at cell tower-intensity radiofrequency radiation.

Existing uses that have required a CUP should be carefully screened to insure they do not introduce new noxious, harmful or annoying land uses that are incompatible with existing land uses, and may potentially violate their CUP conditions.

Appendix A – Opinions on Chronic, Low-Intensity Exposure to Radiofrequency Radiation from Wireless Technologies that Support Caution in Approving Cell Sites

Experts who have looked at the scientific evidence for human health impacts from wireless technologies at very low-intensities similar to both cell phones and wireless antenna towers conclude that the existing public safety limits are obsolete. The FCC maintains old and outdated safety limits that are inadequate today, with the deployment of new wireless technologies.

From a public health point of view, this is alarming because of the rapid and extensive spread of RF exposures – when we know with certainty today that bioeffects and adverse health effects that are occurring are 'legal' only because our safety standards are out of date. These standards are thousands of times too high for safety.

Reassurances that wireless facilities 'comply with all federal safety standards' should be no reassurance at all.

Pathophysiology Journal 16: Special Issue on Electromagnetic Fields (2009)

The best evidence on this comes from the recent scientific review by Kundi and Hutter (Pathophysiology, 2009). It profiles about a dozen scientific studies of human populations near cell towers (or base stations, as they are also called) which are associated with widespread complaints of ill-health. Symptoms include loss of sleep (sleep disruption), headache, fatigue, mood disorders, dizziness, nausea, ringing-in-the-ears (tinnitus), heart arrythmia, skin rashes, and impaired memory, learning and cognition difficulties. This scientific article documents recent human studies conducted near base stations, or at base-station level RF, report levels that exceed 0.05 to 0.1 microwatt/centimeter squared can cause health symptoms to occur.

This is much less – two to four times less than the project you are considering from T-Mobile at several microwatts/centimeter squared from just one carrier's antennas at 240-500' to the nearest classroom. It makes no sense to place children, who should be the most-protected group – in environments that we already have serious doubts about from health and learning perspectives. The impact zone may extend out 1000' or more – but the report from Hammett and Edison, Inc does not provide the relevant 'run-out' information.

BioInitiative Report (2007)

The BioInitiative Report on children and radiofrequency radiation exposure from wireless technologies (cell phones, cordless phones, wireless technologies) says the following:

"Public exposure to electromagnetic radiation (power-line frequencies, radiofrequency and microwave) is growing exponentially worldwide. There is a rapid increase in electrification in developing countries, even in rural areas. Most members of society now have and use cordless phones, cellular phones, and pagers. In addition, most populations are also exposed to antennas in communities designed to transmit wireless RF signals. Some developing countries have even given up running land lines because expense and the easy access to cell phones.

Long-term and cumulative exposure to such massively increased RF has no precedent in human history. Furthermore, the most pronounced change is for children, who now routinely spend hours each day on the cell phone. Everyone is exposed to a greater or lesser extent. No one can avoid exposure, since even if they live on a mountain-top without electricity there will likely be exposure to communication-frequency RF exposure. Vulnerable populations (pregnant women, very young children, elderly persons, the poor) are exposed to the same degree as the general population. Therefore it is imperative to consider ways in which to evaluate risk and reduce exposure. Good public health policy requires preventative action proportionate to the potential risk of harm and the public health consequence of taking no action. "

"The exposure of children to EMF has not been studied extensively; in fact, the FCC standards for exposure to radiofrequency radiation are based on the height, weight and stature of a 6-foot tall man, not scaled to children or adults of smaller stature. They do not take into account the unique susceptibility of growing children to exposures (SCENIHR, 2007; Jarosinska and Gee, 2007), nor are there studies of particular relevance to children. www.bioinitiative.org, Section 17.

"Children are largely unable to remove themselves from exposures to harmful substances in their environments. Their exposure is involuntary."

Changes in the way in which the brain and nervous system react depend very much on the specific exposures. Most studies only look at short-term effects, so the long-term consequences of exposures are not known.

"Factors that determine effects can depend on head shape and size, the location, size and shape of internal brain structures, thinness of the head and face, hydration of tissues, thickness of various tissues, dialectric constant of the tissues and so on. Age of the individual and state of health also appear to be important variables. Exposure conditions also greatly influence the outcome of studies, and can have opposite results depending on the conditions of exposure including frequency, waveform, orientation of exposure, duration of exposure, number of exposures, any pulse modulation of the signal, and when effects are measured (some responses to RF are delayed). There is large variability in the results of ELF and RF testing, which would be expected based on the large variability of factors that can influence test results. However, it is clearly

demonstrated that under some conditions of exposure, the brain and nervous system functions of humans are altered. The consequence of long-term or prolonged exposures have not been thoroughly studied in either adults or in children."

The consequence of prolonged exposures to children, whose nervous systems continue to develop until late adolescence, is unknown at this time. This could have serious implications to adult healthand functioning in society if years of exposure of the young to both ELF and RF result in diminished capacity for thinking, judgment, memory, learning, and control over behavior.

People who are chronically exposed to low-level wireless antenna emissions report symptoms such as problems in sleeping (insomnia), fatigue, headache, dizziness, grogginess, lack of concentration, memory problems, ringing in the ears (tinnitus), problems with balance and orientation, and difficulty in multi-tasking. In children, exposures to cell phone radiation have resulted in changes in brain oscillatory activity during some memory tasks. Although scientific studies as yet have not been able to confirm a cause-and-effect relationship; these complaints are widespread and the cause of significant public concern in some countries where wireless technologies are fairly mature and widely distributed (Sweden, Denmark, France, Germany, Italy, Switzerland, Austria, Greece, Israel). For example, the roll-out of the new 3rd Generation wireless phones (and related community-wide antenna RF emissions in the Netherlands) caused almost immediate public complaints of illness. www.bioinitiative.org, Section 1.

Like second-hand smoke, EMF is a complex mixture, where different frequencies, intensities, durations of exposure(s), modulation, waveform and other factors is known to produce variable effects. Many years of scientific study has produced substantial evidence that EMF may be considered to be both carcinogenic and neurotoxic. The weight of evidence is discussed in this report, including epidemiological evidence and studies on laboratory animals"

www.bioinitiative.org, Section 17.

US Radiofrequency Interagency Working Group (RFIAWG)

The Working Group (RFIAWG) is a group of federal agency staff representatives that considers the issue of wireless safety for the public. It is made up of representatives from the US government's National Institute for Occupational Safety and Health (NIOSH), the Federal Communications Commission (FCC), Occupational Health and Safety Administration (OSHA), the Environmental Protection Agency (US EPA), the National Telecommunication and Information Administration, and the US Food and Drug Administration (FDA).

More than a decade ago, the RFIAWG concluded that "*existing public safety limits may not protect public health*" with respect to pulsed radiofrequency of this type.

On June 17, 1999, the RFIAWG issued a Guidelines Statement that concluded the present RF standard "may not adequately protect the public". The RFIAWG identified fourteen (14) issues that they believe are needed in the planned revisions of ANSI/IEEE RF exposure guidelines including "to provide a strong and credible rationale to support RF exposure guidelines". In particular, the RFIAWG criticized the existing standards as not taking into account chronic, as opposed to acute exposures, modulated or pulsed radiation (digital or pulsed RF is proposed at this site), time-averaged measurements that may erase the unique characteristics of an intensity-modulated RF radiation that may be responsible for reported biologic effects, and stated the need for a comprehensive review of long-term, low-level exposure studies, neurological-behavioral effects and micronucleus assay studies (showing genetic damage from low-level RF).

The areas of improvement where changes are needed include: a) selection of an adverse effect level for chronic exposures not based on tissue heating and considering modulation effects; b) recognition of different safety criteria for acute and chronic exposures at non-thermal or low-intensity levels; c) recognition of deficiencies in using time-averaged measurements of RF that does not differentiate between intensity-modulated RF and continuous wave (CW) exposure, and *therefore may not adequately protect the public* (emphasis added).

Notwithstanding these recommendations, the FCC has not updated their standards.

National Institutes for Health - National Toxicology Program

The National Toxicology Program (NTP) is a part of the National Institute for Environmental Health Sciences, National Institutes for Health. Public and agency comment has been solicited on whether to add radiofrequency radiation to its list of substances to be tested by NTP as carcinogens. In February 2000 the FDA made a recommendation to the NPT urging that RF be tested for carcinogenicity (website at www.fda.gov.us). The recommendation is based in part on written testimony stating:

> *" Animal experiments are crucial because meaningful data will not be available from epidemiological studies for many years due to the long latency period between exposure to a carcinogen and the diagnosis of a tumor.*
>
> *"There is currently insufficient scientific basis for concluding either that wireless communication technologies are safe or that they pose a risk to millions of users."*
>
> *"FCC radiofrequency radiation guidelines are based on protection from acute injury from thermal effects of RF exposure* and may not be protective *against any non-thermal effects of chronic exposures." (emphasis added)*

In March of 2003, the National Toxicology Program issued a Fact Sheet regarding its toxicology and carcinogenicity testing of radiofreqency/microwave radiation. These studies will evaluate radiofrequency radiation in the cellular frequencies.

"The existing exposure guidelines are based on protection from acute injury from thermal effects of RF exposure. Current data are insufficient to draw definitive conclusions concerning the adequacy of these guidelines to be protective against any non-thermal effects of chronic exposures. "

A decade later, the National Institutes for Environmental Health Sciences is STILL conducting tests to see if it is a toxic exposure – and the National Toxicology Program that listed radiofrequency as a possible carcinogen that needed study still has no answer.

World Health Organization

The World Health Organization is currently conducting its own study to determine whether radiofrequency radiation from wireless technologies is toxic to humans. Environmental Issue Report Number 29 from the World Health Organization (2002) cautions about the effects of radiofrequency radiation on children's health. As part of a publication on "Children's Health and Environment: A Review of Evidence" the World Health Organization (WHO) wrote:

"The possible adverse health effects in children associated with radiofrequency fields have not been fully investigated."

"Because there are suggestions that RF exposure may be more hazardous for the fetus and child due to their greater susceptibility, prudent avoidance is one approach to keeping children's exposure as low as possible."

"Further research is needed to clarify the potential risks of ELF-EMF and radiofrequency fields for children's health."

United Kingdom –Sir William Stewart Independent Expert Group Report

The Parliament of the United Kingdom commissioned a scientific study group to evaluate the evidence for RF health and public safety concerns. In May of 2000, the United Kingdom Independent Expert Group on Mobile Phones issued a report underscoring concern that standards are not protective of public health related to both mobile phone use and exposure to wireless communication antennas.

Conclusions and recommendations from the Stewart Report (for Sir William Stewart) indicated that the Group has some reservation about continued wireless technology expansion without more consideration of planning, zoning and potential public health concerns. Further, the Report acknowledges significant public concern over community siting of mobile phone and other communication antennas in residential areas and near schools and hospitals.

"Children may be more vulnerable because of their developing nervous system, the greater absorption of energy in the tissue of the head and a longer lifetime of exposure."

"The siting of base stations in residential areas can cause considerable concern and

distress. These include schools, residential areas and hospitals."

" There may be indirect health risks from living near base stations with a need for mobile phone operators to consult the public when installing base stations."

"Monitoring should be especially strict near schools, and that emissions of greatest intensity should not fall within school grounds."

"The report recommends "a register of occupationally exposed workers be established and that cancer risks and mortality should be examined to determine whether there are any harmful effects."

Summary

Chronic exposure to low-intensity radiofrequency and microwave radiation (RF/MW) is associated with a variety of both short and long-term health impacts. There is a growing body of scientific evidence that low-intensity, chronic RF exposures have implications for health including impaired cognitive function and memory loss, slowed motor skills, sleep disruption, tinnitus, fatigue, weakness, dizziness and vertigo, chest pain, increased heart rate and palpations, skin rashes and changes in immune function. Bioeffects that are reported to result from low-intensity RF exposure include changes in cell membrane function, metabolism, cellular signal communication, activation of proto-oncogenes and heat-shock protein. Fatigue, depressive tendency, sleeping disorders, difficulty in concentration and cardiovascular problems were reported by Oberfeld (2004) with exposure to GSM 900/1800 MHz cell phone frequency at exposures characteristic of low-intensity base station levels (0.0006 – 0.00128 microwatts/cm2). Resulting effects which are reported in the scientific literature include DNA breaks and chromosome aberrations, cell death including death of brain cells (neurons), increased free radical production, cell stress and premature aging, changes in brain function including memory loss, retarded learning, slower promotion in school and slower motor function and other performance impairment in children, headaches and fatigue, sleep disorders, neurodegenerative conditions, reduction in melatonin secretion, and cancer. Disruption of sleep is reported to occur at levels as low as 0.0001 to 0.1 microwatt/centimeter squared (μW/cm2).

The FCC limits for uncontrolled public access are variable according to the frequency (in megahertz) and the duration of exposure time (30 minutes). For example, 583 microwatts/cm2 (μW/cm2) is the limit for the 875 MHz cell phone wireless frequency and 1000 μW/cm2 is the limit for PCS frequencies in the 1800 – 1950 MHz range averaged over 30 minutes. RF levels within the condominiums below the roof top wireless antennas are not expected to exceed Federal Communication Commission (FCC) limits for uncontrolled public access at the operational levels assessed in this report.

However, compliance with FCC limits is not necessarily a measure or guarantee of safety. There is substantial discussion among federal and international agencies, and debate among experts about the adequacy of current FCC limits for humans. This is particularly true for chronic exposure to low-intensity RF that is pulsed (as opposed to

continuous wave). There is also evidence that children have greater neurological sensitivity to the effects of many toxic environmental exposures including RF (WHO Report on Children and Health, 2000). FCC standards are based today on adults, so that chronic, low-intensity RF exposures for children may need to be lower taking into account their greater susceptibility during growth and development.

Low-intensity bioeffects have been reported to occur as low as 0.0006 to 1 μW/cm2 range (power density) or 0.0001 to 0.1 W/Kg for whole body exposure (SAR), This is commonly the level of RF exposure within the first few hundred to a thousand feet of a typical cell tower or antenna farm with multiple transmitting cell phone or PCS wireless communication antennas. SAR is a measure of absorbed energy or specific absorption rate. The FCC has public safety limits expressed in SAR and in power density.

Some international and federal agencies have identified the need for updated RF exposure limits for the public, particularly with respect to children. Deficiencies in the current exposure standards are at the core of the scientific and regulatory debate about the adequacy of the current FCC limits that do not consider "non-thermal" or low-intensity RF effects. At present the FCC limits (and those of many other countries around the world) are based only on thermal exposures. Thermal exposure limits are designed only to prevent injury to humans based on heating of tissue. They do not protect against what are recognized as effects of nonthermal or low-intensity chronic exposures that occur at far lower RF levels (several orders of magnitude lower).

Table 4: Reported Effects from Exposure to RF Radiation at Levels Below Current FCC Standards for Uncontrolled Access

- memory loss
- sleep disorders and insomnia, decrease in REM sleep
- slowed motor skills and reaction time in school children
- altered white blood cell activity (immune system changes) in school children
- spatial disorientation
- headaches
- blood brain barrier changes allowing leakage into/out of the brain and allow toxins into the brain (increasing risk of Alzheimer's, Parkinson's diseases and multiple sclerosis)
- impaired nervous system activity
- loss of concentration and "fuzzy thinking"
- decreased immune function
- lower sperm count
- increased heart rate
- increased blood pressure
- hemoglobin leakage out of red blood cells
- change in the brain's electrical activity
- DNA damage (genetic damage) and changes in DNA repair capacity
- cell proliferation

References

Kundi M Hutter P. Mobile phone base stations—Effects on wellbeing and health. Pathophysiology 16: 123-135.

Sage C. Carpenter DO. 2009. Public Health Implications of Wireless Technologies.Pathophysiology 16: 233–246

Hardell L Sage C. Biological effect from electromagnetic field exposure and public exposure standards. Biomedicine & Pharmacotherapy 2008;62:104-109. doi:10.1016/j.bipha.2007.12.004.

Carpenter DO Sage CL. 2008. Setting Prudent Public Health Policy for Electromagnetic Field Exposures. Reviews on Environmental Health 23(2) 91-117.

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors. BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF) at www.bioinitiative.org, August 31, 2007.

McDonough CC. 2003. The Impact of Wireless Towers on Residential Property Values, Assessment Journal.

Bond S Wang K. 2005. The Impact of Cell Phone Towers on Prices in Residential Neighborhoods. Appraisal Journal.

Exhibit

F

May 1, 2010

To: Pastor Pielhoop and the Church Council, St. Matthew's Church
Cc: Members of the St. Matthew's Church Congregation

We are a group of physicians whose children attend Children's Day School. We are deeply concerned by the proposal to install a T-Mobile cell base station on your church steeple and feel it represents a potentially grave safety threat to our children, as well as to the children at neighboring schools.

We are writing to urge you to withdraw your proposal to install a T-Mobile cell base station on your steeple.

Since hearing about the proposal, we have been studying the potential health impact of the cell base station and are very concerned by what we have learned. We'd like to share the information we've found with you in this letter.

We don't know enough about cell towers yet to say whether they are safe for children. Cell technology is relatively new and rapidly growing. The research is not complete. Most scientists in this area agree that more studies are needed, particularly long-term studies. An expert group of scientists (brought together by the US Food and Drug Administration in 2008) determined that one of the most important gaps in knowledge is the impact of long term exposure to radiofrequency radiation from cell base stations on children, pregnant women, and fetuses. Children are a particular concern because their brains and bodies are rapidly developing and much more susceptible to environmental hazards. Potential effects of prolonged exposure of children to cell base stations may include: leukemia and other cancers; cognitive problems such as memory loss and lack of concentration; behavioral and psychological impairments; headaches and insomnia.

Many mainstream organizations caution against placing cell base stations next to schools and playgrounds. The World Health Organization (WHO) has urged caution and restraint with regards the placement of cell base stations next to kindergartens, preschools, and playgrounds. The European Parliament has also cautioned against this, stating that "children exposed to EMFs [electromagnetic fields] are especially vulnerable".

Physicians and many national institutions have called for more studies about the potential dangers of prolonged exposure to low levels of radiofrequency radiation. These include, but are not limited to, Dr. Martin Blank (Columbia University College of Physicians and Surgeons) and scientists from the National Research Council (of the National Academies), the National Institutes of Health, and the US Environmental Protection Agency.

Some entities have passed legislation to limit the exposure of children to cell base stations. In 2000, the Los Angeles Unified School District (which is the 2nd largest in the country) passed a resolution to prohibit cell antennas on their property. Closer to home, the San Francisco Board of Supervisors passed a resolution this past March (10 to 0) in which they expressed concern about the potential adverse health effects of cell antennas. In the resolution, they urge the Federal Government to give cities the power to make precautionary decisions on the placement of cell antennas, particularly in relation to schools and other sites with vulnerable populations. According to the EMR Policy Institute, 1500 feet is recognized internationally as the safe minimum distance between a cell antenna site and a school, playground, or daycare.

It wouldn't be the first time we found out something was dangerous after many years of exposure. Historically, debates have occurred about all sorts of health threats before action was finally taken. There were debates about lead, tobacco, and DDT for decades before scientists agreed on the dangers and the government starting to protect the public from these threats.

It's better to be safe than sorry – especially when children are concerned! Our children, as well as the children from Holy Family Day School, Mission Dolores School, KinderHaus preschool, and several other organizations, will be next to these cell towers for many hours a day, many days a week, over the course of many years of their lives. These children will be **much** closer than the recommended 1500 feet – many of them will be **within 300 feet.**

We would be happy to come talk more with you about the health effects this cell base station could have on all the neighboring children. Let us know your questions and we will do our best to discuss the evidence with you.

(letter continues on back of page)

Please think of the health of all of these children who are neighbors to your church, and reconsider the decision to place this cell tower on your church property.

Thank you for reading this letter,

Physicians/Parents from Children's Day School
Claire Horton, MD, MPH

Jessica Ross MD

Frank. Delon, MD

CHRISTOPHER A. HINNANT, MD

Kevin Chen MD

Darya Soto MD

Amy Hecht MD.

Kieran Branch MD

Evan Dalf MD

Evan Goulding

MD

SUSAN EHRLICH

MD

Michele A. Gomez

Connie Choi

DAVID Bui

Exhibit

G

Columbia University, College of Physicians and Surgeons
Department of Physiology and Cellular Biophysics
630 West 168 Street
New York, NY 10032
Telephone: (212) 305-3644
Telefax: (212) 305-5775
EMAIL: mb32@columbia.edu

June 1, 2010

An Open Letter to the City and County of San Francisco:

I have been an active researcher on the biological effects of electromagnetic fields (EMF) for over twenty-five years at Columbia University. I am writing in support of a limit on the construction of cell towers in close proximity to schools in San Francisco.

There is sufficient scientific data about the biological effects of EMF radiofrequency (RF) radiation to adopt precautionary measures, particularly as it relates to reducing children's exposure to RF. Laboratory studies have demonstrated unequivocally that EMF RF can cause single and double strand DNA breakage at exposure levels that are considered safe under FCC regulations. There are also epidemiological studies that show an increased risk of cancers associated with long-term exposure to RF. Since we know that an accumulation of changes or mutations in DNA is associated with cancer, there is good reason to believe that the elevated rates of cancers among persons living near RF towers are probably linked to DNA damage caused by EMF RF. Because of the nature of EMF RF exposure and the length of time it takes for most cancers to develop, one cannot expect "conclusive proof". However, there is enough evidence of a plausible mechanism to link EMF RF exposure to increased risk of cancer, and therefore of a need to limit exposure, especially of children.

EMF RF has been shown to cause other potentially harmful biological effects, such as leakage of the blood brain barrier that can lead to damage of neurons in the brain and increased micronuclei (DNA fragments) in human blood lymphocytes - all at EMF RF exposures well below the limits in the current FCC guidelines. Probably the most convincing evidence of potential harm comes from living cells themselves when they start to manufacture stress proteins upon exposure to EMF RF. The cellular stress response, an important protective mechanism that enables cells to survive environmental stressors, is triggered by a number of potentially harmful environmental factors such as elevated temperatures, changes in pH, and toxic metals. Analysis of genes, activated as a group along with stress genes, has shown that the stress response is a reaction to molecular damage. This means that when stress protein synthesis is stimulated by EMF RF, ***the body is telling us in its own language*** that RF exposure is potentially harmful.

As I mentioned above, many potential harmful effects of RF exposure, such as the stress response and DNA strand breaks, occur at non-thermal levels (field strengths that do not cause a temperature increase) that are considered safe by the FCC. It is obvious that the national safety standards must be revised downward to take into account the non-thermal biological responses that occur at much lower intensities. Since we cannot rely on the

current national standards, it is best to act according to the precautionary principle. In light of current evidence, it is your responsibility to protect the health and welfare of the public especially its most vulnerable members, children. I urge you to reduce children's exposure to EMF RF by keeping cell towers at a safe distance from schools and places where children spend a large portion of their day. Thank you for your consideration.

Sincerely,

Martin Blank, PhD

Associate Professor, Physiology and Cellular Biophysics

Columbia University

Cc:

Senator Barbara Boxer

Senator Dianne Feinstein

Congresswoman Jackie Speier

Congresswoman Nancy Pelosi

St. Matthew's Church Council

UNIVERSITY AT ALBANY
State University of New York

Institute for Health and the Environment
and
Department of Environmental Health Sciences
School of Public Health

24 May 2010

An Open Letter to the San Francisco Planning Commission and the
San Francisco Board of Supervisors:

I am a public health physician, former Dean of the School of Public Health at the University at Albany, and presently Director of the Institute for Health and the Environment as well as Professor in the Department of Environmental Health Sciences. I am a member of the Science Advisory Board of the International Joint Commission, the body that advises the governments of Canada and the US on issues related to the boundary waters, and also the Board of Directors of the Pacific Basin Consortium for Health and the Environment. I currently serve on the editorial boards of five journals, and have over 325 peer reviewed publications which in recent years are primarily on human health effects of environmental exposures. One of my areas of expertise is the human health effects of exposures to electromagnetic fields. I served as the Executive Secretary of the New York State Powerlines Project several years ago, and have since written extensively on the subject, including serving as the editor and author of two books on the subject.

This letter is to voice my strong objection to the proposal to place four PCS cell antennas in St. Matthew's Church steeple at 3281 16th Street in San Francisco. There is a vast and growing body of scientific evidence that prolonged exposure to radiofrequency electromagnetic fields (EMF-RF), which is emitted by the PCS antenna that T-Mobile proposes to install within 500 feet of more than 900 children and within 1500 feet of 2600 school-aged children, has profound adverse effects on biological systems. It is documented that very low levels of EMF-RF exposure may increase the risk of several kinds of cancer, especially brain cancer and leukemia, memory impairment, slowed motor skills, neurological problems, genotoxicity (DNA strand breaks) and altered white blood cells in children. Furthermore, children are at least five times more vulnerable to the effects of EMF-RF than are adults.

The current safety standard of EMF-RF exposure limits, established by the American National Standards Institute in 1982 and adopted by the FCC in 1996, does not do enough to protect humans from daily exposures radiofrequency radiation. This standard is based on thermal heating injury to tissue (what burns, damages) and does not take into account non-thermal (or low intensity) RF exposures that cause biological effects that may, with chronic exposure, result in adverse health effects. In addition, the standard is based on the height, weight and stature of a 6-foot tall male, not scaled to children or adults of smaller stature. Finally, the standard does not take into account the unique and well documented vulnerability of children to RF exposures. It is important to understand that when the existing safety limits were established, the proliferation of cellular technology and widespread daily use of wireless devices was not anticipated.

In my judgment it is unwise, indeed unethical, to place a cell tower is such close proximity to numerous schools. Doing so would expose a large number of children to many years of daily continuous low intensity radio frequency radiation, which could result in serious adverse health consequences for them. I urge you to deny the placement of the T-mobile cell tower in St. Matthew's Church.

East Campus, 5 University Place, Room A217, Rensselaer, NY 12144-3429
PH: 518-525-2660 FX: 518-525-2665
www.albany.edu/ihe

Thank you for your consideration.

Sincerely,

David O. Carpenter

David O. Carpenter, M.D.
Director, Institute for Health and the Environment
University at Albany

CC:

Mayor Gavin Newsom
Senator Barbara Boxer
Senator Dianne Feinstein
Congresswoman Jackie Speier
Congresswoman Nancy Pelosi
St. Matthew's Church Council

East Campus, 5 University Place, Room A217, Rensselaer, NY 12144-3429
PH: 518-525-2660 FX: 518-525-2665
www.albany.edu/ihe

Dr. Magda Havas, B.Sc., Ph.D.
Environmental & Resource Studies, Trent University, Peterborough, ON, Canada
phone: (705) 748-1011 x7882 **fax**: (705) 748-1569 **email**: mhavas@trentu.ca

June 7, 2010

Open Letter to the City and County of San Francisco

As a researcher on the biological effects of radio frequency radiation and electromagnetic fields, I urge you to avoid the placement of cell phone base stations in close proximity to schools.

Studies are beginning to document adverse biological and health effects for people who are exposed long term to cell phone antennas. Some studies show an increased risk of cancers for those living within 350 to 400 meters of cell antennas at exposure levels well below the Federal Communications Commission (FCC) guideline. Other studies show an increase in symptoms that include difficulty sleeping, fatigue, pain, poor short-term memory, difficulty concentrating, anxiety, irritability and depression, dizziness, nausea, and ringing in the ears.

Exposure to radio frequency radiation from cell antennas may interfere with learning and may not be conducive to a good learning environment. Children are more vulnerable than adults to this type of radiation. It is important to minimize students' exposure to radiofrequency radiation by placing cell antennas at least 1,500 feet away from schools. In addition, the more antennas that are near a school, the greater the potential exposure of students at that school to radio frequency radiation.

The FCC guideline is based on short-term (30 minutes) thermal effects (when tissue is heated). This guideline is grounded in the assumption that if microwave energy does not heat tissue it is not harmful. This assumption is incorrect. Adverse biological effects have been documented at levels well below thermal federal guidelines. There are no federal guidelines for non-thermal effects, nor are there guidelines for long-term exposure. The explosive growth of wireless technology and facilities is running well ahead of the scientific research and policy decisions necessary to ensure their safety.

For documentation on the effects of radio frequency radiation, please refer to:

- Electromagnetic Fields (EMF): Special Issue. *Pathophysiology*, Volume 16, Issue 2-3, pp. 67-250 (Aug 09) http://www.journals.elsevierhealth.com/periodicals/patphy/issues/contents?issue_key=S0928-4680(09)X0003-9
- Additional studies: http://www.emrpolicy.org/science/research/lai_biblio_bioeffects_03.htm

Thank you for your consideration,

Magda Havas,
Associate Professor

Cc:
Mayor Gavin Newsom
Senator Barbara Boxer
Senator Dianne Feinstein
Congresswoman Jackie Speier
Congresswoman Nancy Pelosi
St. Matthew's Church Council

UNIVERSITY OF WASHINGTON
Department of Bioengineering, Box 355061
Seattle, WA 98195-5061
USA

May 26, 2010

An Open Letter to the City and County of San Francisco:

I am writing to express my opinion and concern on the possible health effects of exposure to radiofrequency radiation from wireless transmitters and transmission antennae (e.g., AM and FM radio, and TV transmission, cell phone base stations).

The level (intensity) of radiation from a transmitter that one would be exposed to is very low, mainly because of the distance from the transmitter. The level is generally considered to be harmless. Most research in this area deals with radiation of much higher levels. However, some recent studies have suggested that exposure to radiations similar in intensity to those from cellular phone base station transmitters is not completely safe. A list of biological studies on low-level effects (within the levels of exposure less than 200 ft from a transmitter) is attached with this letter. Many of these studies reported effects, e.g., brain cell damage, DNA damage, learning deficit., that could potentially lead to serious adverse health effects.

Furthermore, when considering the health effect of radiation from wireless transmitters, one has to consider the effect of long-term exposure. People who live close to transmitters are constantly being exposed to the radiation for months or years. Even though the level is low, it would matter if the effects of radiofrequency radiation turn out to be cumulative (i.e., add up over time). Small doses cumulate over a long period of time will eventually lead to harmful effects. Most of the studies in the attached list only investigated short term exposure effects and little is known about long-term exposure.

Therefore, exposure of the general public to radiofrequency radiation from wireless transmitters should be limited to a minimal. Broadcast antennae should be located at a significant distance from populated areas, schools, day care centers, and hospitals.

Sincerely,

Henry Lai, Ph.D.
Research Professor
Department of Bioengineering, Box 355061
University of Washington
Seattle, WA 98195-5061
USA
Telephone: 1-206-543-1071
FAX: 1-206-685-3925
e-mail: hlai@u.washington.edu

Studies reporting biological effects of radiofrequency radiation (RFR) at low intensities

(1) Balode (1996)- blood cells from cows from a farm close and in front of a radar showed significantly higher level of severe genetic damage.

(2) Belyaev et al. (2005)- cell phone radiation at SAR of 0.037 W/kg caused genetic changes in human white blood cells.

(3) Belyaev et al. (2009)- cell phone radiation at SAR of 0.0037 W/kg affects DNA repair mechanism in human white blood cells.

(4) Blackman et al. (1980)- RFR affected calcium in forebrain of chickens at SAR of 0.0014 W/kg

(5) Boscol et al. (2001)- RFR from radio transmission stations (0.005 mW/cm^2) affected immunological system in women.

(6) Campisi et al. (2010)- RFR casued DNA damage in human brain glial cells at 0.026 mW/cm^2.

(7) Capri et al. (2004)- cell phone radiation at SAR range of 0.070 – 0.076 W/kg affected cell proliferation and membrane chemistry.

(8) Chiang et al. (1989)- people lived and worked near AM radio antennae and radar installations showed deficits in psychological and short-term memory tests. Effects observed at exposure above 0.01 mW/cm^2 for more than one year.

(9) de Pomerai et al. (2000, 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.

(10) de Pomerai et al. (2003)- RFR damages proteins at 0.015-0.020 W/kg.

(11) D'Inzeo et al. (1988)- very low intensity RFR (0.002 – 0.004 mW/cm^2) affected the operation of acetylcholine-related ion-channels in cells. These channels play important roles in physiological and behavioral functions.

(12) Dolk et al. (1997)- a significant increase in adult leukemias was found in residence who lived near the Sutton Coldfield television (TV) and frequency modulation (FM) radio transmitter in England.

(13) Dutta et al. (1984)- reported an increase in calcium efflux in brain cancer cells after exposure to 915-MHz RFR at 0.05 W/kg. Calcium is an important component of normal cellular functions.

(14) Dutta et al. (1989)- reported an increase in calcium efflux in cells after exposure to 147-MHz RFR at 0.005 W/kg.

(15) Eger et al. (2004)- increase in cancer risk of people lived in the proximity of a cell phones tower.

(16) Fesenko et al. (1999)- reported a change in immunological functions in mice after exposure to RFR at a power density of 0.001 mW/cm^2.

(17) Forgacs et a. (2006)- repeated exposure to cell phone radiation at SAR of 0.018-0.023 W/kg caused an increase in serum testosterone in mice.

(18) Guler et al. (2010)- RFR caused oxidative lipid and DNA damages in the brain of pregnant rabbits at 0.052 mW/cm^2.

(19) Ha et al. (2003)- increase in cancer rate in people who lived within 2 km of a AM radio transmitter.

(20) Ha et al. (2007)- increase in childhood leukemia within 2 km of AM radio transmitters.

(21) Hjollund et al. (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/cm^2), were significantly low compared to references.

(22) Hocking et al. (1996)- an association was found between increased childhood leukemia incidence and mortality and proximity to TV towers.

(23) Ivaschuk et al. (1999)- short-term exposure to cellular phone RFR of very low SAR (0.026 W/kg) affected a gene related to cancer.

(24) Jech et al. (2001)- cell phone radiation at SAR of 0.06 W/kg improved cognitive function in humans.

(25) Kesari and Behari (2009a)- double strand DNA breaks observed in brain cells of rats exposed to RFR at SAR of 0.0008 W/kg.

(26) Kesari and Behari (2009b)- a significant effect on reproductive system of male rats, which may be an indication of male infertility.

(27) Kesari et al. (2010)- RFR caused DNA double strand breaks in brain cell DNA of rats at 0.11 W/kg.

(28) Kolodynski and Kolodynska (1996)- school children 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.

(29) Kwee et al. (2001)- 20 minutes of cell phone RFR exposure at 0.0021 W/kg increased stress protein in human cells.

(30) Lebedeva et al. (2000)- brain wave activation was observed in human subjects exposed to cellular phone RFR at 0.06 mW/cm^2.

(31) Lerchl et al. (2008)- chronic exposure to cell phone radiation at SAR of 0.08 W/kg caused metabolic changes in hamsters.

(32) Loscher and Kas (1998)- exposure to radiation from a radio transmission antenna caused abnormal behaviors in a dairy cow herd.

(33) Magras and Xenos (1999)- reported a decrease in reproductive function in mice exposed to RFR at power densities of 0.000168 - 0.001053 mW/cm^2.

(34) Makova et al. (2005)- cell phone radiation at SAR of 0.037 W/kg affects chromatin conformation in human white blood cells.

(35) Mann et al. (1998)- a transient increase in blood cortisol was observed in human subjects exposed to cellular phone RFR at 0.02 mW/cm^2. Cortisol is a hormone involved in stress reaction.

(36) Marinelli et al. (2004)- exposure to 900-MHz RFR at 0.0035 W/kg affected cell's self-defense responses triggered by DNA damage.

(37) Michelozzi et al. (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.

(38) Michelozzi et al. (2002)- childhood leukemia higher at a distance up to 6 km from a radio station.

(39) Navakatikian and Tomashevskaya (1994)- RFR at low intensities (0.01 - 0.1 mW/cm^2; 0.0027- 0.027 W/kg) induced behavioral and endocrine changes in rats. Decreases in blood concentrations of testosterone and insulin were reported.

(40) Nittby et al. (2007)- long term exposure to cell phone radiation (SAR 0.0006 – 0.06 W/kg) reduced memory functions in rats.

(41) Novoselova et al. (1999)-low intensity RFR (0.001 mW/cm^2) affected functions of the immune system.

(42) Novoselova et al. (2004)- chronic exposure to RFR (0.001 mW/cm^2) decreased tumor growth rate and enhanced survival in mice.

(43) Panagopoulos DJ et al. (2010)- GSM radiation at 1-10 $\mu W/cm^2$ affected reproductive capacity and induced cell death in the fly.

(44) Panagopoulos DJ and Margaritis LH (2010a)- 'Window' effect of GSM radiation on reproductive capacity and cell death in the fly observed at 10 $\mu W/cm^2$.

(45) Panagopoulos DJ and Margaritis LH (2010b)- Reproductive capacity of the fly decreased linearly with increased duration of exposure (1 - 21 min daily for 5 days) to GSM radiation at 1-10 $\mu W/cm^2$.

(46) Park et al. (2004)- higher mortality rates for all cancers and leukemia in some age groups in the area near AM radio broadcasting towers.

(47) Pavicic et al. (2008)- 864 MHz and 935 MHz RFR affected cell growth at 0.12 - 0.08 W/kg.

(48) Pérez-Castejón et al. (2009)- Cancer cells exposed to 9.6 GHz field at SAR of 0.0004 W/kg increased proliferation rate.

(49) Persson et al. (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.

(50) Phillips et al. (1998)- reported DNA damage in cells exposed to RFR at SAR of 0.0024 - 0.024 W/kg.

(51) Polonga-Moraru et al. (2002)- change in membrane of cells in the retina (eye) after exposure to RFR at 15 $\mu W/cm^2$.

(52) Pyrpasopoulou et al. (2004)- exposure to cell phone radiation during early gestation at SAR of 0.0005 W/kg (5 $\mu W/cm^2$) affected kidney development in rats.

(53) Roux et al. (08a) - 900 MHz field at 0.007 mW/cm^2 affected gene expression and energy metabolism in tomato.

(54) Roux et al. (08b)- 900 MHz field at 0.007 mW/cm^2 affected energy metabolism in plants.

(55) Salford et al. (2003)- nerve cell damage in brain of rats exposed for 2 hrs to GSM signal at 0.02 W/kg.

(56) Santini et al. (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.

(57) Sarimov et al. (2004)- cell phone microwaves affected human lymphocyte chromatin similar to stress response at 0.0054 W/kg.

(58) Schwartz et al. (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.

(59) Schwarz et al. (2008)- cell phone radiation at SAR of 0.05 W/kg affects genes in human cells.

(60) Somosy et al. (1991)- RFR at 0.024 W/kg caused molecular and structural changes in cells of mouse embryos.

(61) Stagg et al. (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.

(62) Stankiewicz et al. (2006)- cell phone radiation at SAR of 0.024 W/kg affected immune activities of white blood cells.

(63) Stark et al. (1997)- a two- to seven-fold increase of salivary melatonin concentration was observed in dairy cattle exposed to RFR from a radio transmitter antenna.

(64) Tattersall et al. (2001)- low-intensity RFR (0.0016 - 0.0044 W/kg) modulated 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.

(65) **Vangelova et al. (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.**

(66) **Velizarov et al. (1999)- showed a decrease in cell proliferation (division) after exposure to RFR of 0.000021 - 0.0021 W/kg.**

(67) **Veyret et al. (1991)- low intensity RFR at SAR of 0.015 W/kg affected functions of the immune system.**

(68) **Vian et al. (2009)- 900 MHz field at 0.007 mW/cm^2 affected stress gene expression in plants.**

(69) **Wolke et al. (1996)- RFR at 0.001W/kg affected calcium concentration in heart muscle cells of guinea pigs.**

(70) **Yurekli et al. (2006)- cell phone radiation at SAR of 0.0113 W/kg affected free radical chemistry in the rat.**

Source of literature and abstracts:

(1) Balode, Z, Assessment of radio-frequency electromagnetic radiation by the micronucleus test in bovine peripheral erythrocytes. *Sci Total Environ* 180(1):81-85, 1996.

Previous bioindicative studies in the Skrunda Radio Location Station area have focused on the somatic influence of electromagnetic radiation on plants, but it is also important to study genetic effects. We have chosen cows as test animals for cytogenetical evaluation because they live in the same general exposure area as humans, are confined to specific locations and are chronically exposed to radiation. Blood samples were obtained from female Latvian Brown cows from a farm close to and in front of the Skrunda Radar and from cows in a control area. A simplified alternative to the Schiff method of DNA staining for identification of micronuclei in peripheral erythrocytes was applied. Microscopically, micronuclei in peripheral blood erythrocytes were round in shape and exhibited a strong red colour. They are easily detectable as the only coloured bodies in the uncoloured erythrocytes. From each individual animal 2000 erythrocytes were examined at a magnification of x 1000 for the presence of micronuclei. The counting of micronuclei in peripheral erythrocytes gave low average incidences, 0.6 per 1000 in the exposed group and 0.1 per 1000 in the control, but statistically significant ($P < 0.01$) differences were found in the frequency distribution between the control and exposed groups.

(2) Belyaev IY, Hillert L, Protopopova M, Tamm C, Malmgren LO, Persson BR, Selivanova G, Harms-Ringdahl M. 915 MHz microwaves and 50 Hz magnetic field affect chromatin conformation and 53BP1 foci in human lymphocytes from hypersensitive and healthy persons. *Bioelectromagnetics.*

26(3):173-184, 2005.

We used exposure to microwaves from a global system for mobile communication (GSM) mobile phone (915 MHz, specific absorption rate (SAR) 37 mW/kg) and power frequency magnetic field (50 Hz, 15 muT peak value) to investigate the response of lymphocytes from healthy subjects and from persons reporting hypersensitivity to electromagnetic field (EMF). The hypersensitive and healthy donors were matched by gender and age and the data were analyzed blind to treatment condition. The changes in chromatin conformation were measured with the method of anomalous viscosity time dependencies (AVTD). 53BP1 protein, which has been shown to colocalize in foci with DNA double strand breaks (DSBs), was analyzed by immunostaining in situ. Exposure at room temperature to either 915 MHz or 50 Hz resulted in significant condensation of chromatin, shown as AVTD changes, which was similar to the effect of heat shock at 41 degrees C. No significant differences in responses between normal and hypersensitive subjects were detected. Neither 915 MHz nor 50 Hz exposure induced 53BP1 foci. On the contrary, a distinct decrease in background level of 53BP1 signaling was observed upon these exposures as well as after heat shock treatments. This decrease correlated with the AVTD data and may indicate decrease in accessibility of 53BP1 to antibodies because of stress-induced chromatin condensation. Apoptosis was determined by morphological changes and by apoptotic fragmentation of DNA as analyzed by pulsed-field gel electrophoresis (PFGE). No apoptosis was induced by exposure to 50 Hz and 915 MHz microwaves. In conclusion, 50 Hz magnetic field and 915 MHz microwaves under specified conditions of exposure induced comparable responses in lymphocytes from healthy and hypersensitive donors that were similar but not identical to stress response induced by heat shock.

(3) Belyaev IY, Markovà E, Hillert L, Malmgren LO, Persson BR. Microwaves from UMTS/GSM mobile phones induce long-lasting inhibition of 53BP1/gamma-H2AX DNA repair foci in human lymphocytes. *Bioelectromagnetics.* 30(2):129-141, 2009.

We have recently described frequency-dependent effects of mobile phone microwaves (MWs) of global system for mobile communication (GSM) on human lymphocytes from persons reporting hypersensitivity to electromagnetic fields and healthy persons. Contrary to GSM, universal global telecommunications system (UMTS) mobile phones emit wide-band MW signals. Hypothetically, UMTS MWs may result in higher biological effects compared to GSM signal because of eventual "effective" frequencies within the wideband. Here, we report for the first time that UMTS MWs affect chromatin and inhibit formation of DNA double-strand breaks co-localizing 53BP1/gamma-H2AX DNA repair foci in human lymphocytes from hypersensitive and healthy persons and confirm that effects of GSM MWs depend on carrier frequency. Remarkably, the effects of MWs on 53BP1/gamma-H2AX foci persisted up to 72 h following exposure of cells, even longer than the stress response following heat shock. The data are in

line with the hypothesis that the type of signal, UMTS MWs, may have higher biological efficiency and possibly larger health risk effects compared to GSM radiation emissions. No significant differences in effects between groups of healthy and hypersensitive subjects were observed, except for the effects of UMTS MWs and GSM-915 MHz MWs on the formation of the DNA repair foci, which were different for hypersensitive ($P < 0.02$[53BP1]//0.01[gamma-H2AX]) but not for control subjects ($P > 0.05$). The non-parametric statistics used here did not indicate specificity of the differences revealed between the effects of GSM and UMTS MWs on cells from hypersensitive subjects and more data are needed to study the nature of these differences.

(4) Blackman CF, Benane SG, Joines WT, Hollis MA, House DE. Calcium-ion efflux from brain tissue: power-density versus internal field-intensity dependencies at 50-MHz RF radiation. Bioelectromagnetics. 1(3):277-283, 1980.

In previous experiments changes were found in calcium-ion efflux from chick-brain tissue that had been exposed in vitro to 147-MHz radiation across a specific range of power densities when the field was amplitude modulated at 16 Hz. In the present study, 50-MHz radiation, similarly modulated as a sinusoid, was found to produce changes in calcium-ion efflux from chick brains exposed in vitro in a Crawford cell. Exposure conditions were optimized to broaden any power-density window and to enhance the opportunity to detect changes in the calcium-ion efflux. The results of a power-density series demonstrated two effective ranges: One spanning a range from 1.44 to 1.67 mW/cm2, and the other including 3.64 mW/cm2, which were bracketed by no-effect results at 0.72, 2.17, and 4.32 mW/cm2. peaks of positive findings are associated with near-identical rates of energy absorption: 1.4 microW/g at 147 MHz, and 1.3 microW/g at 50 MHz, which indicates that the enhanced-efflux phenomenon is more dependent on the intensity of fields in the brain than on the power density of incident radiation. In addition, the phenomenon appears to occur at multiples of some, as yet unknown, rate of radiofrequency (RF) energy absorption. Because of the extremely small increments of temperature associated with positive findings (less than 4 X 10(-4) degrees C), and the existence of more than one productive absorption rate, a solely thermal explanation appears extremely unlikely.

(5) Boscol P, Di Sciascio MB, D'Ostilio S, Del Signore A, Reale M, Conti P, Bavazzano P, Paganelli R, Di Gioacchino M. Effects of electromagnetic fields produced by radiotelevision broadcasting stations on the immune system of women. *Sci Total Environ* 273(1-3):1-10, 2001.

The object of this study was to investigate the immune system of 19 women with a mean age of 35 years, for at least 2 years (mean = 13 years) exposed to

electromagnetic fields (ELMFs) induced by radiotelevision broadcasting stations in their residential area. In September 1999, the ELMFs (with range 500 KHz-3 GHz) in the balconies of the homes of the women were (mean +/- S.D.) 4.3 +/- 1.4 V/m. Forty-seven women of similar age, smoking habits and atopy composed the control group, with a nearby resident ELMF exposure of < 1.8 V/m. Blood lead and urinary trans-trans muconic acid (a metabolite of benzene), markers of exposure to urban traffic, were higher in the control women. The ELMF exposed group showed a statistically significant reduction of blood NK CD16+-CD56+, cytotoxic CD3(-)-CD8+, B and NK activated CD3(-)-HLA-DR+ and CD3(-)-CD25+ lymphocytes. 'In vitro' production of IL-2 and interferon-gamma (INF-gamma) by peripheral blood mononuclear cells (PBMC) of the ELMF exposed group, incubated either with or without phytohaemoagglutinin (PHA), was significantly lower; the 'in vitro' production of IL-2 was significantly correlated with blood CD16+-CD56+ lymphocytes. The stimulation index (S.I.) of blastogenesis (ratio between cell proliferation with and without PHA) of PBMC of ELMF exposed women was lower than that of the control subjects. The S.I. of blastogenesis of the ELMF exposed group (but not blood NK lymphocytes and the 'in vitro' production of IL-2 and INF-gamma by PBMC) was significantly correlated with the ELMF levels. Blood lead and urinary trans-trans muconic acid were barely correlated with immune parameters: the urinary metabolite of benzene of the control group was only correlated with CD16+-CD56+ cells indicating a slight effect of traffic on the immune system. In conclusion, this study demonstrates that high frequency ELMFs reduce cytotoxic activity in the peripheral blood of women without a dose-response effect.

(6) Campisi A, Gulino M, Acquaviva R, Bellia P, Raciti G, Grasso R, Musumeci F, Vanella A, Triglia A. Reactive oxygen species levels and DNA fragmentation on astrocytes in primary culture after acute exposure to low intensity microwave electromagnetic field. Neurosci Lett. 2010 Feb 13. [Epub ahead of print]

The exposure of primary rat neocortical astroglial cell cultures to acute electromagnetic fields (EMF) in the microwave range was studied. Differentiated astroglial cell cultures at 14 days in vitro were exposed for 5, 10, or 20min to either 900MHz continuous waves or 900MHz waves modulated in amplitude at 50Hz using a sinusoidal waveform and 100% modulation index. The strength of the electric field (rms value) at the sample position was 10V/m. No change in cellular viability evaluated by MTT test and lactate dehydrogenase release was observed. A significant increase in ROS levels and DNA fragmentation was found only after exposure of the astrocytes to modulated EMF for 20min. No evident effects were detected when shorter time intervals or continuous waves were used. The irradiation conditions allowed the exclusion of any possible thermal effect. Our data demonstrate, for the first time, that even acute exposure to low intensity EMF induces ROS production and DNA fragmentation in astrocytes in primary cultures, which also represent the principal target of

modulated EMF. Our findings also suggest the hypothesis that the effects could be due to hyperstimulation of the glutamate receptors, which play a crucial role in acute and chronic brain damage. Furthermore, the results show the importance of the amplitude modulation in the interaction between EMF and neocortical astrocytes.

(7) Capri M, Scarcella E, Fumelli C, Bianchi E, Salvioli S, Mesirca P, Agostini C, Antolini A, Schiavoni A, Castellani G, Bersani F, Franceschi C. In vitro exposure of human lymphocytes to 900 MHz CW and GSM modulated radiofrequency: studies of proliferation, apoptosis and mitochondrial membrane potential. *Radiat Res.* 162(2):211-218, 2004. .

The aim of this study was to investigate the nonthermal effects of radiofrequency (RF) fields on human immune cells exposed to a Global System for Mobile Communication (GSM) signal generated by a commercial cellular phone and by a sinusoidal non-modulated signal. To assess whether mobile phone RF-field exposure affects human immune cell functions, peripheral blood mononuclear cells (PBMCs) from healthy donors were exposed in vitro to a 900 MHz GSM or continuous-wave (CW) RF field 1 h/day for 3 days in a transverse electromagnetic mode (TEM) cell system (70-76 mW/kg average specific absorption rate, SAR). The cells were cultured for 48 or 72 h, and the following end points were studied: (1) mitogen-induced proliferation; (2) cell cycle progression; (3) spontaneous and 2-deoxy-D-ribose (dRib)-induced apoptosis; (4) mitochondrial membrane potential modifications during spontaneous and dRib-induced-apoptosis. Data obtained from cells exposed to a GSM-modulated RF field showed a slight decrease in cell proliferation when PBMCs were stimulated with the lowest mitogen concentration and a slight increase in the number of cells with altered distribution of phosphatidylserine across the membrane. On the other hand, cell cycle phases, mitochondrial membrane potential and susceptibility to apoptosis were found to be unaffected by the RF field. When cells were exposed to a CW RF field, no significant modifications were observed in comparison with sham-exposed cells for all the end points investigated.

(8) Chiang H, Yao GD, Fang QS, Wang KQ, Lu DZ, Zhou YK, Health effects of environmental electromagnetic fields. *J. Bioelectricity* 8:127-131, 1989.

We investigated the effects of exposure to environmental electromagnetic fields (EMFs) in 1170 subjects. Neutrophil phagocytosis was enhanced in the low-intensity exposure groups, but reduced significantly at relatively higher intensities. Visual reaction time was prolonged and the scores of short-term memory tests were lower in some high-intensity exposure groups. EMFs may affect the central nervous and immune systems in man.

(9) de Pomerai D, Daniells C, David H, Allan J, Duce I, Mutwakil M, Thomas D, Sewell P, Tattersall J, Jones D, Candido P, Non-thermal heat-shock response to microwaves, *Nature* 405:417-418, 2000.

Nematode worms (C. elegans) exposed overnight to 750-MHz microwaves at a SAR of 0.001 W/kg showed an increased in heat shock proteins (HSPs). (Heat shock proteins are induced in most organisms by adverse conditions (such as heat or toxins) that cause damage to cellular proteins, acting as molecular chaperones to rescue damaged proteins). The authors give several arguments that the microwave-induced effect on HSPs is non-thermal and suggest that 'current exposure limits for microwave equipment may need to be reconsidered.'

de Pomerai DI, Dawe A, Djerbib L, Allan, Brunt G, Daniells C. Growth and maturation of the nematode *Caenorhabditis elegans* following exposure to weak microwave fields. *Enzyme Microbial Tech* 30:73-79, 2002.

Prolonged exposure to weak microwave fields (750–1000 MHz, 0.5 W) at 25°C induces a heat-shock response in transgenic *C. elegans* strains carrying *hsp16* reporter genes [1]. A comparable response to heat alone requires a substantially higher temperature of 28°C, suggesting that microwave heating of worms or of the system as a whole might provide a sufficient explanation, although this can be ruled out by indirect arguments [1]. Here we investigate two further biological consequences of prolonged microwave exposure at 25°C in synchronised cultures of wild-type worm larvae, namely alterations in (i) growth rate (GR) and (ii) the proportion of worms later maturing into egg-bearing adults (MP). Both of these parameters are significantly increased following microwave exposure (GR by 8–11%, and MP by 28–40%), whereas both are significantly decreased (GR by 10% and MP almost abolished) after mild heat treatment at 28°C for the same period. It follows that the biological consequences of microwave exposure are opposite to, and therefore incompatible with, those attributable to mild heating. This evidence does not in itself necessitate a non-thermal mechanism, but does eliminate explanations that invoke the bulk heating of tissues by microwaves. This latter, however, remains the sole basis for current regulations governing microwave exposure.

(10) de Pomerai DI, Smith B, Dawe A, North K, Smith T, Archer DB, Duce IR, Jones D, Candido EP. Microwave radiation can alter protein conformation without bulk heating. *FEBS Lett* 22;543(1-3):93-97, 2003.

Exposure to microwave radiation enhances the aggregation of bovine serum albumin in vitro in a time- and temperature-dependent manner. Microwave radiation also promotes amyloid fibril formation by bovine insulin at 60 degrees C. These alterations in protein conformation are not accompanied by measurable temperature changes, consistent with estimates from field modelling of the specific absorbed radiation (15-20 mW kg(-1)). Limited denaturation of cellular proteins could explain our previous observation that modest heat-shock

responses are induced by microwave exposure in Caenorhabditis elegans. We also show that heat-shock responses both to heat and microwaves are suppressed after RNA interference ablating heat-shock factor function.

(11) D'Inzeo G, Bernardi P, Eusebi F, Grassi F, Tamburello C, Zani BM, Microwave effects on acetylcholine-induced channels in cultured chick myotubes. *Bioelectromagnetics* 9(4):363-372, 1988.

The behavior of cultured myotubes from chick embryos exposed to microwaves has been experimentally analyzed. Recordings of acetylcholine-induced currents have been obtained via patch-clamp techniques using both cell-attached (single-channel current recording) and whole-cell (total current recording) configurations. During the exposure to low-power microwaves the frequency of the ACh-activated single channel openings decreased, while the ACh-induced total current showed a faster falling phase. Channel open time and conductance were not affected by microwave irradiation. It is concluded that the exposure to microwaves increases the rate of desensitization and decreases the channel opening probability. The nonthermal origin and the molecular interaction mechanisms governing these electromagnetic-induced effects are discussed.

(12) Dolk H, Shaddick G, Walls P, Grundy C, Thakrar B, Kleinschmidt I, Elliott P, Cancer incidence near radio and television transmitters in Great Britain. I. Sutton Coldfield transmitter. *Am J Epidemiol* 145(1):1-9, 1997.

A small area study of cancer incidence in 1974-1986 was carried out to investigate an unconfirmed report of a "cluster" of leukemias and lymphomas near the Sutton Coldfield television (TV) and frequency modulation (FM) radio transmitter in the West Midlands, England. The study used a national database of postcoded cancer registrations, and population and socioeconomic data from the 1981 census. Selected cancers were hematopoietic and lymphatic, brain, skin, eye, male breast, female breast, lung, colorectal, stomach, prostate, and bladder. Expected numbers of cancers in small areas were calculated by indirect standardization, with stratification for a small area socioeconomic index. The study area was defined as a 10 km radius circle around the transmitter, within which 10 bands of increasing distance from the transmitter were defined as a basis for testing for a decline in risk with distance, and an inner area was arbitrarily defined for descriptive purposes as a 2 km radius circle. The risk of adult leukemia within 2 km was 1.83 (95% confidence interval 1.22-2.74), and there was a significant decline in risk with distance from the transmitter ($p = 0.001$). These findings appeared to be consistent over the periods 1974-1980, 1981-1986, and were probably largely independent of the initially reported cluster, which appeared to concern mainly a later period. In the context of variability of leukemia risk across census wards in the West Midlands as a whole, the Sutton Coldfield findings were unusual. A significant decline in risk with distance was also found for skin cancer, possibly related to residual socioeconomic confounding, and for bladder cancer. Study of other radio and TV transmitters in Great Britain is required to put the present results in wider context. No causal implications can be made from a single cluster investigation of this kind.

(13) Dutta SK, Subramoniam A, Ghosh B, Parshad R. Microwave radiation-induced calcium ion efflux from human neuroblastoma cells in culture. Bioelectromagnetics. 5(1):71-78, 1984.

Monolayer cultures of human neuroblastoma cells were exposed to 915-MHz radiation, with or without sinusoidal amplitude modulation (80%) at 16 Hz, at specific absorption rates (SAR) for the culture medium and cells of 0.00, 0.01, 0.05, 0.075, 0.1, 0.5, 0.75, 1.0, 1.5, 2, or 5 mW/g. A significant increase in the efflux of calcium ions (45Ca2+) as compared to unexposed control cultures occurred at two SAR values: 0.05 and 1 mW/g. Increased efflux at 0.05 mW/g was dependent on the presence of amplitude modulation at 16 Hz but at the higher value it was not. These results indicate that human neuroblastoma cells are sensitive to extremely low levels of microwave radiation at certain narrow ranges of SAR.

(14) Dutta SK, Ghosh B, Blackman CF, Radiofrequency radiation-induced calcium ion efflux enhancement from human and other neuroblastoma cells in culture. *Bioelectromagnetics* 1989;10(2):197-202.

To test the generality of radiofrequency radiation-induced changes in 45Ca2+ efflux from avian and feline brain tissues, human neuroblastoma cells were exposed to electromagnetic radiation at 147 MHz, amplitude-modulated (AM) at 16 Hz, at specific absorption rates (SAR) of 0.1, 0.05, 0.01, 0.005, 0.001, and 0.0005 W/kg. Significant 45Ca2+ efflux was obtained at SAR values of 0.05 and 0.005 W/kg. Enhanced efflux at 0.05 W/kg peaked at the 13-16 Hz and at the 57.5-60 Hz modulation ranges. A Chinese hamster-mouse hybrid neuroblastoma was also shown to exhibit enhanced radiation-induced 45Ca2+ efflux at an SAR of 0.05 W/kg, using 147 MHz, AM at 16 Hz. These results confirm that amplitude-modulated radiofrequency radiation can induce responses in cells of nervous tissue origin from widely different animal species, including humans. The results are also consistent with the reports of similar findings in avian and feline brain tissues and indicate the general nature of the phenomenon.

(15) Eger H, Hagen KU, Lucas B, Vogel P, Voit H. the influence of being physically near to a cell phone transmission mast on the incidence of cancer. Published in *Umwelt·Medizin·Gesellschaft* 17,4, 2004, as: 'Einfluss der räumlichen Nähe von Mobilfunksendeanlagen auf die Krebsinzidenz'

Following the call by Wolfram König, President of the Bundesamt für Strahlenschutz (Federal Agency for radiation protection), to all doctors of medicine to collaborate actively in the assessment of the risk posed by cellular radiation, the aim of our study was to examine whether people living close to cellular transmitter antennas were exposed to a heightened risk of taking ill with

malignant tumors. The basis of the data used for the survey were PC files of the case histories of patients between the years 1994 and 2004. While adhering to data protection, the personal data of almost 1,000 patients were evaluated for this study, which was completed without any external financial support. It is intended to continue the project in the form of a register. The result of the study shows that the proportion of newly developing cancer cases was significantly higher among those patients who had lived during the past ten years at a distance of up to 400 metres from the cellular transmitter site, which has been in operation since 1993, compared to those patients living further away, and that the patients fell ill on average 8 years earlier. In the years 1999-2004, *ie* after five years' operation of the transmitting installation, the relative risk of getting cancer had trebled for the residents of the area in the proximity of the installation compared to the inhabitants of Naila outside the area.

(16) Fesenko, EE, Makar, VR, Novoselova, EG, Sadovnikov, VB, Microwaves and cellular immunity. I. Effect of whole body microwave irradiation on tumor necrosis factor production in mouse cells. *Bioelectrochem Bioenerg* 49(1):29-35, 1999.

Whole body microwave sinusoidal irradiation of male NMRI mice with 8.15-18 GHz (1 Hz within) at a power density of 1 microW/cm2 caused a significant enhancement of TNF production in peritoneal macrophages and splenic T lymphocytes. Microwave radiation affected T cells, facilitating their capacity to proliferate in response to mitogenic stimulation. The exposure duration necessary for the stimulation of cellular immunity ranged from 5 h to 3 days. Chronic irradiation of mice for 7 days produced the decreasing of TNF production in peritoneal macrophages. The exposure of mice for 24 h increased the TNF production and immune proliferative response, and these stimulatory effects persisted over 3 days after the termination of exposure. Microwave treatment increased the endogenously produced TNF more effectively than did lipopolysaccharide, one of the most potential stimuli of synthesis of this cytokine. The role of microwaves as a factor interfering with the process of cell immunity is discussed.

(17) Forgacs Z, Somosy Z, Kubinyi G, Bakos J, Hudak A, Surjan A, Thuroczy G. Effect of whole-body 1800MHz GSM-like microwave exposure on testicular steroidogenesis and histology in mice. *Reprod Toxicol.* 22:111-117, 2006.

The aim of our study was to evaluate the possible effects of whole-body 1800MHz GSM-like microwave exposure on male reproduction. After repeated exposure of mice to microwaves at 0.018-0.023W/kg whole-body specific energy absorption rate (SAR) an elevated serum testosterone level was measured, but no microwave exposure related histopathological alteration could be detected in the reproductive organs. The in vitro steroidogenic response of 48h Leydig cell cultures obtained from exposed animals did not differ from the controls,

suggesting that Leydig cells were not the primary targets of the applied microwave exposure or direct action of microwaves on Leydig cells was temporary only. In exposed animals the red blood cell count and volume of packed red cells were also increased. Further investigations are required to clarify the mechanism of action of the applied microwave exposure on male mice, as well as to establish the biological significance of the observed phenomena.

(18) Guler G, Tomruk A, Ozgur E, Seyhan N. The effect of radiofrequency radiation on DNA and lipid damage in non-pregnant and pregnant rabbits and their newborns. Gen Physiol Biophys. 29(1):59-66, 2010.

The concerns of people on possible adverse health effects of radiofrequency radiation (RFR) generated from mobile phones as well as their supporting transmitters (base stations) have increased markedly. RFR effect on oversensitive people, such as pregnant women and their developing fetuses, and older people is another source of concern that should be considered. In this study, oxidative DNA damage and lipid peroxidation levels in the brain tissue of pregnant and non-pregnant New Zealand White rabbits and their newborns exposed to RFR were investigated. Thirteen-month-old rabbits were studied in four groups as non-pregnant-control, non-pregnant-RFR exposed, pregnant-control and pregnant-RFR exposed. They were exposed to RFR (1800 MHz GSM; 14 V/m as reference level) for 15 min/day during 7 days. Malondialdehyde (MDA) and 8-hydroxy-2'-deoxyguanosine (8-OHdG) levels were analyzed. MDA and 8-OHdG levels of non-pregnant and pregnant-RFR exposed animals significantly increased with respect to controls ($p < 0.001$, Mann-Whitney test). No difference was found in the newborns ($p > 0.05$, Mann-Whitney). There exist very few experimental studies on the effects of RFR during pregnancy. It would be beneficial to increase the number of these studies in order to establish international standards for the protection of pregnant women from RFR.

(19) Ha M, Lim HJ, Cho SH, Choi HD, Cho KY. Incidence of cancer in the vicinity of Korean AM radio transmitters. *Arch Environ Health.* 58(12):756-762, 2003.

Results of various studies have indicated a potential association between exposures to electrical and/or magnetic fields and risks of various cancers. The authors used a cross-sectional ecological study design to investigate such a potential association. In areas proximate to 42 amplitude modulated (AM) radio transmitters, 11 high-power study sites (i.e., areas exposed to 100-1500-kW transmission power) and 31 low-power study sites (i.e., areas exposed to 50-kW transmission power) were identified. The incidence of cancer within a 2-km radius of each transmitter was obtained from (a) Korean medical-insurance data for the years 1993 through 1996, (b) population census data for the year 1995, and (c) resident registration data for the year 1995. The authors calculated age-

standardized rate ratios for total cancer, leukemia, malignant lymphoma, brain cancer, and breast cancer, and compared the incidence of cancer within 2 km of the high-power transmitters vs. the incidence within 2 km of the low-power transmitters. Four control areas for each high-power transmitter were also selected. The control areas were located in the same, or nearest adjacent, province as the high-power sites, but were at least 2 km from any of the transmitters. Indirect standardized observed/expected ratios for the high-power sites vs. control areas were calculated for each transmitter separately, and for 4 transmitter groupings defined by power level (i.e., 100 kW, 250 kW, 500 kW, and 1500 kW). The authors found no significant increase in age-standardized rate ratios of cancers for high-power vs. low-power sites, with the exceptions of total cancer and of brain cancer in women. Among the 11 high-power sites, there were significantly increased incidences of leukemia in 2 areas and of brain cancer in 1 area. Future studies should incorporate additional detailed exposure assessments and a strong analytical study design to explore the possible association between radiofrequency radiation from AM radio transmitters and cancer.

(20) Ha M, Im H, Lee M, Kim HJ, Kim BC, Gimm YM, Pack JK. Radio-frequency radiation exposure from AM radio transmitters and childhood leukemia and brain cancer. *Am J Epidemiol.* 166(3):270-279, 2007.

Leukemia and brain cancer patients under age 15 years, along with controls with respiratory illnesses who were matched to cases on age, sex, and year of diagnosis (1993-1999), were selected from 14 South Korean hospitals using the South Korean Medical Insurance Data System. Diagnoses were confirmed through the South Korean National Cancer Registry. Residential addresses were obtained from medical records. A newly developed prediction program incorporating a geographic information system that was modified by the results of actual measurements was used to estimate radio-frequency radiation (RFR) exposure from 31 amplitude modulation (AM) radio transmitters with a power of 20 kW or more. A total of 1,928 leukemia patients, 956 brain cancer patients, and 3,082 controls were analyzed. Cancer risks were estimated using conditional logistic regression adjusted for residential area, socioeconomic status, and community population density. The odds ratio for all types of leukemia was 2.15 (95% confidence interval (CI): 1.00, 4.67) among children who resided within 2 km of the nearest AM radio transmitter as compared with those resided more than 20 km from it. For total RFR exposure from all transmitters, odds ratios for lymphocytic leukemia were 1.39 (95% CI: 1.04, 1.86) and 1.59 (95% CI: 1.19, 2.11) for children in the second and third quartiles, respectively, versus the lowest quartile. Brain cancer and infantile cancer were not associated with AM RFR.

(21) Hjollund NH, Bonde JP, Skotte J, Semen analysis of personnel operating military radar equipment. *Reprod Toxicol* 11(6):897, 1997.

This is a preliminary survey of semen quality among Danish military personnel operating mobile ground-to-air missile units that use several microwave emitting radar systems. The maximal mean exposure was estimated to be 0.01 mW/cm2. The median sperm density of the military personnel was significantly low compared to the references. The difference is either due to chance, uncontrolled bias, or nonthermal effects of transitory microwaves.

(22) Hocking B, Gordon IR, Grain HL, Hatfield GE, Cancer incidence and mortality and proximity to TV towers. *Med J Aust* 165(11-12):601-605, 1996.

(Published erratum appears in *Med J Aust* 166(2):80, 1997.)
OBJECTIVE: To determine whether there is an increased cancer incidence and mortality in populations exposed to radiofrequency radiations from TV towers. DESIGN: An ecological study comparing cancer incidence and mortality, 1972-1990, in nine municipalities, three of which surround the TV towers and six of which are further away from the towers. (TV radiofrequency radiation decreases with the square of the distance from the source.) Cancer incidence and mortality data were obtained from the then Commonwealth Department of Human Services and Health. Data on frequency, power, and period of broadcasting for the three TV towers were obtained from the Commonwealth Department of Communications and the Arts. The calculated power density of the radiofrequency radiation in the exposed area ranged from 8.0 microW/cm2 near the towers to 0.2 microW/cm2 at a radius of 4km and 0.02 microW/cm2 at 12 km. SETTING: Northern Sydney, where three TV towers have been broadcasting since 1956. OUTCOME MEASURES: Rate ratios for leukaemia and brain tumour incidence and mortality, comparing the inner with the outer areas. RESULTS: For all ages, the rate ratio for total leukaemia incidence was 1.24 (95% confidence interval [CI], 1.09-1.40). Among children, the rate ratio for leukaemia incidence was 1.58 (95% CI, 1.07-2.34) and for mortality it was 2.32 (95% CI, 1.35-4.01). The rate ratio for childhood lymphatic leukaemia (the most common type) was 1.55 (95% CI, 1.00-2.41) for incidence and 2.74 (95% CI, 1.42-5.27) for mortality. Brain cancer incidence and mortality were not increased. CONCLUSION: We found an association between increased childhood leukaemia incidence and mortality and proximity to TV towers.

(23) Ivaschuk OI, Jones RA, Ishida-Jones T, Haggren W, Adey WR, Phillips JL, Exposure of nerve growth factor-treated PC12 rat pheochromocytoma cells to a modulated radiofrequency field at 836.55 MHz: effects on c-jun and c-fos expression. *Bioelectromagnetics* 18(3):223-229, 1997.

Rat PC12 pheochromocytoma cells have been treated with nerve growth factor And then exposed to athermal levels of a packet-modulated radiofrequency field At 836.55 MHz. This signal was produced by a prototype time-domain multiple-access (TDMA) transmitter that conforms to the North American digital cellular telephone standard. Three slot average power densities were used: 0.09, 0.9, and 9 mW/cm2. Exposures were for 20, 40, and 60 min and included an

intermittent exposure regimen (20 min on/20 min off), resulting in total incubation times of 20, 60, and 100 min, respectively. Concurrent controls were sham exposed. After extracting total cellular RNA, Northern blot analysis was used to assess the expression of the immediate early genes, c-fos and c-jun, in all cell populations. No change in c-fos transcript levels were detected after 20 min exposure at each field intensity (20 min was the only time period at which c-fos message could be detected consistently). Transcript levels for c-jun were altered only after 20 min exposure to 9 mW/cm2 (average 38% decrease).

(24) Jech R, Sonka K, Ruzicka E, Nebuzelsky A, Bohm J, Juklickova M, Nevsimalova S. Electromagnetic field of mobile phones affects visual event related potential in patients with narcolepsy. *Bioelectromagnetics* 22(7):519-528, 2001.

The effects of the mobile phone (MP) electromagnetic fields on electroencephalography (EEG) and event-related potentials (ERP) were examined. With regard to the reported effects of MP on sleep, 22 patients with narcolepsy-cataplexy were exposed or sham exposed for 45 min to the MP (900 MHz, specific absorption rate 0.06 W/kg) placed close to the right ear in a double blind study. There were no changes of the EEG recorded after the MP exposure. A subgroup of 17 patients was studied on visual ERP recorded during the MP exposure. Using an adapted "odd-ball" paradigm, each patient was instructed to strike a key whenever rare target stimuli were presented. There were three variants of target stimuli (horizontal stripes in (i) left, (ii) right hemifields or (iii) whole field of the screen). The exposure enhanced the positivity of the ERP endogenous complex solely in response to target stimuli in the right hemifield of the screen ($P < 0.01$). The reaction time was shortened by 20 ms in response to all target stimuli ($P < 0.05$). In conclusion, the electromagnetic field of MP may suppress the excessive sleepiness and improve performance while solving a monotonous cognitive task requiring sustained attention and vigilance.

(25) Kesari KK, Behari J. Fifty-gigahertz Microwave Exposure Effect of Radiations on Rat Brain. Appl Biochem Biotechnol. 158:126-139, 2009a.

The object of this study is to investigate the effects of 50-GHz microwave radiation on the brain of Wistar rats. Male rats of the Wistar strain were used in the study. Animals of 60-day age were divided into two groups-group 1, sham-exposed, and group 2, experimental (microwave-exposed). The rats were housed in a temperature-controlled room (25 degrees C) with constant humidity (40-50%) and received food and water ad libitum. During exposure, rats were placed in Plexiglas cages with drilled ventilation holes and kept in an anechoic chamber. The animals were exposed for 2 h a day for 45 days continuously at a power level of 0.86 muW/cm(2) with nominal specific absorption rate 8.0 x 10(-4) w/kg. After the exposure period, the rats were killed and homogenized, and protein kinase C (PKC), DNA double-strand break, and antioxidant enzyme activity [superoxides dismutase (SOD), catalase, and glutathione peroxidase

(GPx)] were estimated in the whole brain. Result shows that the chronic exposure to these radiations causes DNA double-strand break (head and tail length, intensity and tail migration) and a significant decrease in GPx and SOD activity ($p = <0.05$) in brain cells, whereas catalase activity shows significant increase in the exposed group of brain samples as compared with control ($p = <0.001$). In addition to these, PKC decreased significantly in whole brain and hippocampus ($p < 0.05$). All data are expressed as mean +/- standard deviation. We conclude that these radiations can have a significant effect on the whole brain.

(26) Kesari KK, Behari J. Microwave Exposure Affecting Reproductive System in Male Rats. Appl Biochem Biotechnol. 2009b Sep 19. [Epub ahead of print]

The object of present study is to investigate the effects of 50 GHz microwave frequency electromagnetic fields on reproductive system of male rats. Male rats of Wistar strain were used in the study. Animals 60 days old were divided into two groups-group I sham exposed and group II experimental (microwave exposed). During exposure, rats were confined in Plexiglas cages with drilled ventilation holes for 2 h a day for 45 days continuously at a specified specific absorption rate of 8.0 x 10(-4) W/kg. After the last exposure, the rats were sacrificed immediately and sperms were collected. Antioxidant enzyme (superoxide dismutase (SOD), glutathione peroxidase (GPx), and catalase), histone kinase, apoptosis, and cell cycle were analyzed in sperm cells. Result shows a significant decrease in the level of sperm GPx and SOD activity ($p </= 0.05$), whereas catalase shows significant increase in exposed group of sperm samples as compared with control ($p < 0.02$). We observed a statistically significant decrease in mean activity of histone kinase as compared to the control ($p < 0.016$). The percentage of cells dividing in a spermatogenesis was estimated by analyzing DNA per cell by flow cytometry. The percentage of apoptosis in electromagnetic field exposed group shows increased ratio as compared to sham exposed ($p < 0.004$). There were no significant differences in the G(0)/G(1) phase; however, a significant decrease ($p < 0.026$) in S phase was obtained. Results also indicate a decrease in percentage of G(2)/M transition phase of cell cycle in exposed group as compared to sham exposed ($p < 0.019$). We conclude that these radiations may have a significant effect on reproductive system of male rats, which may be an indication of male infertility.

(27) Kesari KK, Behari J, Kumar S. Mutagenic response of 2.45 GHz radiation exposure on rat brain. Int J Radiat Biol. 86(4):334-343, 2010.

Purpose: To investigate the effect of 2.45 GHz microwave radiation on rat brain of male wistar strain. Material and methods: Male rats of wistar strain (35 days old with 130 +/- 10 g body weight) were selected for this study. Animals were divided into two groups: Sham exposed and experimental. Animals were exposed for 2 h a day for 35 days to 2.45 GHz frequency at 0.34 mW/cm(2)

power density. The whole body specific absorption rate (SAR) was estimated to be 0.11 W/Kg. Exposure took place in a ventilated Plexiglas cage and kept in anechoic chamber in a far field configuration from the horn antenna. After the completion of exposure period, rats were sacrificed and the whole brain tissue was dissected and used for study of double strand DNA (Deoxyribonucleic acid) breaks by micro gel electrophoresis and the statistical analysis was carried out using comet assay (IV-2 version software). Thereafter, antioxidant enzymes and histone kinase estimation was also performed. Results: A significant increase was observed in comet head ($P < 0.002$), tail length ($P < 0.0002$) and in tail movement ($P < 0.0001$) in exposed brain cells. An analysis of antioxidant enzymes glutathione peroxidase ($P < 0.005$), and superoxide dismutase ($P < 0.006$) showed a decrease while an increase in catalase ($P < 0.006$) was observed. A significant decrease ($P < 0.023$) in histone kinase was also recorded in the exposed group as compared to the control (sham-exposed) ones. One-way analysis of variance (ANOVA) method was adopted for statistical analysis. Conclusion: The study concludes that the chronic exposure to these radiations may cause significant damage to brain, which may be an indication of possible tumour promotion (Behari and Paulraj 2007).

(28) Kolodynski AA, Kolodynska VV, Motor and psychological functions of school children living in the area of the Skrunda Radio Location Station in Latvia. *Sci Total Environ* 180(1):87-93, 1996.

This paper presents the results of experiments on school children living in the area of the Skrunda Radio Location Station (RLS) in Latvia. Motor function, memory and attention significantly differed between the exposed and control groups. Children living in front of the RLS had less developed memory and attention, their reaction time was slower and their neuromuscular apparatus endurance was decreased.

(29) Kwee S, Raskmark P, Velizarov P. Changes in cellular proteins due to environmental non-ionizing radiation. I. Heat-shock proteins. *Electro- and Magnetobiology* 20: 141-152, 2001.

This paper describes the effect of weak microwave fields on the amounts of heat-shock proteins in cell cultures at various temperatures. The field was generated by signal simulation of the Global System for Mobile communications (GSM) of 960 Mhz, used in portable phones. Transformed human epithelial amnion (AMA) cells, growing on glass coverslips, were exposed in a transverse electromagnetic (TEM) cell to a microwave field, generating a specific absorption rate (SAR) of 2.1 $mW.kg^{-1}$ in the cells. Exposure temperatures were 35, 37, and 40 ± 0.1°C, respectively, and the exposure time was 20 min. The heat-shock proteins

Hsp-70 and Hsp-27 were detected by immuno-fluorescence. Higher amounts of Hsp-70 were present in the cells exposed at 35 and 37°C than in the sham-exposed cells. These effects can be considered to be athermal, since the field strength was much lower than the safety standard for absence of heat generation by microwave fields. There was no significant response in the case of Hsp-27.

(30) Lebedeva NN, Sulimov AV, Sulimova OP, Kotrovskaya TI, Gailus T, Cellular phone electromagnetic field effects on bioelectric activity of human brain. *Crit Rev Biomed Eng* 28(1-2):323-337, 2000.

24 volunteers participated in the experiments. The investigation of EEG reactions to cellular phone (EMF frequency 902.4 MHz and intensity 0.06 mW/cm2) was conducted. Two experiments were performed with each subject--cellular phone exposure and Placebo Duration of the experiment was 60 min: 15 min--background; 15 min--EMF exposure or Placebo; 30 min—after exposure. EEG was recorded in 16 standard leads with "eyes open" and "eyes closed". Special software with non-linear dynamics was developed for EEG analyses. One parameter, multichannel (global) correlation dimension, was calculated. The changes of these parameters can be evidence of brain functional state changes. As a result of EEG record processing, a significant increase of global correlation dimension during the exposure and after exposure period was discovered, more pronounced in the case of "eyes closed". That can be viewed as the manifestation of cortex activation under phone EMF exposure.

(31) Lerchl A, Krüger H, Niehaus M, Streckert JR, Bitz AK, Volkert Hansen V Effects of mobile phone electromagnetic fields at nonthermal SAR values on melatonin and body weight of Djungarian hamsters (*Phodopus sungorus*) *J Pineal Res* 44:267-272, 2008.

Abstract: In three experiments, adult male Djungarian hamsters (*Phodopus sungorus*) were exposed 24 hr/day for 60 days to radio frequency electromagnetic fields (RF-EMF) at 383, 900, and 1800 MHz, modulated according to the TETRA (383 MHz) and GSM standards (900 and 1800 MHz), respectively. A radial waveguide system ensured a well defined and uniform exposure at whole-body averaged specific absorption rates of 80 mW/kg, which is equal to the upper limit of whole-body exposure of the general population in Germany and other countries. For each experiment, using two identical waveguides, hamsters were exposed (n = 120) and sham-exposed (n = 120) in a blind fashion. In all experiments, pineal and serum melatonin levels as well as the weights of testes, brain, kidneys, and liver were not affected. At 383 MHz, exposure resulted in a significant transient increase in body weight up to 4%, while at 900 MHz this body weight increase was more pronounced (up to 6%) and not transient. At 1800 MHz, no effect on body weight was seen. The results corroborate earlier findings which have shown no effects of RF-EMF on melatonin levels in vivo and in vitro. The data are in accordance with the

hypothesis that absorbed RF energy may result in metabolic changes which eventually cause body weight increases in exposed animals. The data support the notion that metabolic effects of RF-EMFs need to be investigated in more detail in future studies.

(32) Loscher W, Kas G. Conspicuous behavioural abnormalities in a dairy cow herd near TV and radio transmiiiting antenna. *Pract Vet Surgeon* 29:5, 437-444, 1998.

In addition to a considerable reduction of milk yield and increasing occurrences of health problems, behavioural abnormalities that have not yet been examined, have been observed over the last two years in a herd of dairy cows maintained in close proximity to a TV and Radio transmitting antenna.The evaluation of possible factors which could explain the abnormalities in the livestock did not disclose any factors othe rthan the measurable high-frequency electromagnetic fields.An experiment in which a cow with abnormal behaviour was brought to a stable in a different area resulted in normalisation of the cow within five days. The symptoms returned, however, when the cow was brought back to the stable in close proximity to the antenna in question. In view of the previously known effects of electromagnetic fields it may be possible that the observed abnormalities are related to the electromagnetic field exposure.

(33) Magras, IN, Xenos, TD, RF radiation-induced changes in the prenatal development of mice. *Bioelectromagnetics* 18(6):455-461, 1997.

The possible effects of radiofrequency (RF) radiation on prenatal development has been investigated in mice. This study consisted of RF level measurements and in vivo experiments at several places around an "antenna park." At these locations RF power densities between 168 nW/cm2 and 1053 nW/cm2 were measured. Twelve pairs of mice, divided in two groups, were placed in locations of different power densities and were repeatedly mated five times. One hundred eighteen newborns were collected. They were measured, weighed, and examined macro- and microscopically. A progressive decrease in the number of newborns per dam was observed, which ended in irreversible infertility. The prenatal development of the newborns, however, evaluated by the crown-rump length, the body weight, and the number of the lumbar, sacral, and coccygeal vertebrae, was improved.

(34) Markovà E, Hillert L, Malmgren L, Persson BR, Belyaev IY. Microwaves from GSM mobile telephones affect 53BP1 and gamma-H2AX foci in human lymphocytes from hypersensitive and healthy persons. *Environ Health Perspect.* 2005 Sep;113(9):1172-7.

The data on biologic effects of nonthermal microwaves (MWs) from mobile telephones are diverse, and these effects are presently ignored by safety standards of the International Commission for Non-Ionizing Radiation Protection

(ICNIRP). In the present study, we investigated effects of MWs of Global System for Mobile Communication (GSM) at different carrier frequencies on human lymphocytes from healthy persons and from persons reporting hypersensitivity to electromagnetic fields (EMFs). We measured the changes in chromatin conformation, which are indicative of stress response and genotoxic effects, by the method of anomalous viscosity time dependence, and we analyzed tumor suppressor p53-binding protein 1 (53BP1) and phosphorylated histone H2AX (gamma-H2AX), which have been shown to colocalize in distinct foci with DNA double-strand breaks (DSBs), using immunofluorescence confocal laser microscopy. We found that MWs from GSM mobile telephones affect chromatin conformation and 53BP1/gamma-H2AX foci similar to heat shock. For the first time, we report here that effects of MWs from mobile telephones on human lymphocytes are dependent on carrier frequency. On average, the same response was observed in lymphocytes from hypersensitive and healthy subjects.

(35) Mann, K, Wagner, P, Brunn, G, Hassan, F, Hiemke, C, Roschke, J, Effects of pulsed high-frequency electromagnetic fields on the neuroendocrine system. *Neuroendocrinology* 67(2):139-144, 1998.

The influence of pulsed high-frequency electromagnetic fields emitted from a circularly polarized antenna on the neuroendocrine system in healthy humans was investigated (900 MHz electromagnetic field, pulsed with 217 Hz, average power density 0.02 mW/cm2). Nocturnal hormone profiles of growth hormone (GH), cortisol, luteinizing hormone (LH) and melatonin were determined under polysomnographic control. An alteration in the hypothalamo-pituitary-adrenal axis activity was found with a slight, transient elevation in the cortisol serum level immediately after onset of field exposure which persisted for 1 h. For GH, LH and melatonin, no significant effects were found under exposure to the field compared to the placebo condition, regarding both total hormone production during the entire night and dynamic characteristics of the secretion pattern. Also the evaluation of the sleep EEG data revealed no significant alterations under field exposure, although there was a trend to an REM suppressive effect. The results indicate that weak high-frequency electromagnetic fields have no effects on nocturnal hormone secretion except for a slight elevation in cortisol production which is transient, pointing to an adaptation of the organism to the stimulus.

(36) Marinelli F, La Sala D, Cicciotti G, Cattini L, Trimarchi C, Putti S, Zamparelli A, Giuliani L, Tomassetti G, Cinti C. Exposure to 900 MHz electromagnetic field induces an unbalance between pro-apoptotic and pro-survival signals in T-lymphoblastoid leukemia CCRF-CEM cells. *J Cell Physiol.* 198(2):324-332, 2004.

It has been recently established that low-frequency electromagnetic field (EMFs) exposure induces biological changes and could be associated with increased

incidence of cancer, while the issue remains unresolved as to whether high-frequency EMFs can have hazardous effect on health. Epidemiological studies on association between childhood cancers, particularly leukemia and brain cancer, and exposure to low- and high-frequency EMF suggested an etiological role of EMFs in inducing adverse health effects. To investigate whether exposure to high-frequency EMFs could affect in vitro cell survival, we cultured acute T-lymphoblastoid leukemia cells (CCRF-CEM) in the presence of unmodulated 900 MHz EMF, generated by a transverse electromagnetic (TEM) cell, at various exposure times. We evaluated the effects of high-frequency EMF on cell growth rate and apoptosis induction, by cell viability (MTT) test, FACS analysis and DNA ladder, and we investigated pro-apoptotic and pro-survival signaling pathways possibly involved as a function of exposure time by Western blot analysis. At short exposure times (2-12 h), unmodulated 900 MHz EMF induced DNA breaks and early activation of both p53-dependent and -independent apoptotic pathways while longer continuous exposure (24-48 h) determined silencing of pro-apoptotic signals and activation of genes involved in both intracellular (Bcl-2) and extracellular (Ras and Akt1) pro-survival signaling. Overall our results indicate that exposure to 900 MHz continuous wave, after inducing an early self-defense response triggered by DNA damage, could confer to the survivor CCRF-CEM cells a further advantage to survive and proliferate.

(37) Michelozzi P, Ancona C, Fusco D, Forastiere F, Perucci CA, Risk of leukemia and residence near a radio transmitter in Italy. *Epidemiology* 9 (Suppl) 354 p, 1998.

We conducted a small area study to investigate a cluster of leukemia near a high power radio-transmitter in a peripheral area of Rome. The leukemia mortality within 3.5 km (5,863 inhabitants) was higher than expected (SMR=2.5, 95% confident interval 1.07-4.83); the excess was due to a significant higher mortality among men (7 cases observed, SMR=3.5). The results of the Stone's test, after adjusting for socio-economic confounding, showed a significant decline in risk with distance from the transmitter only among men (p=0.005), whereas the p-value for both sexes was p=0.07.

(38) Michelozzi P, Capon A, Kirchmayer U, Forastiere F, Biggeri A, Barca A, Perucci CA. Adult and childhood leukemia near a high-power radio station in Rome, Italy. *Am J Epidemiol* 155(12):1096-1103, 2002.

Some recent epidemiologic studies suggest an association between lymphatic and hematopoietic cancers and residential exposure to high-frequency electromagnetic fields (100 kHz to 300 GHz) generated by radio and television transmitters. Vatican Radio is a very powerful station located in a northern suburb of Rome, Italy. In the 10-km area around the station, with 49,656 residents (in 1991), leukemia mortality among adults (aged >14 years; 40 cases) in 1987-1998 and childhood leukemia incidence (eight cases) in 1987-1999 were evaluated. The risk of childhood leukemia was higher than expected for the distance up to 6 km from the radio station (standardized incidence rate = 2.2,

95% confidence interval: 1.0, 4.1), and there was a significant decline in risk with increasing distance both for male mortality (p = 0.03) and for childhood leukemia (p = 0.036). The study has limitations because of the small number of cases and the lack of exposure data. Although the study adds evidence of an excess of leukemia in a population living near high-power radio transmitters, no causal implication can be drawn. There is still insufficient scientific knowledge, and new epidemiologic studies are needed to clarify a possible leukemogenic effect of residential exposure to radio frequency radiation.

(39) Navakatikian MA, Tomashevskaya LA, Phasic behavioral and endocrine effects of microwaves of nonthermal intensity. In "Biological Effects of Electric and Magnetic Fields, Volume 1," D.O. Carpenter (ed) Academic Press, San Diego, CA, 1994, pp.333-342.

Microwaves at nonthermal levels are able to induce behavioral and endocrine changes at low power densities (0.01-0.1 mW/cm2). Our studies have demonstrated several phases of inhibition and activation. We suggest that inhibition of behavior by microwaves has many mechanisms depending on the strength and duration of exposure, and most inhibitory effects from direct actions on the nervous system. Activation, on the other hand, is correlated well with decreases in serum concentrations of testosterone and insulin. CW microwaves, however, have no influence on the secretion of insulin.

(40) Nittby H, Grafström G, Tian DP, Malmgren L, Brun A, Persson BR, Salford LG, Eberhardt J. Cognitive impairment in rats after long-term exposure to GSM-900 mobile phone radiation. *Bioelectromagnetics.* 29:219-232, 2007

Considering the frequent use of mobile phones, we have directed attention to possible implications on cognitive functions. In this study we investigated in a rat model the long-term effects of protracted exposure to Global System for Mobile Communication-900 MHz (GSM-900) radiation. Out of a total of 56 rats, 32 were exposed for 2 h each week for 55 weeks to radio-frequency electromagnetic radiation at different SAR levels (0.6 and 60 mW/kg at the initiation of the experimental period) emitted by a (GSM-900) test phone. Sixteen animals were sham exposed and eight animals were cage controls, which never left the animal house. After this protracted exposure, GSM-900 exposed rats were compared to sham exposed controls. Effects on exploratory behaviour were evaluated in the open-field test, in which no difference was seen. Effects on cognitive functions were evaluated in the episodic-like memory test. In our study, GSM exposed rats had impaired memory for objects and their temporal order of presentation, compared to sham exposed controls (P = 0.02). Detecting the place in which an object was presented was not affected by GSM exposure. Our results suggest significantly reduced memory functions in rats after GSM microwave exposure (P = 0.02).

(41) Novoselova, EG, Fesenko, EE, Makar, VR, Sadovnikov, VB, Microwaves and cellular immunity. II. Immunostimulating effects of microwaves and naturally occurring antioxidant nutrients. *Bioelectrochem Bioenerg* 49(1):37-41, 1999.

The effect of 8.15-18 GHz (1 Hz within) microwave radiation at a power density of 1 microW/cm2 on the tumor necrosis factor (TNF) production and immune response was tested. A single 5 h whole-body exposure induced a significant increase in TNF production in peritoneal macrophages and splenic T cells. The mitogenic response in T lymphocytes increased after microwave exposure. The activation of cellular immunity was observed within 3 days after exposure. The diet containing lipid-soluble nutrients (beta-carotene, alpha-tocopherol and ubiquinone Q9) increased the activity of macrophages and T cells from irradiated mice. These results demonstrate that irradiation with low-power density microwaves stimulates the immune potential of macrophages and T cells, and the antioxidant treatment enhances the effect of microwaves, in particular at later terms, when the effect of irradiation is reduced.

(42) Novoselova EG, Ogay VB, Sorokina OV, Glushkova OV, Sinotova OA, Fesenko EE. The production of tumor necrosis factor in cells of tumor-bearing mice after total-body microwave irradiation and antioxidant diet. *Electromag. Biol. Med.* 23:167-180, 2004.

The effects of repeated treatment with weak microwaves (MW) (8.15–18 GHz, 1 $\mu W/cm^2$, 1.5 h daily) and diet with antioxidants (AO) (β-carotene, α-tocopherol, and ubiquinone Q_9) on production of tumor necrosis factor (TNF) in macrophages and T lymphocytes of healthy and tumor-bearing mice (TBM) were studied. Tumor size and mortality of TBM were also followed. Microwave radiation and antioxidant diet stimulated production of TNF in cells from healthy mice. At early stages, tumor growth induced TNF production in mouse cells; however, this effect decreased as tumors grew. In TBM exposed to MW, TNF production was higher than in unirradiated TBM. Oppositely, AO diet induced TNF production in healthy mice but did not affect TNF secretion in TBM. Accordingly, prolonged treatment of TBM to MW, but not to AO diet, decreased tumor growth rate and increased overall animal longevity. These results suggest that diminished tumor growth rate due to extremely low-level MW exposure of mice carrying tumors, at least in part, was caused by enhancement in TNF production and accumulation of plasma TNF.

(43) Panagopoulos DJ, Chavdoula ED, Margaritis LH. Bioeffects of mobile telephony radiation in relation to its intensity or distance from the antenna. Int J Radiat Biol. 86(5):345-357, 2010.

PURPOSE: To examine the bioactivity of GSM 900 and 1800 (Global System for Mobile Telecommunications) radiations, in relation to the distance from the

antenna or to the radiation-field intensities. MATERIALS AND METHODS: Drosophila melanogaster adult insects were exposed to the radiation of a GSM 900/1800 mobile phone antenna at different distances ranging from 0 to 100 cm, and the effect on their reproductive capacity and cell death induction in the gonads by the use of TUNEL (Terminal deoxynucleotide transferase dUTP Nick End Labeling) assay, was studied. RESULTS: These radiations/fields decreased the reproductive capacity by cell death induction, at all the different distances tested. The effect diminished with the distance/decreasing intensities. An increased bioactivity 'window' was revealed at distances of 20-30 cm from the mobile phone antenna, (radiation intensity around 10 microW/cm(2)) where the effect became highest, in relation to smaller or longer distances. The effect diminished considerably for distances longer than 40-50 cm and became not evident for distances longer than 1 m or radiation intensities smaller than 1 microW/cm(2). CONCLUSIONS: GSM bioactivity is highest for intensities down to less than 10 microW/cm(2) and still evident until 1 microW/cm(2) exhibiting 'window' effects.

(44) Panagopoulos DJ, Margaritis LH. The identification of an intensity 'window' on the bioeffects of mobile telephony radiation. Int J Radiat Biol. 2010 86(5):358-366, 2010a.

PURPOSE: To examine the bioactivity of GSM 900 and 1800 (Global System for Mobile Telecommunications) radiations, in relation to the distance from the antenna or to the radiation-field intensities. MATERIALS AND METHODS: Drosophila melanogaster adult insects were exposed to the radiation of a GSM 900/1800 mobile phone antenna at different distances ranging from 0 to 100 cm, and the effect on their reproductive capacity and cell death induction in the gonads by the use of TUNEL (Terminal deoxynucleotide transferase dUTP Nick End Labeling) assay, was studied. RESULTS: These radiations/fields decreased the reproductive capacity by cell death induction, at all the different distances tested. The effect diminished with the distance/decreasing intensities. An increased bioactivity 'window' was revealed at distances of 20-30 cm from the mobile phone antenna, (radiation intensity around 10 microW/cm(2)) where the effect became highest, in relation to smaller or longer distances. The effect diminished considerably for distances longer than 40-50 cm and became not evident for distances longer than 1 m or radiation intensities smaller than 1 microW/cm(2). CONCLUSIONS: GSM bioactivity is highest for intensities down to less than 10 microW/cm(2) and still evident until 1 microW/cm(2) exhibiting 'window' effects.

(45) Panagopoulos DJ, Margaritis LH. The effect of exposure duration on the biological activity of mobile telephony radiation. Mutat Res. 2010b Apr 15. [Epub ahead of print]

In the present experiments we studied the effects of different durations of a single, (continuous), daily exposure, ranging from 1min up to 21min, to the two

established systems of digital mobile telephony radiation that are commonly used in Europe, viz. GSM 900MHz (Global System for Mobile telecommunications) and DCS 1800MHz (Digital Cellular System - referred to also as GSM 1800MHz), on a well-tested biological model, the reproductive capacity of the insect Drosophila melanogaster. The insects were exposed to each type of radiation at an intensity of about 10muW/cm(2), corresponding to a distance of 20cm or 30cm from the antenna of a DCS 1800 or a GSM 900 mobile phone handset, respectively. At these distances the bioactivity of mobile telephony radiation was found to be at a maximum due to the existence of a "window" of increased bioactivity around this value, as we have proposed recently [1-4]. The results show that the reproductive capacity decreases almost linearly with increasing exposure duration to both GSM 900 and DCS 1800 radiation, suggesting that short-term exposures to these radiations have cumulative effects on living organisms. Additionally, our results show again that GSM 900MHz radiation is slightly more bioactive than DCS 1800MHz radiation, at the same exposure durations and under equal radiation intensities, as shown in our previous experiments [5].

(46) Park SK, Ha M, Im H-J. Ecological study on residences in the vicinity of AM radio broadcasting towers and cancer death: preliminary observations in Korea. *International Archives of Occupational and Environmental Health* 77(6):387-394, 2004.

Objectives Public health concern about the health effects of radio-frequency electromagnetic fields (RF-EMFs) has increased with the increase in public exposure. This study was to evaluate some health effect of RF exposure by the AM radio broadcasting towers in Korea.

Methods We calculated cancer mortality rates using Korean death certificates over the period of 1994–1995 and population census data in ten RF-exposed areas, defined as regions that included AM radio broadcasting towers of over 100 kW, and in control areas, defined as regions without a radio broadcasting tower inside and at least 2 km away from the towers.

Results All cancers-mortality was significantly higher in the exposed areas [direct standardized mortality rate ratio (MRR) =1.29, 95%CI=1.12–1.49]. When grouped by each exposed area and by electrical power, MRRs for two sites of 100 kW, one site of 250 kW and one site of 500 kW, for all subjects, and for one site of 100 kW and two sites of 250 kW, for male subjects, showed statistically significant increases without increasing trends according to the groups of electric power. Leukemia mortality was higher in exposed areas (MRR=1.70, 95% CI=0.84–3.45), especially among young adults aged under 30 years (0–14 years age group, MRR=2.29, 95% CI=1.05–5.98; 15–29 age group, MRR=2.44, 95% CI=1.07–5.24) .

Conclusions We observed higher mortality rates for all cancers and leukemia in some age groups in the area near the AM radio broadcasting towers. Although these findings do not prove a causal link between cancer and RF exposure from AM radio broadcasting towers, it does suggest that further analytical studies on this topic are needed in Korea.

(47) Pavicic I, Trosic I. Impact of 864 MHz or 935 MHz radiofrequency microwave radiation on the basic growth parameters of V79 cell line. Acta Biol Hung. 59(1):67-76, 2008.

The aim of this study was to evaluate and compare the influence of 864 MHz and 935 MHz radiofrequency/microwave (RF/MW) fields on the growth, colony-forming ability, and viability of V79 cells (continuous line). Cell samples with 1 x 10(4) V79 cells each, were exposed to continuous wave frequencies of 864 MHz and 935 MHz for 1, 2 and 3 hours. Exposed samples were matched with unexposed control samples. Specific absorption rate (SAR) was 0.08 W/kg for the 864 MHz or 0.12 W/kg for the 935 MHz field. Cell growth and viability were determined by counting cells every day for five days after exposure. Colony-forming ability was assessed by counting colonies seven days after exposure. The growth of the 864 MHz-irradiated cells was significant after two- and three-hour exposure 72 hours after irradiation ($p < 0.05$). The similar was observed 72 hours after exposure for cells exposed to 935 MHz microwaves for three hours ($p < 0.05$). Colony-forming ability and cell viability in V79 cells exposed to 864 MHz or 935 MHz microwaves did not significantly differ from control cells. The two applied RF/MW fields showed similar effects on the growth, colony-forming ability and viability of V79 cells. Cell growth impact was time-dependent for both fields.

(48) Pérez-Castejón C, Pérez-Bruzón RN, Llorente M, Pes N, Lacasa C, Figols T, Lahoz M, Maestú C, Vera-Gil A, Del Moral A, Azanza MJ. Exposure to ELF-pulse modulated X band microwaves increases in vitro human astrocytoma cell proliferation. Histol Histopathol. 24(12):1551-1561, 2009.

Common concern about the biological effects of electromagnetic fields (EMF) is increasing with the expansion of X-band microwaves (MW). The purpose of our work was to determine whether exposure to MW pulses in this range can induce toxic effects on human astrocytoma cells. Cultured astrocytoma cells (Clonetics line 1321N1) were submitted to 9.6 GHz carrier, 90% amplitude modulated by extremely low frequency (ELF)-EMF pulses inside a Gigahertz Transversal Electromagnetic Mode cell (GTEM-cell). Astrocytoma cultures were maintained inside a GTEM-incubator in standard culture conditions at 37+/-0.1 degrees C, 5% CO2, in a humidified atmosphere. Two experimental conditions were applied with field parameters respectively of: PW 100-120 ns; PRF 100-800 Hz; PRI 10-1.25 ms; power 0.34-0.60 mW; electric field strength 1.25-1.64 V/m; magnetic

field peak amplitude 41.4-54.6 microOe. SAR was calculated to be 4.0 x 10-4 W/Kg. Astrocytoma samples were grown in a standard incubator. Reaching 70-80% confluence, cells were transferred to a GTEM-incubator. Experimental procedure included exposed human astrocytoma cells to MW for 15, 30, 60 min and 24 h and unexposed sham-control samples. Double blind method was applied. Our results showed that cytoskeleton proteins, cell morphology and viability were not modified. Statistically significant results showed increased cell proliferation rate under 24h MW exposure. Hsp-70 and Bcl-2 antiapoptotic proteins were observed in control and treated samples, while an increased expression of connexin 43 proteins was found in exposed samples. The implication of these results on increased proliferation is the subject of our current research.

(49) Persson BRR, Salford LG, Brun A, Blood-brain barrier permeability in rats exposed to electromagnetic fields used in wireless communication. *Wireless Network* 3:455-461, 1997.

Biological effects of radio frequency electromagnetic fields (EMF) on the blood-brain barrier (BBB) have been studied in Fischer 344 rats of both sexes. The rats were not anesthetised during the exposure. The brains were perfused with saline for 3-4 minutes, and thereafter perfusion fixed with 4% formaldehyde for 5-6 minutes. Whole coronal sections of the brains were dehydrated and embedded in paraffin and sectioned at 5 micrometers. Albumin and fibinogen were demonstrated immunochemically and classified as normal versus pathological leakage. In the present investigation we exposed male and female Fischer 344 rats in a Transverse Electromagnetic Transmission line camber to microwaves of 915 MHz as continuous wave (CW) and pulse-modulated with different pulse power and at various time intervals. The CW-pulse power varied from 0.001 W to 10 W and the exposure time from 2 min to 960 min. In each experiment we exposed 4-6 rats with 2-4 controls randomly placed in excited and non-excited TEM cells, respectively. We have in total investigated 630 exposed rats at various modulation frequencies and 372 controls. The frequency of pathological rats is significantly increased ($P< 0.0001$) from 62/372 (ratio 0.17 + 0.02) for control rats to 244/630 (ratio: 0.39 + 0.043) in all exposed rats. Grouping the exposed animals according to the level or specific absorption energy (J/kg) give significant difference in all levels above 1.5 J/kg. The exposure was 915 MHz microwaves either pulse modulated (PW) at 217 Hz with 0.57 ms pulse width, at 50 Hz with 6.6 ms pulse width or continuous wave (CW). The frequency of pathological rats (0.17) among controls in the various groups is not significantly different. The frequency of pathological rats was 170/480 (0.35 + 0.03) among rats exposed to pulse modulated (PW) and 74/149 (0.50 + 0.07) among rats exposed to continuous wave exposure (CW). These results are both highly significantly different to their corresponding controls ($p< 0.0001$) and the frequency of pathological rats after exposure to pulsed radiation (PW) is

significantly less ($p < 0.002$) than after exposure to continuous wave radiation (CW).

(50) Phillips, J.L., Ivaschuk, O., Ishida-Jones, T., Jones, R.A., Campbell-Beachler, M. and Haggren, W. DNA damage in Molt-4 T- lymphoblastoid cells exposed to cellular telephone radiofrequency fields in vitro. *Bioelectrochem. Bioenerg.* 45:103-110, 1998.

Molt-4 T-lymphoblastoid cells have been exposed to pulsed signals at cellular telephone frequencies of 813.5625 MHz (iDEN signal) and 836.55 MHz (TDMA signal). These studies were performed at low SAR (average = 2.4 and 24 microwatt/g for iDEN and 2.6 and 26 microwatt/g for TDMA) in studies designed to look for athermal RF effects. The alkaline comet, or single cell gel electrophoresis, assay was employed to measure DNA single-strand breaks in cell cultures exposed to the radiofrequency (RF) signal as compared to concurrent sham-exposed cultures. Tail moment and comet extent were calculated as indicators of DNA damage. Statistical differences in the distribution of values for tail moment and comet extent between exposed and control cell cultures were evaluated with the Kolmogorov-Smirnoff distribution test. Data points for all experiments of each exposure condition were pooled and analyzed as single groups. It was found that: 1) exposure of cells to the iDEN signal at an SAR of 2.4 microwatt/g for 2 h or 21 h significantly decreased DNA damage; 2) exposure of cells to the TDMA signal at an SAR of 2.6 microwatt/g for 2 h and 21 h significantly decreased DNA damage; 3) exposure of cells to the iDEN signal at an SAR of 24 microwatt/g for 2 h and 21 h significantly increased DNA damage; 4) exposure of cells to the TDMA signal at an SAR of 26 microwatt/g for 2 h significantly decreased DNA damage. The data indicate a need to study the effects of exposure to RF signals on direct DNA damage and on the rate at which DNA damage is repaired.

(51) Pologea-Moraru R, Kovacs E, Iliescu KR, Calota V, Sajin G. The effects of low level microwaves on the fluidity of photoreceptor cell membrane. *Bioelectrochemistry* 56(1-2):223-225, 2002.

Due to the extensive use of electromagnetic fields in everyday life, more information is required for the detection of mechanisms of interaction and the possible side effects of electromagnetic radiation on the structure and function of the organism.In this paper, we study the effects of low-power microwaves (2.45 GHz) on the membrane fluidity of rod photoreceptor cells. The retina is expected to be very sensitive to microwave irradiation due to the polar character of the photoreceptor cells [Biochim. Biophys. Acta 1273 (1995) 217] as well as to its high water content [Stud. Biophys. 81 (1981) 39].

(52) Pyrpasopoulou A, Kotoula V, Cheva A, Hytiroglou P, Nikolakaki E, Magras IN, Xenos TD, Tsiboukis TD, Karkavelas G. Bone morphogenetic protein expression in newborn rat kidneys after prenatal exposure to radiofrequency radiation. *Bioelectromagnetics* 25(3):216-227, 2004.

Effects of nonthermal radiofrequency radiation (RFR) of the global system of mobile communication (GSM) cellular phones have been as yet mostly studied at the molecular level in the context of cellular stress and proliferation, as well as neurotransmitter production and localization. In this study, a simulation model was designed for the exposure of pregnant rats to pulsed GSM-like RFR (9.4 GHz), based on the different resonant frequencies of man and rat. The power density applied was 5 microW/cm2, in order to avoid thermal electromagnetic effects as much as possible. Pregnant rats were exposed to RFR during days 1-3 postcoitum (p.c.) (embryogenesis, pre-implantation) and days 4-7 p.c. (early organogenesis, peri-implantation). Relative expression and localization of bone morphogenetic proteins (BMP) and their receptors (BMPR), members of a molecular family currently considered as major endocrine and autocrine morphogens and known to be involved in renal development, were investigated in newborn kidneys from RFR exposed and sham irradiated (control) rats. Semi-quantitative duplex RT-PCR for BMP-4, -7, BMPR-IA, -IB, and -II showed increased BMP-4 and BMPR-IA, and decreased BMPR-II relative expression in newborn kidneys. These changes were statistically significant for BMP-4, BMPR-IA, and -II after exposure on days 1-3 p.c. ($P < .001$ each), and for BMP-4 and BMPR-IA after exposure on days 4-7 p.c. ($P < .001$ and $P = .005$, respectively). Immunohistochemistry and in situ hybridization (ISH) showed aberrant expression and localization of these molecules at the histological level. Our findings suggest that GSM-like RFR interferes with gene expression during early gestation and results in aberrations of BMP expression in the newborn. These molecular changes do not appear to affect renal organogenesis and may reflect a delay in the development of this organ. The differences of relative BMP expression after different time periods of exposure indicate the importance of timing for GSM-like RFR effects on embryonic development.

(53) Roux D, Vian A, Girard S, Bonnet P, Paladian F, Davies E, Ledoigt G. High frequency (900 MHz) low amplitude (5 V m-1) electromagnetic field: a genuine environmental stimulus that affects transcription, translation, calcium and energy charge in tomato. Planta. 227(4):883-891, 2008a.

Using an especially-designed facility, the Mode Stirred Reverberation Chamber, we exposed tomato plants (Lycopersicon esculentum Mill. VFN8) to low level (900 MHz, 5 V m(-1)) electromagnetic fields for a short period (10 min) and measured changes in abundance of three specific mRNA soon after exposure. Within minutes of electromagnetic stimulation, stress-related mRNA (calmodulin, calcium-dependent protein kinase and proteinase inhibitor) accumulated in a rapid, large and 3-phase manner typical of an environmental stress response. Accumulation of these transcripts into the polysomal RNA also took place (indicating that the encoded proteins were translated) but was delayed (indicating that newly-synthesized mRNA was not immediately recruited into polysomes). Transcript accumulation was maximal at normal Ca(2+) levels and was

depressed at higher Ca(2+), especially for those encoding calcium-binding proteins. Removal of Ca(2+) (by addition of chelating agents or Ca(2+) channel blocker) led to total suppression of mRNA accumulation. Finally, 30 min after the electromagnetic treatment, ATP concentration and adenylate energy charge were transiently decreased, while transcript accumulation was totally prevented by application of the uncoupling reagent, CCCP. These responses occur very soon after exposure, strongly suggesting that they are the direct consequence of application of radio-frequency fields and their similarities to wound responses strongly suggests that this radiation is perceived by plants as an injurious stimulus.

(54) Roux D, Faure C, Bonnet P, Girard S, Ledoigt G, Davies E, Gendraud M, Paladian F, Vian A. A possible role for extra-cellular ATP in plant responses to high frequency, low amplitude electromagnetic field. Plant Signal Behav. 3(6):383-385, 2008b.

In parallel to evoking the accumulation of stress-related transcripts, exposure to low level 900 MHz EMF affected the levels of ATP, the main energy molecule of the cell. Its concentration dropped rapidly (27% after 30 min) in response to EMF exposure, along with a 18% decrease in the adenylate energy charge (AEC), a good marker of cell energy status. One could interpret this decrease in ATP and AEC in a classical way, i.e., as the result of an increase in cellular energy usage, but recent work brings exciting new insights in pointing out a signalling function for ATP, especially in the stress physiology context where it could trigger both reactive oxygen species and calcium movement (this latter being involved in plant responses to EMF exposure). In this addendum, we discuss our results within this new perspective for ATP function.

(55) Salford LG, Brun AR, Eberhardt JL, Malmgren L, Persson BRR, Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones. *Environ Health Persp* 111(7):881-883, 2003.

The possible risks of radio-frequency electromagnetic fields for the human body is a growing concern for the society. We have earlier shown that weak pulsed microwaves give rise to a significant leakage of albumin through the blood-brain barrier (BBB). Now we have investigated whether a pathological leakage over the BBB might be combined with damage to the neurons. Three groups of each 8 rats were exposed for 2 hours to GSM mobile phone electromagnetic fields of different strengths. We found, and present here for the first time, highly significant ($p < 0.002$) evidence for neuronal damage in both the cortex, the hippocampus and the basal ganglia in the brains of exposed rats.

(56) Santini R, Santini P, Danze JM, Le Ruz P, Seigne M.Study of the health of people living in the vicinity of mobile phone base stations: I. Influence of

distance and sex. *Pathol Biol* (Paris) 50(6):369-373, 2002.

[Article in French]
A survey study using questionnaire was conducted in 530 people (270 men, 260 women) living or not in vicinity of cellular phone base stations, on 18 Non Specific Health Symptoms. Comparisons of complaints frequencies (CHI-SQUARE test with Yates correction) in relation with distance from base station and sex, show significant ($p < 0.05$) increase as compared to people living > 300 m or not exposed to base station, till 300 m for tiredness, 200 m for headache, sleep disturbance, discomfort, etc. 100 m for irritability, depression, loss of memory, dizziness, libido decrease, etc. Women significantly more often than men ($p < 0.05$) complained of headache, nausea, loss of appetite, sleep disturbance, depression, discomfort and visual perturbations. This first study on symptoms experienced by people living in vicinity of base stations shows that, in view of radioprotection, minimal distance of people from cellular phone base stations should not be < 300 m.

(57) Sarimov R, Malmgren L.O.G., Markova, E., Persson, B.R.R.. Belyaev, I.Y. Nonthermal GSM microwaves affect chromatin conformation in human lymphocytes similar to heat shock. *IEEE Trans Plasma Sci* 32:1600-1608, 2004.

Here we investigated whether microwaves (MWs) of Global System for Mobile Communication (GSM) induce changes in chromatin conformation in human lymphocytes. Effects of MWs were studied at different frequencies in the range of 895-915 MHz in experiments with lymphocytes from seven healthy persons. Exposure was performed in transverse electromagnetic transmission line cell (TEM-cell) using a GSM test-mobile phone. All standard modulations included 2 W output power in the pulses, specific absorbed rate (SAR) being 5.4 mW/kg. Changes in chromatin conformation, which are indicative of stress response and genotoxic effects, were measured by the method of anomalous viscosity time dependencies (AVTD). Heat shock and treatment with the genotoxic agent camptothecin, were used as positive controls. 30-min exposure to MWs at 900 and 905 MHz resulted in statistically significant condensation of chromatin in lymphocytes from 1 of 3 tested donors. This condensation was similar to effects of heat shock within the temperature window of 40/spl deg/C-44/spl deg/C. Analysis of pooled data from all donors showed statistically significant effect of 30-min exposure to MWs. Stronger effects of MWs was found following 1-h exposure. In replicated experiments, cells from four out of five donors responded to 905 MHz. Responses to 915 MHz were observed in cells from 1 out of 5 donors, $p<0.002$. Dependent on donor, condensation, 3 donors, or decondensation, 1 donor, of chromatin was found in response to 1-h exposure. Analysis of pooled data from all donors showed statistically significant effect of 1-h exposure to MWs. In cells from one donor, this effect was frequency-dependent ($p<0.01$). Effects of MWs correlated statistically significantly with effects of heat shock and initial state of chromatin before exposure. MWs at 895 and 915 MHz

affected chromatin conformation in transformed lymphocytes. The conclusion-GSM microwaves under specific conditions of exposure affected human lymphocytes similar to stress response. The data suggested that the MW effects differ at various GSM frequencies and vary between donors.

(58) Schwartz JL, House DE, Mealing GA, Exposure of frog hearts to CW or amplitude-modulated VHF fields: selective efflux of calcium ions at 16 Hz. *Bioelectromagnetics* 11(4):349-358, 1990.

Isolated frog hearts were exposed for 30-min periods in a Crawford cell to a 240-MHz electromagnetic field, either continuous-wave or sinusoidally modulated at 0.5 or 16 Hz. Radiolabeled with calcium (45Ca), the hearts were observed for movement of Ca2+ at calculated SARs of 0.15, 0.24, 0.30, 0.36, 1.50, or 3.00 mW/kg. Neither CW radiation nor radiation at 0.5 Hz, which is close to the beating frequency of the frog's heart, affected movement of calcium ions. When the VHF field was modulated at 16 Hz, a field-intensity-dependent change in the efflux of calcium ions was observed. Relative to control values, ionic effluxes increased by about 18% at 0.3 mW/kg (P less than .01) and by 21% at 0.15 mW/kg (P less than .05), but movement of ions did not change significantly at other rates of energy deposition. These data indicate that the intact myocardium of the frog, akin to brain tissue of neonatal chicken, exhibits movement of calcium ions in response to a weak VHF field that is modulated at 16 Hz.

(59) Schwarz C, Kratochvil E, Pilger A, Kuster N, Adlkofer F, Rüdiger HW. Radiofrequency electromagnetic fields (UMTS, 1,950 MHz) induce genotoxic effects in vitro in human fibroblasts but not in lymphocytes. Int Arch Occup Environ Health. 81(6):755-767, 2008.

OBJECTIVE: Universal Mobile Telecommunication System (UMTS) was recently introduced as the third generation mobile communication standard in Europe. This was done without any information on biological effects and genotoxic properties of these particular high-frequency electromagnetic fields. This is discomforting, because genotoxic effects of the second generation standard Global System for Mobile Communication have been reported after exposure of human cells in vitro. METHODS: Human cultured fibroblasts of three different donors and three different short-term human lymphocyte cultures were exposed to 1,950 MHz UMTS below the specific absorption rate (SAR) safety limit of 2 W/kg. The alkaline comet assay and the micronucleus assay were used to ascertain dose and time-dependent genotoxic effects. Five hundred cells per slide were visually evaluated in the comet assay and comet tail factor (CTF) was calculated. In the micronucleus assay 1,000 binucleated cells were evaluated per assay. The origin of the micronuclei was determined by fluorescence labeled anticentromere antibodies. All evaluations were performed under blinded conditions. RESULTS: UMTS exposure increased the CTF and induced centromere-negative micronuclei (MN) in human cultured fibroblasts in a dose and time-dependent way. Incubation for 24 h at a SAR of 0.05 W/kg generated a

statistically significant rise in both CTF and MN (P = 0.02). At a SAR of 0.1 W/kg the CTF was significantly increased after 8 h of incubation (P = 0.02), the number of MN after 12 h (P = 0.02). No UMTS effect was obtained with lymphocytes, either unstimulated or stimulated with Phytohemagglutinin. CONCLUSION: UMTS exposure may cause genetic alterations in some but not in all human cells in vitro.

(60) Somosy Z, Thuroczy G, Kubasova T, Kovacs J, Szabo LD, Effects of modulated and continuous microwave irradiation on the morphology and cell surface negative charge of 3T3 fibroblasts. *Scanning Microsc* 5(4):1145-1155, 1991.

Mouse embryo 3T3 cells were irradiated with 2450 MHz continuous and low frequency (16 Hz) square modulated waves of absorbed energy ranging from 0.0024 to 2.4 mW/g. The low frequency modulated microwave irradiation yielded more morphological cell changes than did the continuous microwave fields of the same intensity. The amount of free negative charges (cationized ferritin binding) on cell surfaces decreased following irradiation by modulated waves but remained unchanged under the effect of a continuous field of the same dose. Modulated waves of 0.024 mW/g dose increased the ruffling activity of the cells, and caused ultrastructural alteration in the cytoplasm. Similar effects were experienced by continuous waves at higher (0.24 and 2.4 mW/g) doses.

(61) Stagg RB, Thomas WJ, Jones RA, Adey WR, DNA synthesis and cell proliferation in C6 glioma and primary glial cells exposed to a 836.55 MHz modulated radiofrequency field. *Bioelectromagnetics* 18(3):230-236, 1997.

We have tested the hypothesis that modulated radiofrequency (RF) fields may act as a tumor-promoting agent by altering DNA synthesis, leading to increased cell proliferation. In vitro tissue cultures of transformed and normal rat glial cells were exposed to an 836.55 MHz, packet-modulated RF field at three power densities: 0.09, 0.9, and 9 mW/cm2, resulting in specific absorption rates (SARs) ranging from 0.15 to 59 muW/g. TEM-mode transmission-line cells were powered by a prototype time-domain multiple-access (TDMA) transmitter that conforms to the North American digital cellular telephone standard. One sham and one energized TEM cell were placed in standard incubators maintained at 37 degrees C and 5% CO2. DNA synthesis experiments at 0.59-59 muW/g SAR were performed on log-phase and serum-starved semiquiescent cultures after 24 h exposure. Cell growth at 0.15-15 muW/g SAR was determined by cell counts of log-phase cultures on days 0, 1, 5, 7, 9, 12, and 14 of a 2 week protocol. Results from the DNA synthesis assays differed for the two cell types. Sham-exposed and RF-exposed cultures of primary rat glial cells showed no significant differences for either log-phase or serum-starved condition. C6 glioma cells exposed to RF at 5.9 muW/g SAR (0.9 mW/cm2) exhibited small (20-40%)

significant increases in 38% of [3H]thymidine incorporation experiments. Growth curves of sham and RF-exposed cultures showed no differences in either normal or transformed glial cells at any of the power densities tested. Cell doubling times of C6 glioma cells [sham (21.9 +/- 1.4 h) vs. field (22.7 +/- 3.2 h)] also demonstrated no significant differences that could be attributed to altered DNA synthesis rates. Under these conditions, this modulated RF field did not increase cell proliferation of normal or transformed cultures of glial origin.

(62) Stankiewicz W, Dąbrowski MP, Kubacki R, Sobiczewska E, Szmigielski S Immunotropic Influence of 900 MHz Microwave GSM Signal on Human Blood Immune Cells Activated in Vitro. *Electromagnetic Biology and Medicine* 25(1) 45-51, 2006.

In an earlier study we reported that G_o phase peripheral blood mononulclear cells (PBMC) exposed to low-level (SAR = 0.18 W/kg) pulse-modulated 1300 MHz microwaves and subsequently cultured, demonstrate changed immune activity (Dabrowski et al., 2003). We investigated whether cultured immune cells induced into the active phases of cell cycle (G_1, S) and then exposed to microwaves will also be sensitive to electromagnetic field. An anechoic chamber of our design containing a microplate with cultured cells and an antenna emitting microwaves (900 MHz simulated GSM signal, 27 V/m, SAR 0.024 W/kg) was placed inside the ASSAB incubator. The microcultures of PBMC exposed to microwaves demonstrated significantly higher response to mitogens and higher immunogenic activity of monocytes (LM index) than control cultures. LM index, described in detail elsewhere (Dabrowski et al., 2001), represents the monokine influence on lymphocyte mitogenic response. The results suggest that immune activity of responding lymphocytes and monocytes can be additionally intensified by 900 MHz microwaves.

(63) Stark KD, Krebs T, Altpeter E, Manz B, Griot C, Abelin T, Absence of chronic effect of exposure to short-wave radio broadcast signal on salivary melatonin concentrations in dairy cattle. *J Pineal Res* 22(4):171-176, 1997.

A pilot study was conducted to investigate the influence of electromagnetic fields in the short-wave range (3-30 MHz) radio transmitter signals on salivary melatonin concentration in dairy cattle. The hypothesis to be tested was whether EMF exposure would lower salivary melatonin concentrations, and whether removal of the EMF source would be followed by higher concentration levels. For this pilot study, a controlled intervention trial was designed. Two commercial dairy herds at two farms were compared, one located at a distance of 500 m (exposed), the other at a distance of 4,000 m (unexposed) from the transmitter. At each farm, five cows were monitored with respect to their salivary melatonin concentrations over a period of ten consecutive days. Saliva samples were collected at two-hour intervals during the dark phase of the night. As an additional intervention, the short-wave transmitter was switched off during three

of the ten days (off phase). The samples were analyzed using a radioimmunoassay. The average nightly field strength readings were 21-fold greater on the exposed farm (1.59 mA/m) than on the control farm (0.076 mA/m). The mean values of the two initial nights did not show a statistically significant difference between exposed and unexposed cows. Therefore, a chronic melatonin reduction effect seemed unlikely. However, on the first night of re-exposure after the transmitter had been off for three days, the difference in salivary melatonin concentration between the two farms (3.89 pg/ml, CI: 2.04, 7.41) was statistically significant, indicating a two- to seven-fold increase of melatonin concentration. Thus, a delayed acute effect of EMF on melatonin concentration cannot completely be excluded. However, results should be interpreted with caution and further trials are required in order to confirm the results.

(64) Tattersall JE, Scott IR, Wood SJ, Nettell JJ, Bevir MK, Wang Z, Somasiri NP, Chen X. Effects of low intensity radiofrequency electromagnetic fields on electrical activity in rat hippocampal slices. *Brain Res* 904(1):43-53, 2001.

Slices of rat hippocampus were exposed to 700 MHz continuous wave radiofrequency (RF) fields (25.2-71.0 V m(-1), 5-15 min exposure) in a stripline waveguide. At low field intensities, the predominant effect on the electrically evoked field potential in CA1 was a potentiation of the amplitude of the population spike by up to 20%, but higher intensity fields could produce either increases or decreases of up to 120 and 80%, respectively, in the amplitude of the population spike. To eliminate the possibility of RF-induced artefacts due to the metal stimulating electrode, the effect of RF exposure on spontaneous epileptiform activity induced in CA3 by 4-aminopyridine (50-100 &mgr;M) was investigated. Exposure to RF fields (50.0 V m(-1)) reduced or abolished epileptiform bursting in 36% of slices tested. The maximum field intensity used in these experiments, 71.0 V m(-1), was calculated to produce a specific absorption rate (SAR) of between 0.0016 and 0.0044 W kg(-1) in the slices. Measurements with a Luxtron fibreoptic probe confirmed that there was no detectable temperature change (+/-0.1 degrees C) during a 15 min exposure to this field intensity. Furthermore, imposed temperature changes of up to 1 degrees C failed to mimic the effects of RF exposure. These results suggest that low-intensity RF fields can modulate the excitability of hippocampal tissue in vitro in the absence of gross thermal effects. The changes in excitability may be consistent with reported behavioural effects of RF fields.

(65) Vangelova K, Israel M, Mihaylov S. The effect of low level radiofrequency electromagnetic radiation on the excretion rates of stress hormones in operators during 24-hour shifts. *Cent Eur J Public Health* 10(1-2):24-28, 2002.

The aim of the study was to investigate the effect of long term exposure to low level radiofrequency (RF) electromagnetic (EM) radiation on the excretion rates of stress hormones in satellite station operators during 24-hour shifts. Twelve

male operators at a satellite station for TV communications and space research were studied during 24-hour shifts. Dosimetric evaluation of the exposure was carried out and showed low level exposure with specific absorption of 0.1127 J.kg-1. A control group of 12 unexposed male operators with similar job task and the same shift system were studied, too. The 11-oxycorticosteroids (11-OCS), adrenaline and noradrenaline were followed by spectrofluorimetric methods on 3-hour intervals during the 24-hour shifts. The data were analyzed by tests for interindividual analysis, Cosinor analysis and analysis of variance (ANOVA). Significant increase in the 24-hour excretion of 11-OCS and disorders in its circadian rhythm, manifested by increase in the mesor, decrease in the amplitude and shift in the acrophase were found in the exposed operators. The changes in the excretion rates of the catecholamines were significant and showed greater variability of both variables. The long term effect of the exposure to low-level RF EM radiation evoked pronounced stress reaction with changes in the circadian rhythm of 11-OCS and increased variability of catecholamines secretion. The possible health hazards associated with observed alteration in the stress system need to be clarified by identification of their significance and prognostic relevance.

(66) Velizarov, S, Raskmark, P, Kwee, S, The effects of radiofrequency fields on cell proliferation are non-thermal. *Bioelectrochem Bioenerg* 48(1):177-180, 1999.

The number of reports on the effects induced by radiofrequency (RF) electromagnetic fields and microwave (MW) radiation in various cellular systems is still increasing. Until now no satisfactory mechanism has been proposed to explain the biological effects of these fields. One of the current theories is that heat generation by RF/MW is the cause, in spite of the fact that a great number of studies under isothermal conditions have reported significant cellular changes after exposure to RF/MW. Therefore, this study was undertaken to investigate which effect MW radiation from these fields in combination with a significant change of temperature could have on cell proliferation. The experiments were performed on the same cell line, and with the same exposure system as in a previous work [S. Kwee, P. Raskmark, Changes in cell proliferation due to environmental non-ionizing radiation: 2. Microwave radiation, Bioelectrochem. Bioenerg., 44 (1998), pp. 251-255]. The field was generated by signal simulation of the Global System for Mobile communications (GSM) of 960 MHz. Cell cultures, growing in microtiter plates, were exposed in a specially constructed chamber, a Transverse Electromagnetic (TEM) cell. The Specific Absorption Rate (SAR) value for each cell well was calculated for this exposure system. However, in this study the cells were exposed to the field at a higher or lower temperature than the temperature in the field-free incubator i.e., the temperature in the TEM cell was either 39 or 35 +/- 0.1 degrees C. The corresponding sham experiments were performed under exactly the same experimental conditions. The results showed that there was a significant change in cell proliferation in the exposed cells in comparison to the non-exposed (control) cells at both temperatures. On the other hand, no significant change in proliferation rate was

found in the sham-exposed cells at both temperatures. This shows that biological effects due to RF/MW cannot be attributed only to a change of temperature. Since the RF/MW induced changes were of the same order of magnitude at both temperatures and also comparable to our previous results under isothermal conditions at 37 degrees C, cellular stress caused by electromagnetic fields could initiate the changes in cell cycle reaction rates. It is widely accepted that certain classes of heat-shock proteins are involved in these stress reactions.

(67) Veyret B, Bouthet C, Deschaux P, de Seze R, Geffard M, Joussot-Dubien J, le Diraison M, Moreau JM, Caristan A, Antibody responses of mice exposed to low-power microwaves under combined, pulse-and-amplitude modulation. *Bioelectromagnetics* 12(1):47-56, 1991.

Irradiation by pulsed microwaves (9.4 GHz, 1 microsecond pulses at 1,000/s), both with and without concurrent amplitude modulation (AM) by a sinusoid at discrete frequencies between 14 and 41 MHz, was assessed for effects on the immune system of Balb/C mice. The mice were immunized either by sheep red blood cells (SRBC) or by glutaric-anhydride conjugated bovine serum albumin (GA-BSA), then exposed to the microwaves at a low rms power density (30 microW/cm2; whole-body-averaged SAR approximately 0.015 W/kg). Sham exposure or microwave irradiation took place during each of five contiguous days, 10 h/day. The antibody response was evaluated by the plaque-forming cell assay (SRBC experiment) or by the titration of IgM and IgG antibodies (GA-BSA experiment). In the absence of AM, the pulsed field did not greatly alter immune responsiveness. In contrast, exposure to the field under the combined-modulation condition resulted in significant, AM-frequency-dependent augmentation or weakening of immune responses.

(68) Vian A, Roux D, Girard S, Bonnet P, Paladian F, Davies E, Ledoigt G. Microwave irradiation affects gene expression in plants. *Plant Signal Behav.* 1(2):67-70, 2006.

The physiological impact of nonionizing radiation has long been considered negligible. However, here we use a carefully calibrated stimulation system that mimics the characteristics (isotropy and homogeneity) of electromagnetic fields present in the environment to measure changes in a molecular marker (mRNA encoding the stress-related bZIP transcription factor), and show that low amplitude, short duration, 900 MHz EMF evokes the accumulation of this mRNA. Accumulation is rapid (peaking 5-15 min after stimulation) and strong (3.5-fold), and is similar to that evoked by mechanical stimulations.

(69) Wolke S, Neibig U, Elsner R, Gollnick F, Meyer R, Calcium homeostasis of isolated heart muscle cells exposed to pulsed high-frequency electromagnetic fields. *Bioelectromagnetics* 17(2):144-153, 1996.

The intracellular calcium concentration ([Ca(2+)]i) of isolated ventricular cardiac myocytes of the guinea pig was measured during the application of pulsed high-frequency electromagnetic fields. The high-frequency fields were applied in a transverse electromagnetic cell designed to allow microscopic observation of the myocytes during the presence of the high-frequency fields. The [Ca(2+)]i was measured as fura-2 fluorescence by means of digital image analysis. Both the carrier frequency and the square-wave pulse-modulation pattern were varied during the experiments (carrier frequencies: 900, 1,300, and 1,800 MHz pulse modulated at 217Hz with 14 percent duty cycle; pulsation pattern at 900 MHz: continuous wave, 16 Hz, and 50 Hz modulation with 50 percent duty cycle and 30 kHz modulation with 80 percent duty cycle). The mean specific absorption rate (SAR) values in the solution were within one order of magnitude of 1 mW/kg. They varied depending on the applied carrier frequency and pulse pattern. The experiments were designed in three phases: 500 s of sham exposure, followed by 500 s of field exposure, then chemical stimulation without field. The chemical stimulation (K+ -depolarization) indicated the viability of the cells. The K+ depolarization yielded a significant increase in [Ca(2+)]i. Significant differences between sham exposure and high-frequency field exposure were not found except when a very small but statistically significant difference was detected in the case of 900 MHz/50 Hz. However, this small difference was not regarded as a relevant effect of the exposure.

(70) Yurekli AI, Ozkan M, Kalkan T, Saybasili H, Tuncel H, Atukeren P, Gumustas K, Seker S. GSM Base Station Electromagnetic Radiation and Oxidative Stress in Rats. *Electromagn Biol Med.* 2006;25(3):177-188, 2006.

The ever increasing use of cellular phones and the increasing number of associated base stations are becoming a widespread source of nonionizing electromagnetic radiation. Some biological effects are likely to occur even at low-level EM fields. In this study, a gigahertz transverse electromagnetic (GTEM) cell was used as an exposure environment for plane wave conditions of far-field free space EM field propagation at the GSM base transceiver station (BTS) frequency of 945 MHz, and effects on oxidative stress in rats were investigated. When EM fields at a power density of 3.67 W/m2 (specific absorption rate = 11.3 mW/kg), which is well below current exposure limits, were applied, MDA (malondialdehyde) level was found to increase and GSH (reduced glutathione) concentration was found to decrease significantly ($p < 0.0001$). Additionally, there was a less significant ($p = 0.0190$) increase in SOD (superoxide dismutase).

Exhibit

H

The State of the Science, June 2010

Potential Health Effects on Children of RadioFrequency Radiation Emissions From Cellular Towers and Antennas

Much controversy surrounds the question of whether electromagnetic field radiofrequency (EMF RF) emissions from cellular towers and antennas may have an adverse health effect on children who attend schools close by. There is enough concern and uncertainty about the safety of cell towers to warrant protective action by keeping cell towers out of close proximity to schools. When cell towers are erected near schools, large numbers of children receive involuntary, long-term, full-body exposure to low-intensity radiofrequency radiation for several hours a day, many days a week, over the course of many years of their early lives.

- ADVERSE SYMPTOMS ARE WELL DOCUMENTED

Peer-reviewed studies have documented links between proximity to cell towers and a variety of health effects including migraines, tinnitus, slowed motor skills, insomnia, memory loss, dizziness, behavioral and cognitive impairments, at very low frequencies.[I] In 2005, the International Association of Fire Fighters adopted a resolution opposing the installation of cell towers on fire station roofs after fire fighters living and working in fire stations under or adjacent to cell towers displayed adverse health effects, including slowed reaction time, severe headaches, tremors, lack of focus, depression, and sleep deprivation. [II]

- CANCER: EPIDEMIOLOGICAL AND IN-VIVO STUDIES SHOW LINKS

Although there are many studies that have found no detectable health effects from EMF-RF exposure, other studies have linked exposure to EMF RF radiation to elevated risk of cancer, including brain tumors, leukemia, breast cancer, and lymphoma.[III] "Laboratory studies have demonstrated unequivocally that EMF RF can cause single and double strand DNA breakage at exposure levels that are considered safe under FCC regulations," wrote Dr. Martin Blank, of Columbia University, in a letter to the City and County of San Francisco in June, 2010. "There are also epidemiological studies that show an increased risk of cancers associated with long-term exposure to RF. Since we know that an accumulation of changes or mutations in DNA is associated with cancer, there is good reason to believe that the elevated rates of cancers among persons living near RF towers are probably linked to DNA damage caused by EMF RF." [IV]

- OTHER CHRONIC HEALTH RISKS EXIST

Studies have identified EMF-RF radiation as a potential cause of neurodegenerative disease, immune suppression, and reproductive disorders, including reduced sperm count in epidemiological studies[V] and eventual infertility in animal studies. EMF RF has been shown to cause leakage of the blood brain barrier, which can lead to damage of neurons in the brain, and to cause cells to manufacture stress proteins – a biological response that shows the body is under stress.[VI]

- CHILDREN ARE MORE VULNERABLE THAN ADULTS

Because of their developing bodies and brains, children are much more vulnerable to environmental contaminants than adults. They are not "little adults" and it is not appropriate to adjust exposure standards based on body size alone. "Opportunities for eliminating or minimizing cancer-causing and cancer-promoting environmental exposures must be acted upon to protect all Americans, but especially children," wrote the President's Cancer Panel in May, 2010.[VII] "They are at special risk due to their smaller body mass and rapid physical development, both of which magnify their vulnerability to known or suspected carcinogens, including radiation." The World Health Organization states in Fact Sheet 193 that, "Siting base stations near kindergartens, schools and playgrounds may need special consideration." In 2008, the National Research Council identified as a gap in knowledge, "the characterization of exposures from wireless devices and radiofrequency base station antennas in juveniles, children, fetuses and pregnant women."[VIII]

- LOW-DOSE EXPOSURES MAY BE HARMFUL

Laboratory studies of EMF RF exposure show adverse health effects at extremely low doses. Other factors, including the pattern, duration and combination of exposures, and the age and frequency at which they occur, may be equally as significant.[IX] Here the case of Bisphenol-A (BPA), a chemical used in hard plastic bottles and food linings, may be instructive. As recently as 2008, scientists and regulators continued to reassure the public that consumer products containing BPA were safe because the doses of BPA in consumer products were far too low to cause human harm – despite initial studies that suggested that BPA at very low doses could elevate cancer risk. After more study and much advocacy by health groups, the President's Cancer Panel in May 2010 concluded that the evidence against low-dose exposure to BPA was strong, and urged consumers to take extra precautions and the FDA to strengthen its safety threshold.

- IMPACTS MAY BE CUMULATIVE

Another area that is not fully understood is whether or not the impacts of RF radiation are cumulative. Some recent occupational studies indicate that chronic, sustained

exposure to RF radiation may indeed elevate the risk of chronic disease, including breast cancer.[X] "Even though the level is low," wrote Henry Lai, a professor in bioengineering at the University of Washington, in 2008, "it would matter if the effects of radiofrequency radiation turn out to be cumulative (i.e. add up over time)."[XI] Indeed, some research suggests that bodies may become *more* susceptible to the effects of RF radiation after long-term exposure.[XII] There is little available data to date on the effects of sustained RF exposure on young children growing up in close proximity to cell towers.

- LACK OF A KNOWN MECHANISM DOES NOT MEAN LACK OF EFFECT

Ionizing radiation is a known cause of cancer; it can lift electrons out of orbit and charge atoms, causing direct cell mutation. EMF RF radiation is *non-ionizing,* meaning it lacks the energy to do this. However, the fact that EMF RF radiation is "non-ionizing" does not mean it cannot act as a carcinogen.[XIII] Empirical studies have shown that low-dose RF radiation can cause double and single DNA strand breaks, and may prevent cells from self-repairing – forms of damage that are associated with cancer. Several solid, in-vivo, epidemiological and occupational studies support this relationship (while other studies do not). [XIV]A variety of theories, including melatonin suppression, free radical damage, and the alteration of protein structures are being explored as potential mechanisms. However, the lack of a clear mechanism does not mean that damage observed in studies did not occur. "The lack of a causal or proven mechanism(s) to explain RFR-induced effects on DNA damage and repair does not decrease the credibility of studies in the scientific literature that report effects of RFR exposure, because there are several plausible mechanisms of action that can account for the observed effects," wrote J.L. Phillips, et. al, in 2009. [XV] It is worth noting that the relationship between cigarette smoking and lung cancer was accepted because of epidemiological studies long before a causal mechanism was understood.

- THE FEDERAL STANDARDS ARE INADEQUATE

The current safety standard was established in 1982 by the American National Standards Institute and adopted in 1996 by the FCC. It has not been adjusted upwards since then. This standard has been widely criticized because it is based on the "thermal" or direct tissue heating effects on adults, and does not take into account potential biological effects of non-thermal (low-intensity) RF-EMF exposure, particularly on children. On June 17, 1999, the US Radiofrequency Interagency Working Group (RFIAWG) issued a Guidelines Statement that concluded the present RF standard "may not adequately protect the public." [XVI] In particular, the RFIAWG criticized the existing standards as not taking into account chronic, as opposed to acute exposures, whether the radiation is modulated or pulsed (digital), or time-averaged measurements. In a 2002 letter, Norbert Hankin, chief EMF scientist at the U.S. EPA, stated: "The FCC's exposure

guideline is considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified"[XVII].

In 2007, a group of expert scientists reviewed the literature pertaining to RF exposures and established a new recommendation for cumulative public exposure of 0.1uW/cm2 – a standard (x) time stronger than the FCC's. This standard has been endorsed by the European Environmental Agency (EEA).[XVIII] It is worth noting that in May 2010, the President's Cancer Panel pointed to a widespread failure by federal regulatory agencies of setting safety thresholds that adequately protect Americans, particularly children, from environmental contaminants that may elevate cancer risk.

- THE RESEARCH IS NOT COMPLETE

For cancer and other long-latency diseases, it can take 20 to 30 years before epidemiological studies are able to identify the safety – or otherwise – of new technologies and substances. From asbestos to DDT, history is filled with examples where governments acted too late to protect the public because the studies weren't complete. The World Health Organization, the National Toxicology Program and others are currently studying the effects of EMF RF radiation. In May 2010, the President's Cancer Panel reported that scientists are "sharply divided" about the state of the evidence as it relates to EMF RF, and that more research is "urgently needed."[XIX] In an SEC filing in 2010, T-Mobile's parent company reported that "We cannot provide assurance that research in the future will not establish links between radio frequency emissions and health risks."[XX]

In 2008, the National Research Council highlighted the following issues as not adequately covered by research:

- Are there differences in health effects of short-term vs. long-term exposure?
- Are there differences between local vs. whole-body exposures?
- Are there any biological effects that are not caused by an increase in tissue temperature (non-thermal effects)?
- Does RF exposure alter (synergize, antagonize, or potentiate) the biological effects of other chemical or physical agents?
- Are there differences in risk to children?
- Are there differences in risk to other subpopulations such as the elderly and individuals with underlying disease states?

This report also noted that, "Most of the present-day exposure systems used in laboratory studies focus on the exposure of the head. Though exposures to the head are relevant for most cell phone exposures, whole-body exposures due to base stations are a research need." [XXI]

- CANCER RISK REDUCTION: A FRAMEWORK FOR PREVENTION

Cancer causation is generally not as simple as A+B=C. In the case of breast cancer, for example, only a fraction of cases (approximately 10 percent) are caused by inherited genes.[XXII] In many other cases, a multitude of factors interact in a complex web of relationships, which, taken together, elevate cancer risk. The idea of a risk reduction framework is that, by reducing exposure to many factors, you may begin to reduce lifetime risk. Thus even steps that seem small – such as preventing children from spending large portions of time in direct proximity to a cellular base station -- are worth taking because, in sum, these steps can be very significant.

- A PRECAUTIONARY FRAMEWORK HELPS PROTECT HEALTH

On May 7, 2010, the President's Cancer Panel, a medical panel that reports directly to the President of the United States, released its annual report. The report looked at emerging science documenting links between cancer and the environment and proposed a fundamental paradigm shift in the way we look at environmental contaminants.[XXIII] It called for an end to the "reactionary" model where we must prove something is dangerous before limiting its use, in favor of a precautionary model, which holds that, when evidence exists to suggest a substance is harmful, alternatives should be favored until the substance is proven safe. The precautionary approach is widely used across Europe and in a range of municipalities, including San Francisco[XXIV].

- THE PRECAUTIONARY APPROACH SHOULD APPLY

There is no question that evidence exists to suggest that EMF-RF emissions from cell towers may be harmful to children's health. The question is, how much weight should we give that evidence? Numerous bodies and organizations including the World Health Organization, the Breast Cancer Fund and the Healthy Schools Network have recommended that the precautionary approach be considered. Several scientists from prestigious institutions have concluded that the weight of evidence is sufficient to merit precautionary action.[XXV] The European Parliament, several nations, and some municipalities, including the Los Angeles Unified School District and Greenwich, CT, have passed resolutions either recommending or requiring that cell towers be kept at a safe distance from schools. Other school districts, including several in California, tacitly support this position by not entering into contracts to house cell towers on their property.

- SAFE BUFFER ZONES AROUND SCHOOLS

Because RF radiation moves in waves, and emissions may vary depending on the tilt of the antennas (which may be remotely adjusted by the carrier) and the volume of calls at particular times, it is not simple to predict precise exposure levels at precise points.

Risk also varies depending on the height of the school building relative to the height and angle of the antennas. Generally, experts believe the greatest risks are likely to be concentrated at 100-500 feet from the source, and to drop off at around 1,500 feet. In May, 2010, a study which ranked schools for wireless safety, recommended establishing a 1,500 foot buffer zone around schools.[XXVI] This is an "internationally recognized" distance, according to the EMR Policy Institute. A bill currently moving through the Connecticut legislature would establish buffer zones at 750 feet.

San Francisco, June 2010

[I] Frei, et al, (2009) Temporal and spatial variability of personal exposure to radio frequency electromagnetic fields (Environmental Research 109 (6): 779-785; Kundi, M., & Hutter, H.P. (2009) Mobile base stations – effects on wellbeing and Health.; Pathophysiology, 16 (2,3), 123-135;

[II] International Association of FireFighters 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 (2005) http://www.iaff.org/hs/Facts/CellTowerFinal.asp#top

[III] (For example: McElroy JA, Egan, KM, Titus-Ernoff L et al (2007). "Occupational exposure to electromagnetic field and breast cancer risk in a large, population-based, case-control study in the United States," Journal of Occupational and Environmental Medicine 49: 266-274

(Eger H, Hagen KU, Lucas B, Vogel P, Voit H. the influence of being physically near to a cell phone transmission mast on the incidence of cancer. Published in *Umwelt·Medizin·Gesellschaft* 17,4, 2004, as: 'Einfluss der räumlichen Nähe von Mobilfunksendeanlagen auf die Krebsinzidenz')

[IV] An Open Letter to the City and County of San Francisco, June 1, 2010, Dr. Martin Blank, Professor, Columbia University College of Physicians and Surgeons

[V] (For a summary of these studies please see: Biological Effects of Radiation Frequency from Wireless Transmission Towers", Dr. Henry Lai, University of Washington, 2001)

[VI] (Kwee et al. (2001)- 20 minutes of cell phone RFR exposure at 0.0021 W/kg increased stress protein in human cells.

[VII] (President's Cancer Panel 2008-2009 Annual Report "Reducing Environmental Cancer Risk: What We Can Do Now"

http://deainfo.nci.nih.gov/advisory/pcp/pcp08-09rpt/PCP_Report_08-09_508.pdf

[VIII] National Research Council Report (2008): "Identification of Research Needs Relating to Potential Biological or Adverse Health Effects of Wireless Communication http://www.nap.edu/catalog/12036.html

[IX] State of the Evidence: The Connection Between Breast Cancer and the Environment," (International Journal of Occupational and Environmental Health, January 2009) editor, Janet Gray

[XI] Dr. Henry Lai, 2008, letter concerning hazards of wireless transmission towers near schools.

[XIII] Electromagnetic Fields and Cancer: The Cost of Doing Nothing (Testimony before President's Cancer Panel) January 27, 2009, David O. Carpenter

[XIV] J.L. Phillips, et. al, in 2009. i J.LPhillips et al. "Electromagnetic Fields and DNA Damage s," Journal of Pathophsyiology 16 (2009) 79-88.

[XV] J.L. Phillips, et. al, in 2009. i J.LPhillips et al. "Electromagnetic Fields and DNA Damage s," Journal of Pathophsyiology 16 (2009) 79-88.

[XVI] US Radiofrequency Interagency Working Group (RFIAWG) Guidelines Statement, June 17, 1999, http://www.emrpolicy.org/litigation/case_law/docs/exhibit_a.pdf

[XVII] Letter (2002) from Norbert Hankin, Center for Risk Assessment Radiation Protection Division, Environmental Protection Agency, to Janet Newton, then President of The EMR Network. http://www.emrpolicy.org/faq/noi_epa_response.pdf

[XVIII] BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors. "BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standards for Electromagnetic Fields," August 31, 2007.

[XIX] President's Cancer Panel Annual Report, May 2010

[XX] Deutsche Telekom AG, 20-F, February 25, 2010, p. 33

[XXI] National Research Council Report (2008) (op.cit)

[XXII] State of the Evidence: The Connection Between Breast Cancer and The Environment International Journal of Occupational and Environmental Health, January 2009) editor, Janet Gray

[XXIII] President's Cancer Panel Annual Report, 2010

[XXIV] http://library.municode.com/index.aspx?clientId=14134&stateId=5&stateName=California

[XXV] A partial list of concerned scientists includes:

- Dr Martin Blank, Associate Professor of Physiology and Cellular Biophysics, Columbia University College of Physicians and Surgeons
- Dr. David O. Carpenter, Professor of Environmental Health Sciences, School of Public Health University at Albany
- Dr. Devra Lee Davis, Professor, Department of Epidemiology, Graduate School of Public Health, University of Pittsburgh
- Dr Madga Havas, Associate Professor of Environment & Resource Studies, Trent University
- Dr. Raymond Herberman, Director, University of Pittsburgh Cancer Institute and Associate Vice Chancellor for Cancer Research, School of Medicine, Department of Health Sciences, University of Pittsburgh
- Dr. Henry Lai, Research Professor, Department of Bioengineering, University of Washington

[XXVI] BRAG Antenna Ranking of Schools Report, Dr. Madga Havas, April, 2010 http://www.magdahavas.com/2010/04/28/how-to-brag%e2%84%a2-rate-your-school/

Taking a Precautionary Approach: The Need to Minimize Children's Exposure to RF from Mobile Phone Base Stations

This document contains information that, taken as whole, underscores the prudence in adopting a "precautionary approach" with regards to locating cell base stations near schools. The information in this document encourages us to consider the potential for adverse health effects from chronic exposure to electromagnetic radiation emitted by cell base stations. There is enough concern and uncertainty about the safety of cell base stations that we believe they should not be sited in close proximity to schools. Children's bodies are rapidly developing and scientists agree that they are more vulnerable to radiofrequency radiation than those of adults. There are many schools surrounding St. Matthew's Church. If a cell base station is erected in the church steeple, large numbers of children will be chronically exposed to low levels of radiofrequency radiation for many hours a day, many days a week, over the course of many years (as many as eleven years).

Useful Terminology: The following are terms that are referred to in the materials below.

- **Electromagnetic radiation or EMF** (also referred to as non-ionizing radiation) is a type of low-frequency radiation. There are two types of EMF: Radiofrequency radiation (RF) and Extremely Low Frequency radiation (ELF). **EMF RF** or "radiofrequency"/"microwave" radiation is produced by cellular phones, cordless phones, other wireless devices, and the towers and antennas that support them. **EMF ELF** or "extremely low frequency" electromagnetic radiation is produced when electrical power is transmitted and distributed (via the electrical power grid and electrical appliances).
- The **FCC** or the **Federal Communications Commission** is the government agency with authority over devices, transmitter and facilities that generate RF radiation. The FCC oversees the Telecommunications Act of 1996 which describes itself as "[a]n Act to promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." The Telecommunications Act includes regulations on maximum permissible RF exposure to humans. Numerous governmental and non-governmental entities have expressed concern that the FCC's 14 year old guidelines for RF exposure are inadequate; they point out that the guidelines are based on the thermal effects of acute RF exposure and do not consider the non-thermal effects of low levels of RF exposure. Numerous requests have been made to the federal government to update their regulations on RF exposure in light of recent research. Importantly, the Telecommunications Action of 1996 contains a "preemption clause" that deprives state and local governments of the right to impose any regulation intended to protect the public health that is more stringent than the regulations of the federal government. As a result, state and local governments are bound by the FCC's regulations on RF exposure – by law, government bodies cannot make decisions on the siting of cell antennas based on health concerns so long as the RF radiation emitted by the facilities does not exceed the FCC's regulations.
- T-Mobile is planning to install a cellular based station (with four or six antennas) on the St. Matthew's Church steeple. A **cell base station** is what links mobile phones to a wireless carrier's network. A base station consists of an electronic equipment cabinet connected by large cables to a group of **antennas**. The equipment is sometimes large enough to require its own small building. The antennas may be mounted on a dedicated **cell tower** structure or on an existing structure, such as the top of a building, water tower, smoke-stack, or church steeple. A single location often hosts multiple base stations, each owned by a different carrier. Each base station at that location has its own antennas and electronic equipment.

Resolutions and Statements Issued by Governing Bodies and Health Advocacy Groups	
Resource	**Summary**
Los Angeles Unified School District (2^{nd} largest district in the country)	- In 2000, the LAUSD Board of Education adopted a resolution opposing the placement of cellular communication towers on or immediately adjacent to school property. - In 2009, the LAUSD Board of Education unanimously passed a second resolution including a statement "in favor of revising Section 704 of the Federal Telecommunications Act of 1996's preemption of consideration of the health and environmental effects of radio-frequency radiation at levels below current Federal Communication standards in decisions involving the placement, construction and modification of wireless technologies". LAUSD's action on this issue was prompted in part by a number of recent cell antenna applications for locations near LAUSD.
LINK: http://www.cloutnow.org/lausd/	
San Francisco Board of Supervisors	In March 2010, Mayor Gavin Newsom signed a Board of Supervisors' resolution that calls on the federal government to study the health effects of wireless facilities and to repeal the limitations that prevent local governments from considering health concerns in the siting of cell towers/antennas. The resolution, which was passed unanimously (10 to 0) by the Board of Supervisors, include the following resolves: - RESOLVED, That the San Francisco Board of Supervisors urges the US Environmental Protection Agency to perform appropriate research and experimentation to determine the effects of non-ionizing radiation on the health of adults and children and, if appropriate, establish a safe level of exposure, and be it - FURTHER RESOLVED, That the San Francisco Board of Supervisors urges the Federal Communications Commission to pursue a comprehensive global analysis of best practices and scientific evidence in order to update its existing standards and to adequately measure the health impacts of wireless facilities, and be it - FURTHER RESOLVED, That the San Francisco Board of Supervisors encourages the California Congressional Delegation to introduce federal legislation to repeal limitations on state and local authority imposed by the Telecommunications Act of 1996 that infringe upon the authority of local governments to regulate the placement, construction, and modification of telecommunications towers and other personal wireless facilities on the basis of health and environmental effects of these facilities, and be it - FURTHER RESOLVED, That the San Francisco Board of Supervisors hereby directs the Clerk of the Board to send a copy of this resolution to the offices of Senator Barbara Boxer, Senator Diane Feinstein, Speaker Nancy Pelosi, Congresswoman Jackie Speir, the Federal Communications Commission, and the US

	Environmental Protection Agency.

LINK: http://www.sfbos.org/ftp/uploadedfiles/bdsupvrs/bosagendas/materials/bag032310_100043.pdf

Resource	Summary
Healthy Schools Network	"Brief of Healthy Schools Network Inc. As Amicus Curiae in Support of Petitioner" (Sept. 2006). On petition for write of Mandamus to the United States Court of Appeals for the Second Circuit. Questions Addressed by Brief: (Please click on the link below and read the brief) - Should the Federal Communications Commission ("FCC"), in launching a major new program that will risk biological harm to vulnerable children, be able to continue to ignore the National Environmental Policy Act ("NEPA") requirement that an environmental impact statement ("EIS") be prepared for all major governmental undertakings simply because scientific warnings of health hazards have not reached the stage of definitively establishing harm to humans? - Should the FCC be excused from performing an NEPA mandated EIS just because a multitude of *ad hoc* licensing and site-specific reviews are available, as the so called "functional equivalent" of an EIS, which (a) impose new costs on local citizens and governments, (b) are dependant on challenges by potential victims who most often would not know of the risk, and (c) would be based on the scientifically questionable assumption that no biological harm is being caused by long term radio-frequency ("RF") radiation until the certainty of harm is definitively established?
LINK: http://www.antennafreeunion.org/healthy_schools_amicus.pdf	
The EMR Policy Institute	According to the EMR Policy Institute, 1500 feet is an internationally recognized precautionary standard for the distance between a cell tower/antenna site and a school, playground, daycare center or other childcare facility.
LINK: http://www.emrpolicy.org/public_policy/siting_zoning/tool_box.pdf (see page 1)	
World Health Organization (WHO)	World Health Organization (WHO) fact sheet: Electromagnetic Fields and Public Health: Mobile Telephones and Their Base Stations. In the fact sheet, the WHO cautions: "Siting base stations near kindergartens, schools and playgrounds may need special consideration."
LINK: http://www.who.int/mediacentre/factsheets/fs304/en/ OR search in the WHO website for Electromagnetic fields and public health (look under "Conclusions and Recommendations" – 2ND to last paragraph):	
European Parliament	In 2009, the European Parliament voted to recommend precautions be taken to protect human health with regard to wireless technologies, such as mobile phones, Wi-Fi/Wi-Max, Bluetooth, DECT portable phones and cell towers. Below are a few excerpts from "European Parliament resolution of 2 April 2009 on health concerns associated with electromagnetic fields": "E. whereas the fact that the scientific community has reached no definite conclusions has not prevented some national or regional governments, in China, Switzerland, and Russia, as well as in at least nine EU Member States, from setting what are termed "preventive" exposure limits, that is to say, lower than those advocated by the Commission and its independent scientific committee, the Scientific Committee on Emerging and Newly Identified Health Risks(7) ," "H. whereas, however, there are some points that appear to be the subject of general agreement, in particular

	the idea that reactions to microwave exposure vary from one person to another, the need, as a matter of priority, to conduct exposure tests under actual conditions in order to assess the non-thermal effects associated with radio-frequency (RF) fields, and the fact that children exposed to EMFs are especially vulnerable[9] ," "8. Considers that, given the increasing numbers of legal actions and measures by public authorities having the effect of a moratorium on the installation of new EMF-transmitting equipment, it is in the general interest to encourage solutions based on negotiations involving industry stakeholders, public authorities, military authorities and residents" associations to determine the criteria for setting up new GSM antennas or high-voltage power lines, and to ensure at least that schools, crèches, retirement homes, and health care institutions are kept clear, within a specific distance determined by scientific criteria, of facilities of this type;" "19. Calls on the Commission and Member States to increase research and development funding for the evaluation of potential long-term adverse effects of mobile telephony radio frequencies; calls also for an increase in public calls for proposals for investigation of the harmful effects of multiple exposure to different sources of EMFs, particularly where children are concerned;"
LINK: http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2009-0216+0+DOC+XML+V0//EN	

Resource	Summary
Children's Environmental Health Network ("The Voice in Washington for Children's Environmental Health")	In their 2008 Annual Report (their most recent annual report), CEHN states that they spoke out in support of policies to protect children, including "Joining other organizations in urging the relevant Federal health agencies to address the scientific uncertainties about long-term exposures to electromagnetic radiation emanating from cell phones and antenna base stations, wireless internet, TV and FM broadcast towers, radar and power lines, through an improved research strategy".
LINK: **http://www.cehn.org/cehn/2008-Annual-CEHN-report.pdf**	
Collaborative on Health and the Environment (CHE) Chair of CHE: Philip R. Lee, MD, Former United States Assistant Secretary of Health, Chancellor of the University of California at San Francisco, Professor at Stanford University.	CHE's Working Group on Electromagnetic Fields (EMF) is a diverse international gathering of more than 170 health professionals, scientists, and concerned individuals from the U.S. and 17 other countries. The goals of this working group include: 1. Discussing emerging science that links EMF exposure with health effects, 2. Bringing this science to the attention of CHE Partners and the public, and 3. Exploring research and policy opportunities that CHE Partners may be interested in working on either individually or collectively. The link below provides useful resources: - *Fact Sheet on Radiation and Cancer*: This fact sheet addresses the health effects associated with EMF, specifically ELF (the power grid and electrical appliances) and RF (cellular technology). While the fact sheet addresses cell phones, it does not specifically address cell base stations. Nevertheless, it provides a very useful and thoughtful summary of the EMF issue. (Click on link below, scroll down to "Resources" and click on the 11th item on the list, "Radiation and Cancer – New In-Depth PDF Fact Sheet) - CHE's website includes links to a number of studies that are relevant to cell base stations (some of which are contained in this table). (Click on link below and scroll down to "Resources")
LINK: http://www.healthandenvironment.org/working_groups/emf	
San Francisco Board of Supervisors (the San Francisco Board of Supervisors adopted the precautionary principle in 2003 – we feel the precautionary principal should be applied to the issue of cell base stations near schools)	In 2003, the San Francisco Board of Supervisors adopted a municipal code on the precautionary principle. The precautionary principal policy statement includes the following text (see link for more information): "The following shall constitute the City and County of San Francisco's Precautionary Principle policy. All officers, boards, commission, and departments of the City and County shall implement the Precautionary Principle in conducting the City and County's affairs: - The Precautionary Principle requires a thorough exploration and a careful analysis of a wide range of alternatives. Based on the best available science, the Precautionary Principle requires the selection of the alternative that presents the least potential threat to human health and the City's natural systems. Public participation and an open and transparent decision making process are critical to finding and selecting alternatives. - Where threats of serious or irreversible damage to people or nature exist, lack of full scientific certainty

	about cause and effect shall not be viewed as sufficient reason for the City to postpone cost effective measures to prevent the degradation of the environment or protect the health of its citizens. Any gaps in scientific data uncovered by the examination of alternatives will provide a guidepost for future research, but will not prevent the City from taking protective action. As new scientific data become available, the City will review its decisions and make adjustments when warranted. - Where there are reasonable grounds for concern, the precautionary approach to decision-making is meant to help reduce harm by triggering a process to select the least potential threat. The key elements of the Precautionary Principle approach to decision-making include:….."

LINK: http://library.municode.com/index.aspx?clientId=14134&stateId=5&stateName=California
LINK: http://articles.sfgate.com/2003-06-19/opinion/17497033_1_sustainable-energy-air-pollution-public-health

Concerns Expressed by Federal Agencies about the Inadequacy of the FCC's RF Exposure Guidelines	
Resource	**Summary**
Norbert Hankin, Center for Risk Assessment Radiation Protection Division, **US Environental Protection Agency** **LINK: http://www.emrpolicy.org/faq/noi_epa_response.pdf**	Letter (2002) from **EPA's Norbert Hankin, Center for Risk Assessment Radiation Protection Division**, to Janet Newton, then President of The EMR Network, stating that the current FCC RF exposure guidelines do not adequately treat nonthermal, prolonged exposures to RF radiation.
Grogory Lotz of the **National Institute of Occupational Health & Safety (NIOSH)** on behalf of the US Radiofrequency Interagency Work Group (a government work group) **LINK: See text above for relevant links.**	Letter (1999) written on behalf of the federal Radiofrequency Interagency Work Group (RFIAWG) by W. **Gregory Lotz of the National Institute of Occupational Safety and Health (NIOSH)** to Richard Tell, Chairman of the Institute of Electrical and Electronics Engineers (IEEE) subcommittee for RF safety. FCC looks to IEEE for primary input onRF safety standards. The letter outlines 14 issues that the federal health agencies find in the IEEE exposure scheme. **LINK: http://www.emrpolicy.org/faq/exhibit_a.pdf** FYI: According to the Noe Valley Voice (October 1997): "Cincinnati biophysicist W. **Gregory Lotz** told the *Cincinnati Enquirer* in August [1997] that he believes cellular phone towers should not be built close to schools or other places where children gather. Lotz is chief of physical agents at the National Institute for Occupational Safety and Health (NIOSH). 'To err on the side of caution, you would not put them on school grounds,' Lotz is quoted as saying. 'I can't assure [parents] we aren't going to find something 10 years from now that we don't know now. It's a matter of making a decision on limited research and scientific information.' **LINK: http://www.noevalleyvoice.com/1997/October/pacbelu.html**
US Radiofrequency Interagency Working Group (RFIAWG) RFIAWG is a group of federal agency staff representatives that considers the issue of wireless safety for the public. It is made up of representatives from the US government's National Institute for Occupational Safety and Health (NIOSH), the Federal Communications Commission (FCC), Occupational Health and Safety Administration (OSHA), the Environmental Protection Agency (US EPA), the National Telecommunication and Information Administration, and the US Food and Drug Administration (FDA). **LINK: http://www.emrpolicy.org/litigation/case_law/docs/exhibit_a.pdf**	More than a decade ago, the RFIAWG concluded that "*existing public safety limits may not protect public health*" with respect to pulsed radiofrequency of this type. On June 17, 1999, the RFIAWG issued a Guidelines Statement that concluded the present RF standard "may not adequately protect the public". The RFIAWG identified fourteen (14) issues that they believe are needed in the planned revisions of ANSI/IEEE RF exposure guidelines including "to provide a strong and credible rationale to support RF exposure guidelines". In particular, the RFIAWG criticized the existing standards as not taking into account chronic, as opposed to acute exposures, modulated or pulsed radiation (digital or pulsed RF is proposed at this site), time-averaged measurements that may erase the unique characteristics of an intensity-modulated RF radiation that may be responsible for reported biologic effects, and stated the need for a comprehensive review of long-term, low-level exposure studies, neurological-behavioral effects and micronucleus assay studies (showing genetic damage from low-level RF). The areas of improvement where changes are needed include: a) selection of an adverse effect level for chronic exposures not based on tissue heating and considering modulation effects; b) recognition of different safety criteria for acute and chronic exposures at non-thermal or low-intensity levels; c) recognition of deficiencies in using time-averaged measurements of RF that does not differentiate between intensity-modulated RF and continuous wave (CW) exposure, and therefore may not adequately protect the public.

Cellular Telecommunications Industry's Successful Efforts to Curb Local Authorities' Power to Influence Antenna Siting	
Resource	**Summary**
Cellular Telecommunications and Internet Association (CTIA)	July 11, 2008 - The Cellular Telecommunications and Internet Association (CTIA), a trade association of the wireless industry in the US, petitioned the FCC to declare new limitations on local zoning authority as it affects antenna siting. This is the reason why local authorities cannot limit antenna siting based on health concerns.
LINK: http://fjallfoss.fcc.gov/ecfs/document/view?id=6520038471	
The EMR Policy Institute	September 28, 2008 - The EMR Policy Institute's Comment and Cross Petition in opposition to the above petition by CTIA to the FCC.
LINK: http://fjallfoss.fcc.gov/ecfs/document/view?id=6520172536	
Study Commissioned By T-Mobile	The U.K.'s "The Sunday Times" published an article (April 15, 2007) that claims that an extensive research study commission by T-Mobile was hidden when the researchers concluded that cell handsets and cell base stations contribute to cancer and genetic damage. The following is an excerpt from the commissioned study: "Exposure From Base Stations (p. 37): In human, harmful organic effects of high frequency electromagnetic fields as used by mobile telecommunications have been demonstrated for power fluxensities from 0.2W/n2 (See Chapter 7). Already at values of 0.1 W/m2 such effects cannot be excluded. If a security factor of 10 is applied to this value, as it is applied by ICNIRP and appears appropriate given the current knowledge, the precautionary limit should be 0.01 W/m2. This should be rigorously adhered to by all base stations near sensitive places such as residential areas, schools, nurseries, playgrounds, hospitals and all other place at which humans are present for longer than 4 hours."
LINK to article: http://technology.timesonline.co.uk/tol/news/tech_and_web/personal_tech/article1655012.ece **LINK to research study: http://www.hese-project.org/hese-uk/en/niemr/ecologsum.php**	

Relevant Research Studies and Statements From Scientists, Scientific Bodies, Voluntary Health Organizations

Useful Terminology Regarding Scientific Studies:

There are two major categories of studies are used by scientists to assess health impacts of radiofrequency radiation: **epidemiological studies** and **laboratory studies**.

Epidemiological studies, sometimes called human health studies, investigate the associations between health effects and the characteristics of people and their environment. Laboratory studies, which can include studies on animals, biological tissue samples, isolated cells, or human volunteers, are used to try to determine a causal relationship between a risk factor and human health, and the mechanism through which that relationship occurs.

Epidemiological studies, by nature, have certain limitations. They are not good at detecting increases in risks that are small, and they generally cannot, on their own, demonstrate a cause-and-effect relationship. In addition, because mobile phones have been in widespread use for only a few years, epidemiological studies have limited value in providing information about a possible association with cancers that may have long latency periods.

Laboratory studies have been conducted to try to determine the effect of radiofrequency emissions on individual human or animal cells, on laboratory animals, or on human test subjects. Studies testing individual cells have exposed samples of human or animal cells to radiofrequency emissions over a range of dose rates, durations, and conditions, and then examined the cells to try to detect any changes.

Resource	Summary
National Research Council (National Academies, includes National Research Council, National Academy of Sciences, Institute of Medicine, and National Academy of Engineering)	National Research Council Report (2008): "Identification of Research Needs Relating to Potential Biological or Adverse Health Effects of Wireless Communication " The U.S. Food and Drug Administration asked the National Research Council (NRC) to convene experts to identify research needs and gaps in knowledge about potential health risks of long-term exposure to RF energy from cell phones, cell towers, television towers, and other components of our communications system. In the NRC's Report (pg 2), on the top of the list of needs/gaps was "characterization of exposures from wireless devices and radiofrequency base station antennas in juveniles, children, fetuses, and pregnant women". Second on the list was "Characterization of radiated electromagnetic fields for typical multiple-element base station antennas and exposures to affected individuals." [Continued on next page]

Resource	Summary
CONT'D: National Research Council	The NRC's Report (pgs 11-12) identifies the following issues as not being covered by existing research and therefore are not addressed in current RF safety policy: • Are there differences in health effects of short-term vs. long-term exposure? • Are there differences between local vs. whole-body exposures? • Can the knowledge of biological effects from current signal types and exposure patterns be extrapolated to emerging exposure scenarios? • Are there any biological effects that are not caused by an increase in tissue temperature (nonthermal effects)? • Does RF exposure alter (synergize, antagonize, or potentiate) the biological effects of other chemical or physical agents? • Are there differences in risk to children? • Are there differences in risk to other subpopulations such as the elderly and individuals with underlying disease states? The NRC's Report (pg 17), includes the following statement on "Laboratory Exposure Systems": "Most of the present-day exposure systems used in laboratory studies focus on the exposure of the head. Though exposures to the head are relevant for most cell phone exposures, whole-body exposures due to base stations are a research need. The laboratory exposure systems also need to include ELF and pertinent modulation protocols."
LINK: http://www.nap.edu/catalog/12036.html	
President's Cancer Panel May 2010	On May 7, 2010, the President's Cancer Panel issued its 2008-2009 Annual Report. Below are relevant excerpts from the report. **Radiofrequency Radiation**: Pg 58: "Considerable disagreement exists within the scientific community regarding potential harm due to RF exposure from cellular phones and other wireless devices, and many of the available studies have been interpreted quite differently by researchers on both sides of the issue. As one speaker noted, data on the long-term use of newer equipment still are relatively sparse, and it may be several years before enough data accumulate to reach informed conclusions about the harm cell phones, cell phone towers, and other wireless devices/networks may cause." Pgs 58-59: "Thus, while considerable research has been conducted on cancer risk due to RF from cell phones, cell phone towers, and other wireless devices, the available data are neither consistent nor conclusive, and a mechanism of RF-related cancer has yet to be identified." Pg 29: William Suk, National Institute of Environmental Health Sciences: "We are not all exposed to a single agent, a single radiation or a single type of radiation, and we're not exposed at a single point in time. It's a cumulative effect..." **Children's Environmental Health:** Pg 5: "Children have many more years of life ahead of them than do adults—more time in which to be exposed to environmental toxics and time to develop diseases (including cancer) with long latency periods initiated by early exposures. At this time, little is known about interactions among multiple exposures over time, but many exposures to environmental contaminants are cumulative and some may have intergenerational effects." Pg 98: Conclusions Section: "Opportunities for eliminating or minimizing cancer-causing and cancer-promoting environmental exposures must be acted upon to protect all Americans, but especially children. They are at special risk due to their smaller body mass and rapid physical development, both of which magnify their vulnerability to known or suspected carcinogens, including radiation." [Continued on next page]

Resource	Summary
CONT'D: President's Cancer Panel, May 2010	**Precautionary Principle:** Pg 103: Recommendations Section (1st recommendation listed): "A precautionary, prevention-oriented approach should replace current reactionary approaches to environmental contaminants in which human harm must be proven before action is taken to reduce or eliminate exposure." Pg 17: "In 1998, a conference of international environmental scientists, scholars, activists, treaty negotiators, and others convened to discuss implementation of the Precautionary Principle asserted in a consensus statement that 'when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.' The core tenets of the Precautionary Principle are: • Taking preventive action in the face of uncertainty. • Shifting the burden of proof to proponents of an activity. • Exploring a wide range of alternatives to possibly harmful actions. • Including public participation in decision making." **LINK: http://deainfo.nci.nih.gov/advisory/pcp/pcp08-09rpt/PCP_Report_08-09_508.pdf (Annual Report for 2008-2009)** **LINK: http://www.washingtonpost.com/wp-dyn/content/article/2010/05/06/AR2010050603813.html (Washington Post article)**
Raymond Neutra, MD, PhD Former Chief, Division of Environmental and Occupational Health, California Department of Health Services (retired 2007)	Dr. Neutra led the California EMF Program which is housed in the Environmental Health Investigations Branch of the California Department of Health Services. The focus of Dr. Neutra's research, and the California EMF Program, has been on ELF EMF radiation (extremely low frequency electromagnetic frequency radiation), specifically the EMF radiation emitted by the power grid (power lines) and electrical appliances. Dr. Neutra, however, has worked closely with other researchers who focus on RF EMF (radio frequency electromagnetic frequency radiation), which includes EMF radiation emitted by cell phones and cell base stations. - See the following link to a webinar provided by the California Department of Health Services in 2009: **LINK: http://www.ehib.org/emf/pdf/EMF_Webinar_CDPH_10_26_09.pdf** The webinar focused on ELF EMF (powerlines and electrical appliances) - but in the webinar, Dr. Neutra provides an interesting perspective on health risk assessment/management (he has published books on health risk assessment/management). - The following are articles in which Dr. Neutra is quoted on the issue of cell towers. • *Short-term cell-phone towers risk seems small; long-term effects unclear.* By Pat O'brien, The Press-Enterprise, 10-18-2005. (Press Enterprise is an Inland Southern California newspaper) **LINK: http://www.pe.com/lifestyles/healthandfitness/stories/PE_Fea_Daily_D_cell18.1059814e.html** *"Radio-frequency fields from cell towers are weak, and evidence so far is inconclusive as to whether they affect public health, according to Dr. Raymond Neutra, California's chief of environmental epidemiology. 'The state of the science now is that it's not virtually certain there is a problem. But there is some suggestion of possibility of problems,' he said. 'I'm not ready to make a judgment on that. It's an emerging picture.' Neutra, the state chief of environmental epidemiology, said researchers should continue to study the issue. 'Whenever there is a new technology out there, I think we are obliged to keep tracking it,' he said.* • *Safety advocates gain ground in cell phone debate: Doubts are emerging about the devices' long-term effects on health.* By Suzanne Bohan, Contra Costa Times, 09/27/2009. **LINK: http://www.emfacts.com/weblog/?p=1170** *"I'm not certain if there are health effects from cell phones or cell antennas, but I'm very suspicious," said Dr. Raymond Neutra, one of the panelists and a former official with the California Department of Health Services (now the Department of Public Health) who led a research program on electromagnetic radiation in the 1990s.* **LINK: See text above for relevant links.**
Henry Lai, Ph.D. Research Professor Department of Bioengineering, Box 355061 University of Washington Seattle, WA 98195-5061	Letter from Dr. Henry Lai (Dec. 31, 2008) "expressing [his] opinion and concern about the possible health effects of exposure to radiofrequency radiation from wireless transmitters": **LINK: http://www.expelcelltowers.org/download/WarningLetter.pdf** Dr. Lai prepared a white paper : "Biological Effects of Radiofrequency Radiation from Wireless Transmission Towers" (2001): **LINK: http://www.expelcelltowers.org/download/RFR_exposure.pdf** **LINK: See above text for relevant link.**

Resource	Summary
David O. Carpenter, MD Director, Institute for Health and the Environment, University at Albany, and Professor of Environmental Health Sciences, School of Public Health University at Albany	In a telephone conversation with a CDS parent, Dr. Carpenter said he would be extremely concerned about a cell tower being erected in such proximity to a school. Below are links to a few research articles on EMF by Dr. Carpenter: *Meeting Summary, President's Cancer Panel: Environmental Factors in Cancer.* January 27, 2009. Phoenix, Arizona. Summary of Dr. Carpenter's remarks appears on pages 15-17. On page 17, Dr. Carpenter states that "Reduction of exposure to other sources of RF can be accomplished by keeping AM, FM, television, and mobile phone towers far from homes, schools, and businesses." **LINK: http://deainfo.nci.nih.gov/advisory/pcp/pcp0109/summary.pdf** *Public health implications of wireless technologies.* Pathophysiology. Volume 16; Issue 2 August 2009 Cindy Sage and David O. Carpenter **LINK: http://www.journals.elsevierhealth.com/periodicals/patphy/article/S0928-4680(09)00017-0/abstract** *Setting Prudent Public Health Policy for Electromagnetic Field Exposures.* Reviews on Environmental Health, Vol. 23, No. 2, 2008. David O. Carpenter (1) and Cindy Sage *(2)* **LINK: http://www.ncbi.nlm.nih.gov/pubmed/18763539** Presentation: Biological Effects of Electromagnetic Fields – David. O Carpenter, MD **LINK: http://www.youtube.com/watch?v=nSWDsgdgb88**
LINK: See text above for relevant links.	
Martin Blank, PhD Associate Professor of Physiology and Cellular Biophysics, Columbia University College of Physicians and Surgeons	In 2009, Dr. Blank submitted a letter to the Los Angeles Unified School District's Board of Education regarding the issue of cell base stations near schools. In the letter, he wrote "I am writing in support of a limit on the construction of cell towers in the vicinity of schools". Dr. Blank's letter was prompted by the Board of Education's consideration of a second resolution on cell base stations – it was submitted as testimony in favor of the resolution. See the first item on Page 1 for more information on the resolution. **LINK: http://www.cloutnow.org/lausdpdf/ColumbiaUniversity.pdf** Presenation: Electromagnetic Fields and Health Risks – Dr. Martin Blank, Columbia University **LINK: http://www.youtube.com/watch?v=a6wLFeIrCtU** Dr. Blank was Guest Editor of *Electromagnetic Fields (EMF): Special Issue,* Pathophysiology, 2009. See two rows below for link.
LINK: See text above for relevant links.	
Gerard Hyland, PhD University of Warwick, UK; Executive Member of the International Institute of Biophysics, in Neuss-Holzheim, Germany. Twice nominated for the Nobel Prize in medicine	Dr. Gerard Hyland states, "Existing safety guidelines for cell phone towers are completely inadequate ... Quite justifiably, the public remains skeptical of attempts by governments and industry to reassure them that all is well, particularly given the unethical way in which they often operate symbiotically so as to promote their own vested interests." His report (2002) titled "How exposure to Base-station Radiation can Adversely Affect Humans" highlights the way in which this radiation affects brain function – specifically, its electrical activity (EEG), its electrochemistry, and the blood/ brain barrier - and degrades the immune system. Excerpt from report (pg 2): "Quite apart from their weaker immune systems, children are particularly vulnerable because of the increased rate at which their cells divide (which makes them more susceptible to genetic damage) and their still developing nervous system - the size of their heads and the thinness of their skulls causing them to absorb more radiation than do adults. Particularly vulnerable to interference by the pulses of microwaves, is their electrical brain-wave activity, which does not settle into a stable pattern until about the age of 11 or 12 years. The use of mobile phones by pre-adolescent children is thus to be strongly discouraged, and the siting of Base-station masts in the vicinity of schools and nurseries resisted: financial gain must not be allowed to be the overriding consideration. It must be appreciated that whilst the intensity to which the Public is normally exposed in the vicinity of a Base-station is indeed very much lower than that encountered during use of a mobile phone, the **information** content of the signals is the **same**, so that they are equally potentially noxious.
LINK: http://www.notowersnearschools.com/docs/hyland.pdf (the 2002 report referenced above) **LINK: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(00)03243-8/fulltext#** **(2000 article in The Lancet: *Physics and Biology of Mobil Telephony*)**	

Resource	Summary
Pathopysiology Volume 16 Issue 2-3August 2009 EMF Special Issue	*Electromagnetic Fields (EMF): Special Issue.* Pathophysiology, Volume 16, Issue 2-3, Pages 67-250 (August 2009). Guest Editor: Martin Blank, Columbia University College of Physicians and Surgeons. **Preface to Special Issue by Martin Blank:** "There is an old joke with a well-known punch line about a man who has just fallen from the 86th floor of the Empire State Building in New York. As he passes the 30th floor, he is heard saying to himself 'so far, so good'... Most of us laugh because we know where the man is headed, and that he must know too. But, our laughter usually has a guilty edge. We know that many of us are guilty of occasionally displaying a 'so far, so good' attitude in our own lives. We think of the smoker who says that about the possibility of getting lung cancer or heart disease and who counts on beating the odds because he feels healthy at the moment. That smoker will not find out if he won the bet until many years later, and by then it is often too late. The 'so far, so good' attitude to health is so common that people even kid themselves about it. One smoker told me that smoking would only cut a few years off his life, and that he did not mind losing the last few years because they are usually not much fun anyway. [next page] Unlike the optimist in the joke, whose end is virtually certain, many of us live like the smoker, playing the odds and reassuring ourselves 'so far, so good'. Diseases like cancer usually take many years to develop, and we try not to think how some of the things we do casually can affect the long-term odds by compromising the natural processes that protect us. We rely on our bodies to be strong and resilient all the time. Yet, we know there are limits to the body's natural ability to reverse damage to cells. We also know that there may be gaps in the ability of our genetic endowment to cope with damage. At some level, we all know it is just common sense to try to minimize damage to our bodies and maximize the ability to repair. These opening paragraphs provide a quick introduction to the theme of this issue of Pathophysiology and a summary of the point of view of its authors. The public is currently interested in possible hazards from radio frequency (RF) due to cell phones, towers, WiFi, etc. The concern is certainly warranted, but we are surrounded by electromagnetic fields (EMFs) of many frequencies, and there are also significant biological effects and known risks from low frequency EMF. The scientific problem is to determine the nature of EMF interaction with biological systems and develop ways of coping with harmful effects in all frequency ranges, as well as their cumulative effects. The practical problem is to minimize the harmful biological effects of all EMF. The technical papers in this issue are devoted to an examination and an evaluation of evidence gathered by scientists regarding the effects of EMF, especially RF radiation, on living cells and on the health of human populations. The laboratory studies point to significant interactions of both power frequency and RF with cellular components, especially DNA. The epidemiological studies point to increased risk of developing certain cancers associated with long-term exposure to RF. Overall, the scientific evidence shows that the risk to health is significant, and that to deny it is like being in free-fall and thinking 'so far, so good'. We must recognize that there is a potential health problem, and that we must begin to deal with it responsibly as individuals and as a society."
LINK: http://www.journals.elsevierhealth.com/periodicals/patphy/issues/contents?issue_key=S0928-4680(09)X0003-9	
"Electromagnetic Radiation in the Human Head..." An article in Microwave Theory and Techniques (a journal of the Institute of Electrical and Electronic Engineers)	*Electromagnetic Radiation in the Human Head...* Microwave Theory and Techniques, Vol 44 No. 10. P. Ghandi, Gianluca Lassi and Cynthia M. Furse. Children are more vulnerable to the effects of radiation because their skulls have not yet formed. A study by the Institute of Electrical and Electronic Engineers (IEEE) found that there was a significant difference in radiation absorbed by 5 year olds (skull thickness .5mm), 10 year olds (skull thickness 1mm) and adults (skull thickness 2mm). Note that this study relates specifically to mobile phone radiation where the phone is placed next to the head, which is different to the radiation exposure from a base station – however, we can clearly see that skull thickness and therefore age play a factor in radiation penetration.
LINK: http://mtt.org/publications/index.htm	
"Source of Funding and Results of Studies of Health Effects of Mobile Phone Use: Systematic Review of Experimental Studies" An article in Environmental Health	*Source of Funding and Results of Studies of Health Effects of Mobile Phone Use: Systematic Review of Experimental Studies.* Environmental Health Perspectives, 115(1) Jan. 2007. Anke Huss, Matthias Egger, Kerstin Hug, Karin Huwiler-Müntener and Martin Röösli "Conclusions: The interpretation of results from studies of health effects of radiofrequency radiation should take sponsorship into account. Studies funded exclusively by industry were indeed substantially less likely to

Perspectives (a peer-reviewed journal of the National Institutes of Health)	report statistically significant effects on a range of end points that may be relevant to health." * It should be noted that this study focused on cell phones and was limited to human laboratory studies - it did not include epidemiological studies.
LINK: http://ehp03.niehs.nih.gov/article/info%3Adoi%2F10.1289%2Fehp.9149	

Resource	Summary
U.S. General Accounting Office Report 01-545: Research and Regulatory Efforts on Mobile Phone Health Issues.	In 2001, the GAO issued Report 01-545 Research and Regulatory Efforts on Mobile Phone Health Issues. One section of the GAO Report addresses "shortcomings" of the FDA and FCC. In particular it underscored a brochure produced by FCC's Consumer Information Bureau that "puts the statement 'Cell Phones Cause Medical Problems' into the category of 'fiction,' noting that 'there is no scientific evidence that proves wireless phone usage can cause cancer, increased blood pressure, memory loss, or other health problems,' though research in continuing." Officials in the FCC's Office of Engineering and Technology were asked to comment on that statement. They concurred with the GAO that "this characterization could be misleading, because it implies that the health issue is settled." GAO Report Conclusions – "Scientific research to date does not demonstrate that the radiofrequency energy emitted from mobile phones has adverse health effects, but the findings of some studies have raised questions indicating the need for further investigations . . . Given the long-term nature of much of the research being conducted – particularly the epidemiological and animal studies – it will likely be many more years before a definitive conclusion can be reached on whether mobile phone emissions pose any risk to humans health . . . Given the prominence of the mobile phone health issue, FDA and FCC need to provide the public with clear, accurate, and timely information so that they can make informed decisions."
LINK: www.gao.gov/new.items/d01545.pdf	
"Epidemiology of Health Effects of Radiofrequency Exposure" An article in Environmental Health Perspectives (a peer-reviewed journal of the National Institutes of Health) **ICNIRT** (International Commission for Non-Ionizing Radiation Protection) Standing Committee on Epidemiology	*Epidemiology of Health Effects of Radiofrequency Exposure* (Environmental Medicine Review). ICNIRP (International Commission for Non-Ionizing Radiation Protection) Standing Committee on Epidemiology: Anders Ahlbom, Adele Green, Leeka Kheifets, David Savitz, and Anthony Swerdlow. Environmental Health Perspectives, Volume 112, No. 17, Dec 2004 **[NOTE: This article focuses on epidemiologic studies and not laboratory studies]** **Text from article's "General Conclusions and Recommendations":** "Results of epidemiologic studies to date give no consistent or convincing evidence of a causal relation between RF exposure and any adverse health effect. On the other hand, these studies have too many deficiencies to rule out an association. A key concern across all studies is the quality of assessment of RF exposure, including the question of whether such exposure was present at all. Communication sources have increased greatly in recent years, and there is continuing change in the frequencies used and the variety of applications. Despite the rapid growth of new technologies using RFs, little is known about population exposure from these and other RF sources and even less about the relative importance of different sources. Certain studies that are currently under way have made serious attempts to improve exposure assessment, based on attempts to learn more about determinants of RF exposure levels. A key element in improving future studies would be the use of a meter that monitors individual exposure. In the absence of information on what biologic mechanism is relevant, if any, it is unclear what aspect of exposure needs to be captured in epidemiologic studies. Ideally, the dose needs to be assessed not just as external field intensity but also as cumulative exposure, as well as SAR, for specific anatomical sites. The need for better exposure assessment is particularly strong in relation to transmitter studies, because the relation between distance and exposure is very weak. There is no point in conducting such studies unless it has been established that exposure levels vary substantially within the study area, and measurements of these RF levels are available. In the future, methods need to be developed to infer exposure based on some combination of knowledge regarding the sources of exposure, the levels of exposure, and location of people in relation to those sources, ideally informed by selective measurements. Although the likelihood is low that fields emanating from base stations would create a health hazard because of their weakness, this possibility is nevertheless a concern for many people. To date no acceptable study on any outcome has been published on this. On the one hand, results from valid studies would be of value in relation to a social concern; on the other hand, it would be difficult to design and conduct a valid study, and there is no scientific point in conducting an invalid one.

	Another general concern in mobile phone studies is that the lag periods that have been examined to date are necessarily short. The implication is that if a longer lag period is required for a health effect to occur, the effect could not be detected in these studies. Only in the few countries where mobile phones were introduced very early has it been possible to look at use 10 years ago. Much longer lag periods have been examined for occupational RF exposures, however. The published studies include some large occupational cohorts of good design and quality, except that there have been poor assessments of the degree of RF exposure, which render the results difficult to interpret. [Continued on next page]

Resource	Summary
CONT'D: "Epidemiology of Health Effects of Radiofrequency Exposure" **ICNIRT** (International Commission for Non-Ionizing Radiation Protection) Standing Committee on Epidemiology	Most research has focused on brain tumors and to some extent on leukemia. However, because the RF research questions are not driven by a specific biophysical hypothesis but rather by a general concern that there are unknown or misunderstood effects of RFs, studies on other health effects may be equally justified. Examples are eye diseases, neurodegenerative diseases, and cognitive function. Given the increase in new mobile phone technologies, it is essential to follow various possible health effects from the very beginning and for long periods, because such effects may be detected only after a long duration, because of the prolonged latency period of many chronic diseases. Thus, research is needed to address long-term exposure, as well as diseases other than those included in the ongoing case–control studies. Another gap in the research is children. No study population to date has included children, with the exception of studies of people living near radio and TV antennas. Children are increasingly heavy users of mobile phones. They may be particularly susceptible to harmful effects (although there is no evidence of this), and they are likely to accumulate many years of exposure during their lives."
LINK: http://www.icnirp.de/documents/epiRFreviewPublishedinEHPDec04.pdf	
American Cancer Society (ACS's "Cell Phone Towers" fact sheet states that cell towers are unlikely to cause cancer. Look, however, at the last few statements on their fact sheet".	The American Cancer Society provides a fact sheet on "Cell Phone Towers" on its website. On it's fact sheet, the ACS states that there are "several theoretical considerations suggest that cellular phone towers are unlikely to cause cancer". At the end of the fact sheet, ACS states: "The Bottom Line: Cellular phone towers, like cellular phones themselves, are a relatively new technology, and we do not yet have full information on health effects. In particular, not enough time has elapsed to permit epidemiologic studies. There are some theoretical reasons why cellular phone towers would not be expected to increase cancer risk, and animal studies of RF have not suggested a risk of cancer. People who are concerned can ask for measurements of RF near cellular phone towers to be sure exposures do not exceed recommended limits."
LINK: http://www.cancer.org/docroot/ped/content/ped_1_3x_cellular_phone_towers.asp	

Exhibit

I

LEGISLATION RELEVANT TO CELL TOWERS AND SCHOOLS

WORKING DOCUMENT 6-7-10

This is the first iteration of a document that will be expanded over time. Some of the information in this document needs to be verified and augmented. There are many more jurisdictions in CA, the US and across the world that have adopted legislation relevant to cell towers and schools – we intend to identify and document as much of this legislation as possible.

Source of Legislation	Description of Legislation	Status of Legislation	Authority Over	
			On Schools	Near Schools
CALIFORNIA				
Los Angeles Unified School District, CA	LAUSD Board of Education adopted a resolution in 2000 opposing the placement of cellular communication towers on or immediately adjacent to school property.	Instituted	X	
Albany, CA	Albany zoning code prohibits cell towers on schools.	Instituted	X	
Berkeley Unified School District, CA	Berkeley Unified refuses to enter into contracts with wireless providers because of community concerns regarding potential negative health effects	NA	X	
Santa Cruz County, CA	Santa Cruz County's zoning ordinance prohibits cell antennas on school grounds.	Instituted	X	
Davis, CA	Apparently, Davis has adopted legislation on this issue, we need to research the details			
OTHER AREAS IN UNITED STATES				
Greenwich, CT	Greenwich, CT passed a "Sense of Meeting Resolution" which established a 1,500 FT cell tower set-back from schools.	Instituted	X	X
Connecticut State Legislature	April 27, 2010, the Connecticut House of Representatives unanimously (139-0) passed legislation that would ban the placement of cell towers within 750 feet of schools or day care centers unless no other safe site is available. The bill will now go before the Connecticut State Senate for consideration. LINK: http://www.cga.ct.gov/2010/FC/2010HB-05213-R000662-FC.htm (legislation – see OLR Bill Analysis) LINK: http://www.nhregister.com/articles/2010/04/29/news/bb1_brcelltower042910.txt (newspaper article)	Status Uncertain	X	X
New York	Resolution calling upon the New York City Department of	Status	X	

City Council	Education to not enter into any contracts with wireless communication providers that allow any cellular towers, base stations or antennas on school property. Resolution 0231-2006. Final Action: 12/31/2009 LINK: http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=450474&GUID=AD37383C-A3DE-4871-9D55-F04CE24D8638&Options=&Search=	Uncertain		
NY State Assembly	In 2006: "Assemblymember Gianaris' legislation would require the establishment of a Siting Board to approve all new applications for cellular towers. The Board would regulate the location of cell phone towers and provide a voice for local residents. The state legislation would also:" • Ban antennas within 500 feet of schools • Establish a four-month moratorium on cell tower siting • Direct the State Department of Health to conduct a study regarding the long-term health effects of signals used by cell phone towers • Require proof of need for the wireless facility, including a county map showing the location of other wireless facilities • Require written notice of the facility to property owners and residents within 500 feet of proposed tower • Require that facilities must conform to aesthetics of surrounding neighborhood • Require public hearings to give residents an opportunity to be heard LINK: http://assembly.state.ny.us/mem/?ad=036&sh=story&story=17881	Status Uncertain	X	X
INTERNATIONAL				
European Parliament	In 2009, the European Parliament voted to recommend precautions be taken to protect human health with regard to wireless technologies, such as mobile phones, Wi-Fi/Wi-Max, Bluetooth, DECT portable phones and cell towers. In the resolution, it identified the need "to determine the criteria for setting up new GSM antennas or high-voltage power lines, and to ensure at least that schools, crèches, retirement homes, and health care institutions are kept clear, within a specific distance determined by scientific criteria, of facilities of this type;"	Passed	X	X
Vancouver School Board (British Columbia)	Passed a resolution in January 2005 that prohibits construction of cellular antennas within 1000 feet (305 m) from school property. "Be it resolved that: • No further installations of cellular antenna be permitted on any school building or school grounds regularly used by students, and	Instituted	X	X

	• Incompatible Land Uses Near Schools be amended to included any installation of cellular antenna within 305 m (1000 ft) of a school as an incompatible use and that VSB be so notified of any potential installation."			
Australia	According to the Australian Department of Broadband, Communications and the Digital Economy's website, Australia has "an Industry Code for the Deployment of Mobile Phone Network Infrastructure (the Industry Code), including mobile phone network facilities. The Industry Code augments the Telecommunications (Low-Impact Facilities) Determination 1997." The website states: "The Industry Code specifies a 'precautionary approach' for the building and operation of radio-based telecommunications equipment. Site-specific obligations on carriers include minimizing electromagnetic energy emissions exposure to the public and avoiding community-sensitive locations. Examples of community-sensitive locations include schools and childcare centres." http://www.dbcde.gov.au/mobile_services/policy_and_regulation_for_mobile_services/mobile_phone_towers_and_antennas	Instituted (Australia's Industry Code)	X	X
New Zealand	Apparently, New Zealand has established buffer zones, we need to research the details.			

City Resolutions Expressing Concerns About the FCC Telecommunications Act of 1996	
Los Angeles, CA	The Los Angeles County Board of Supervisors voted unanimously on Tuesday, June 2, 2009, to "actively seek and support federal legislation to repeal limitations on state and local authority imposed by the Telecommunications Act of 1996 that infringe upon the authority of local governments to regulate the placement, construction, and modification of telecommunications towers and other personal wireless services facilities on the basis of the health and environmental effects of these facilities."
Santa Fe, NM	The Governing Body of the City of Santa Fe passed a resolution on February 10, 2010, stating that it "urges the U.S. Congress, the President and executive branch members to: (1) urge that the federal government engage in a comprehensive study of the effects of wireless facilities radio frequency emissions to assess the health impacts of these emissions; and (2) actively seek and support federal legislation that would give local governments greater flexibility to regulate the placement of wireless communications facilities..."
San Francisco, CA	The San Francisco Board of Supervisors passed a resolution on March 23, 2010, stating

	that San Francisco "urges the U.S. Environmental Protection Agency to perform appropriate research and experimentation to determine the effects of non-ionizing radiation on the health of aduts and children and, if appropriate, establish a safe level of exposure," and "urges the Federal Communications Commission to pursue a comprehensive global analysis of best practices and scientific evidence in order to update its existing standards and to adequately measure the health impacts of wireless facilities." The resolution further "encourages the California Congressional delegation to introduce federal legislation to repeal limitations on state and local authority imposed by the Telecommunications Act of 1996 that infringe upon the authority of local governments to regulate the placement, construction and modification of telecommunications towers and other personal wireless services facilities on the basis of the health and environmental effects of these facilities."
Tucson, Arizona	The Pima County Board of Supervisors passed a resolution on August 4, 2009, calling "for the U.S. Congress and the Obama administration to repeal Section 704 of the Federal Telecommunication Act of 1996, and otherwise let local jurisdictions control fully the siting, construction and installation of wireless communications facilities in order to ensure that their constituents' environment, health and safety are protected from the potentially damaging effects of electromagnetic radiation."
Santa Barbara, CA	The Santa Barbara County Board of Supervisors passed a resolution on November 10, 2009, that states, "There is ongoing debate within the scientific community regarding how thoroughly the long-term health effects of low-frequency electromagnetic and radio-frequency emissions are understood and questions regarding how well the existing regulations established by the Federal Communications Commission [FCC] protect more vulnerable populations such as school-aged children..." The resolution urges the County's Congressional representatives to initiate and pursue legislation to repeal the health pre-emption in the Telecommunications Act of 1996, and opposes the unrestricted use of right-of-ways for wireless facilities.
Agoura Hills, CA	The City Council of Agoura Hills, CA, passed a resolution on December 9, 2009, that "Urges Congress to initiate and pursue legislation to repeal those sections of the 1996 Telecommunications Act that preempt local control and prevent local governments from considering health effects when deciding whether to approve a wireless communications facility... Informs the California Public Utilities Commission (CPUC) that the City opposes the unrestricted use of rights of way for wireless telecommunications facilities."
Sebastopol, CA	The City Council of Sebastopol, CA, passed a resolution on July 7, 2009, instructing the City's legislative advocates "to actively seek and support federal legislation to repeal limitations on state and local authority imposed by the Telecommunications Act of 1996 that infringe upon the authority of local governments to regulate the placement, construction, and modification of telecommunications towers and other wireless facilities on the basis of the health and environmental effects of these facilities."
Glendale, CA	The City Council of Glendale, CA, passed a resolution on June 9, 2009, directing the City staff "to have its federal legislative advocates communicate to the U.S. Congress,

	the President and executive branch members to: (1) actively seek and support federal legislation that would give local governments greater flexibility to regulate the placement of wireless communications facilities given the unique aesthetic and safety issues that said facilities raise and to regulate such facilities in favor of less intrusive and more efficient technologies; (2) urge that the federal government engage in a comprehensive study of the effects of Wireless facilities RF emissions to assess the health impacts of these emissions; and (3) to review and revise those provisions of the Telecommunications Act of 1996, including but not limited to Section 332(c)(7)(B), that limit or compromise the rights of local zoning authorities to govern over the placement, construction and modification of wireless communications facilities on the basis of environmental effects of radio frequency emissions, until all environmental exposures are cumulatively considered."
Portland, OR	The City Council of Portland, Oregon, passed a resolution on May 12, 2009, requesting "the FCC to work in cooperation with the FDA and other relevant federal agencies to revisit and update studies on potential health concerns arising from RF wireless emissions in light of the national proliferation of wireless use."
Albany, CA	The City Council of Albany, CA, passed a resolution on July 20, 2009, requesting "the FCC to work in cooperation with the FDA and other relevant federal agencies to revisit and update studies on potential health concerns arising from RF wireless emissions in light of the national proliferation of wireless use."

Exhibit

J

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
1	Jessica Ros	933 Steiner Street SF CA 94117	
2	ANDREA OW	1741 15TH AVE SF CA 94122	
3	Irma Mora	3100 San Jose Avenue	
4	MARY Dennis	276 Willard North SF CA 94118	
5	Angela Jolie	464 30th St. SF, CA 94131	
6	TRAVIS PACOE	3704 22ND ST. SF CA 94114	
7	LEON KUAN & MICHELE MORGANO	75 Folsom St #807 SF, CA 94105	
8	Paul McIntyre	933 Steiner St SF CA 94117	Paul McIntyre

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
9	Zahra Ghayour-Kelly	4387 25th Street SF CA 94114	
10	Janine Wilburn	663 11th Ave SF, CA 94118	
11	Kristin Henry	209 3rd Ave SF, CA. 94118	
12	FAIZ FILFILAN	830 FULTON St #C S.F CA 94117	
13	Berverly Choe	3752 20th ST. SF, CA 94110	
14	Vanessa Lyons	1924 Grove St. SF, CA 94117	
15	Simone Bargen	52 Cumberland St SF, CA 94110	
16	Eric Young	321 Clipper St. SF CA 94114	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
17	LEONID OLIKER	3521 19th ST. SF	
18	Tim Wirth	285 Cumberland St. SF	
19	Jill Linwood	49 Cameo Way SF	
20	Susan Alexander	319 HILL ST SF	
21	Susan Chastain	1546 19TH St SF	
22	Claire Horton	25A Dearborn SF CA 94110	
23	KRISANTHY DESBY	3404 CLAY ST SF 94118	
24	JOSEPH GRSALL	2002 BUSH ST	
	Beth		

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
25	SAM HUNT	55 ALPINE SF CA 94117	
26	Ray Cendana	25 Cuerno SF CA 94103	
27	Amanda Richard	3874 21st SF CA 94114	
28	Danielle Gothard	298 Fair Oaks SF CA 94110	
29	Jeanette Wilmerding	2330 9th Ave SF, CA 94116	
30	CONSTANCE LAFLAMME	30 Chattanooga St SF CA 94114	
31	Beau Tinker	271 Jersey SF 94114	
32	JIM KINGSBURY	553 Arkansas St SF 94107	
33	MELEK TOTAH	325 KENSINGTON WAY, S.F. CA 94127	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
34	LYNDA MARTON	3515 CLEMENT ST. SAN FRANCISCO, CA 94121	
35	LAUREN SCHWARTZ	207 KING ST #408 SF, CA. 94107	
36	MARK CAMERON	924 GROVE ST. SF CA 94117	
37	Michele Gomez	545 Peralta Ave SF, CA 94110	
38	ERIN FOX	427 College Ave SF CA 94112	
39	KRISTEN PEÑA	608 Elizabeth St SF CA 94114	
40	MEGHNA AGARWAL	409 Dolores St, SF. CA 94110	
41	Brooke Bianco	1209 Douglass St. San Francisco, CA 94131	
42	Laura Delafuente	1100 Eddy St SF. CA 94109	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
43	Miel Alegre & David Saria	2309 25th St. SF 94107	
44	DARYA SOTO	1329 Sanchez St SF	
45	Lourdes Cordero	10 Cragmont Ave SF 94116	
46	Katya Newman	500 Leavenworth #321 SF CA 94109	Katya Newman
47	Katharine Norwood	145 Balclta Ave SF CA 94127	KB
48	Sarah Cooper Sarah@adventurous.com	254 Upper Terrace SF CA 94117	Sarah Cooper
49	VERNA KUO	76 VICKSBURG ST, SF CA 94114	
50	BOB HUSEBY	886 ASHBURY ST SF CA 94117	
51	Beth Maze	3773 22nd St SF CA 94117	
52	SPRINGER HUSEBY	886 ASHBURY SF CA 94117	
53	DAVE COHEN	560 MAGELLAN AVE SF CA 94116	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
54	Nicholas Campion	476 Elizabeth	
55	Kristin Henry	476 Elizabeth	
56	Akilah Briggs	406 Andover St	
57	Georgia McNamara	320 San Carlos St	
58	Jeanette Layden	43 Cotter St	
59	Rica Domingo	141 Maynard St.	
60	Wendy Baldwin-Henry	330 Chenery St	
61	Julie Stall	P.O. Box 821, Ross	
62	JOE BECKER	36 BORICA ST, SF 94127	
63	JENNIFER FOX	427 COLLEGE AVE SF, CA 94112	
64	ANDREA REYNOLDS	1 Upland Dr. SF. CA 94127	
65	MAY CHUOENG	2686-38th Ave SF, CA 94116	
66	MICHAEL LAFLAMME	30 CHATTANOOGA ST S.F. 94114	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
67	RACHEL YEAMAN	200 BELGRAVE AVE SF CA 94117	
68	KEVIN YEAMAN	200 BELGRAVE AVE SF CA 94117	
69	SUSAN CARD	39 Prospect St SF CA 94110	
70	JOE SUTTON	39 Prospect St SF CA 94110	
71	Amy Shipley	414 Eureka St SF CA 94114	
72	Arin Fishkin	3521 / 19th St SF CA 94110	
73	Rema Breall	2002 Bush St. SF 94115	
74	BETH PORTER	487 BELVEDERE ST SF 94117	
75	HEATHER O'DONNELL	3928 23RD ST. SF 94114	
76	CLEMENT O'DONNELL	3928 23RD ST SF 94114	
77	Elizabeth Seirmarco	3864 25th St. SF, CA 94114	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
78	Gretchen Ott	1711 Leavenworth #9 SF, CA 94109	
79	Krista Carleson	1274 Terra Nova Blvd Pacifica CA 94044	
80	Matt Ashworth	30 Manor Road Greenbrae, CA 94904	
81	ANNE STUHLDREHER	285 CUMBERLAND ST SF, CA 94114	
82	Geatry Clements	321 Clipper St	
83	Melanie Wise	1640 9th Ave	
84	DAVE WISE	1640 9th AVE	
85	Meredith Ashworth	30 Manor Rd Kentfield CA 94904	
86	Blanca Reynoso	38 Calgary St. S.F., CA 94134	
87	Amy Muller	82 Aptos Ave SF, CA 94127	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
88	M- RANGASWAMI	3404 CLAY SF, CA 94118	M. Rangaswami
89	JEFF GAGNONI	1106 EDDY ST. SF CA 94109	
90	ALYCIA FREEMAN	105 COLERIDGE ST SF CA 94110	
91	NED TOTAH	325 KANSAS ST SF CA 94127	
92	Gretchen Lee	2154 15th St. SF, CA 94114	
93	Evie Ladao	2154 15th St. SF, CA 94114	Evie Ladao
94	Edward G. Agana III	141 Maynard St SF, CA 94112	
95	Vivian Chu	820 Colby SF 94134	
96	Alan Chin	820 Colby St SF. 94134	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
97	Kerri Anthony	380 Laidley St.	
98	Kim Cohen	560 Magellan Ave	Kim Cohen
99		2591 14th Ave	Jan Gilmour
100	Vanessa Marlin	208 Pennsylvania SF 94107	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
101	Kathryn Buono	245 Hoffman Ave. San Francisco, CA 94114	
102	Cathy Todd	424 Grove St San Francisco, CA 94117	
103	Michelle Lapier	59 Eureka St SF CA 94114	
104	Alpa Sheth	2315 15 St. SF, CA 94114	
105	SEAN MANJESTE	769 FOLSOM ST SF. CA 94107	
106	Meaza Admasu	1175 Mcallister St. #C SF. CA. 94117	
107	SCOTT CROYLE	334 SISSER St. SAN FRANCISCO, CA 94131	
108	ANDREW HENRY	209 3rd Ave SF CA 94118	
109	Derek Geraghty	5830 California SF. CA 94121	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
110	Matt Martin	36 Lexington 94110	
111	Jen Weiss	264 Downey SF 94117	
112	Michael McNabb	245 UPPER TER SF. 94117	
113	KEVIN MCCARTHY	2331 12TH AVE SF 94116	
114	Glenn Dennis	276 Willard North, SF 94118	
115	JEFF CALDWELL	298 FAIR OAKS ST. SF. 94110	
116	David Klaus	105 Coleridge St- SF, 94110	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
117	Jocelyn Colopy Mother of 5 & 7yr old	169 27th Street SF, CA 94110	
118	Bruce Gilpin	625 Duncan St San Francisco CA 94131	
119	Tessa Wilcox	1141 De Haro St SF, CA 94107	
120	Nasrin Naraghi	165 Broadmoor Dr SF CA	
121	Fred Naraghi	165 Broadmoor Dr SF, CA	
122	Victoria Martin Young	56 Lopez Ave SF, CA 94116	
123	James M. Young	56 Lopez Ave SF, CA 94116	

CHILDRENS DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Childrens' Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
124	ROHAN PALEKAR	2315 15th Street San Francisco CA 94114	
125	Bill Kelly	4385 25th St. S.F, CA 94114	
126	Chris Porro	1604 Treat Ave. San Francisco, CA 94110	
127	Glenn Dennis	276 Willard North SF CA 94118	
128	Leyl Black	462 Douglass St SF CA 94114	
129	Milton OW	1741 15th Ave SF CA 94122	
130	Shirley Abbott	175 Jersey SF CA 94114	
131	ROGER NYS	74 STANTON ST. SF, CA 94114	
132	Albert G. Stoll, Jr	BOX 821 ROSS CA	

CHILDRENS DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Childrens' Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
133	Ryan Martin	3515 Clement St. SF CA 94121	
134	Deborah Jasso	1133 Cayuga SF 94112	
135	Matt Biggar	668 Castro St. SF, CA 94114	
136	Connie Choi	604 Teresita Blvd SF 94127	
137	ERIN FOX	427 COLLEGE AVE SF CA 94112	
138	Evan Goulding	604 Teresita Blvd SF CA 94127	
139	EDGAR GARCIA	3100 San Jose ave. SF CA. 94112	
140	Cynthia McSherry-Martinez	244 Anderson St. SF, CA 94110	
141	VIRU GUPTE	219 Chattanooga St SF, CA 94114	

CHILDRENS DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Childrens' Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
142	ARNOLD LEVINSON	1652 Hayes St S.F CA	
143	Amy Silverstein	3841 - 18th St SF 94114	
144	Angela Padilla	3841 - 18th St SF 94114	
145	Jason Perkins	610 Texas St. SF 94107	
146	Diana Perkins	610 TX St SF 94107	
147	JENNIFER MILLET	1112 18TH ST SAN FRANCISCO, CA 94107	
148	Sunny Schwartz	207 Clara St #5 SF 94107	
149	Tina Leung	50 Camp St SF, CA 94110	
150	Janette NEVES RIVERA	200 CAYUGA Ave. SF CA 94112	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
151	Geoff Schwartz	2376 Fulton St	
152	SHAY LYONS	1924 GROVE ST	
153	NOEL FINNERTY	2012 FULTON ST	
154	ALEXIS BROWN	245 tocoloma ave 94134	
155	Rahna Brown	245 TOCOLOMA AVE 94134	
156	Patricia Sari	348 Cambridge St 94134	
157	Janicke Weeth	272 Grandview Av 94114	
158	KATIE CLARK	2376 FULTON ST SAN FRANCISCO, CA 94118	
159	Mary Pollock	29 Clinton Pk San Francisco 94110	
160	Tom Pollock	488 Grove ST. 94102	

CHILDRENS DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Childrens' Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
161	HUSSEIN SAFA	10 Cragmont Ave SF 94116	
162	Bob Bianco	1209 Douglass St SF CA 94131	
163	Heather Kunz	154-28th St #2 SF, CA 94131	
164	CAROLINE DE LIMA	75 ASHTON AVE SF CA 94112	
165	JEREMY BOOCH	51 MONTEZUMA ST. SF 94110	
166	Rebecca Arons	126 Dinsdero St. SF 94117	
167		"	ERIC FASHFC
168	DAVID MORGENSTERN	444 BELVEDERE ST SF 94117	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
169	LOUIS SCHUITZ	62 CONRAD ST SF CA 94131	
170	SUSAN TAYLOR	1326A Kobbe Ave SF, CA 94129	
171	TODD HOSFELT	62 CONRAD CT SF CA 94131	
172	JUSTINE JUSAN	3704 22nd Street SF CA 94114	
173	TRAVIS PACOE	3704A 22ND ST. SF CA 94114	
174	SallyHosfelt	62 ConradSt SF CA 94131	
175	Andy Taylor	1326A Kobbe Ave San Francisco CA 94129	
176	Joanna Earl	889 Elizabeth SF CA 94114	
177	Hilary Steinker	3933 clay st San Francisco CA 94118	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
178	ANKUR VARMA	409 DOLORES ST, SF CA 94110	
179	Kate + Rich TORRES	35 ROSEMONT PL SF CA 94103	
180	Shannara Nicholson	2064 JACKSON ST SF, CA 94109	
181	[illegible]	" "	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
182	Matt Pavlich	145 Belcher Ave 94127 SF, CA	
183	Helton Lim	1228 Columbus Ave #18 SF CA 94133	
184	Jon Pendleton	545 Peralta Ave. SF CA 94110	
185	SUSAN SCHIPPMANN	[illegible] TREAT SF, CA 94110	
186	Alison Donohue	544 Noe St. SF, CA 94114	

CHILDRENS DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Childrens' Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
187	MICHELE MORGANO	75 FOLSOM #807 SF CA 94105	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
188	Michele Godwin	384 Sussex	
189	Sarah Cooper	245 Upper Ter SF	Sarah Cooper

CHILDRENS DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Childrens' Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
190	LYDIA WENDT TIMKEN	1450 SANCHEZ St. SF, CA, 94131	(415) 298-2004
191	Amy Hecht	44 Comberland St SF CA 94110	
192	Anisha Mason	493 Day St San Francisco, CA 94131	
193	Craig Mason	493 Day St. San Francisco, CA 9413	
194	Daniel Morillo	464 30th STREET SAN FRANCISCO, CA 94131	
195	Stephanie Holland	225 Randall St. SF, CA 94131	

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
196	Jeanne Katz	240 Dolores St 338	
197	Steven R. Krolik	400 Locust St Studio One San Francisco, CA. 94118	
198	Dirk Van Gelder	85 Coleridge St 94110	
199	Tanya Scheintz	3740 20th St SF, CA 94110	
200	Pam McIntire	933 Stanyan SF CA 94117	
201	Josh Levenberg	76 Vicksburg St SF 94114	
202	Chas. T. Spelder	3564 17th St SF CA 94110	
203	Amy Rubino	137 Sadowa St SF CA 94112	
204	Scott Walker	137 Sadowa SF 94112	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
205	Michelle Hironimus	240 Dolores St #340 SF CA 94103	
206	[illegible]	[illegible]	
207	Julia Diaz	3320 16th, Apt 2 San Francisco, CA 9414	
208	Meiga Alexander	11 Delores st apt #7 SF CA 94103	
209	PAUL Rutenstein	BOLANDERS C SF CA 94114	
210	Jacqueline Diehl	943 Guerrero St. SF CA 94110	Jacqueline Diehl
211	Jennie Hildebrandt	1266 Guerrero St SF CA 94110	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
212 Kristen Aitken	75 Santa Clara Ave San Fran., CA 94127	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
213	José M Cornejo	2690 Folsom St Apt A	
214	Dora Ceballos	3656. 18th st	
215	Victor G. Rodriguez	2993 20th St	Victor G. Rodriguez
216	Gustavo Morales	72 Miriam ST	Gustavo Morales
217	Doni Barnett	95 Ward St. #4	
218	Peter Quartaroli	155 Valley St. San Francisco CA	
219	Tom P.	704 87 St colma	Tom
220	Ines Nicolas	1001 Pine St Apt 940 S	
221	Capelini Oliveira	355 Columbus #1 San Francisco	

Please give all completed petitions to Jocelyn Colopy or (415) 990-4460. Thank You!

CHILDREN'S DAY SCHOOL COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

223	Tony Fitz	2843 Clay St	
224	Briana Lind	4488 56th St	
225	Ada Tam	1330 Natoma SF	
226	Mamerto Diaz	5813 Mission	
227	Yan Qing Chow	5871 Mission st	
228	Margarita Hdz	250 McAllister St	
229	Maria Espinoza	115 Parsigue	Maria S. Espinoza

Children's Day School Community against Cell Phone Antennas in St. Matthew's Church Steeple

Signatures

7 TOTAL

Sig

Page: 1

230	**Name:** Fred Naraghi on Apr 25, 2010 **Comments:**	1	
231	**Name:** Eric Young on Apr 26, 2010 **Comments:**	2	
	Name: Xivnkjmowh on Apr 30, 2010 **Comments:** QPmtgT cabvtebyohsw, [url=http://puifugjgahqc.com/]puifugjgahqc[/url], [link=http://hzyqeyvaladk.com/]hzyqeyvaladk[/link], http://dkjgjwzryssp.com/	3	
	Name: Slcoqgelfq on May 23, 2010 **Comments:** lkjdqJ uzavrlbqdiqu, [url=http://hojwborkzcuv.com/]hojwborkzcuv[/url], [link=http://nfyuwjrvjopa.com/]nfyuwjrvjopa[/link], http://kpxvqymnolyx.com/	4	
232	**Name:** Simone Bargen on Jun 3, 2010 **Comments:**	5	
233	**Name:** Jed Bargen on Jun 3, 2010 **Comments:**	6	
234	**Name:** ESther Schreiber on Jun 3, 2010 **Comments:**	7	

Page: 1

Holy Family Day Home Parents and Guardians, staffs and friends Against the proposed T-Mobile Cell Phone Antenna on St. Matthew's Church Steeple

Because this tower is unnecessary, undesirable and inappropriate for this location where over 2,500 young children go to school or live within a 1,500 ft. radius of it, we the undersigned are strongly opposed to its installation in the steeple of St. Matthew's Lutheran Church at 3281 16th Street in San Francisco. We call on the SF Planning Commission to reject the application for a Conditional Use Permit at this site. (Case# 2009.0562C).

	Print Name	Address	Signature
1	DONNA M CAHILL	860 Faxon Ave SF, CA 94103	
2	Beiling A. Gonzalez	1244 72nd Ave. Oakland, CA 94621	
3	ARTHUR REAZA	347 Dolores St SF CA 94110	
4	Magaly Orellana		
5	LUZ RUIZ	275 London St. San Francisco Ca. 94112	
6	DANIEL GRADO	3006 LOWELL AVE RICHMOND	
7	Veronica Valdez	455 Eddy St. San Francisco 94109	Veronica Valdez
8	Claudia Alvarado	427 Rose St 94102	
9	Rocio Fernandez	439 Rose St 94102	

Holy Family Day Home Parents and Guardians Against the proposed T-Mobile Cell Phone Antenna on St. Matthew's Church Steeple

Because this tower is unnecessary, undesirable and inappropriate for this location where over 2,500 young children go to school or live within a 1,500 ft. radius of it, we the undersigned are strongly opposed to its installation in the steeple of St. Matthew's Lutheran Church at 3281 16th Street in San Francisco. We call on the SF Planning Commission to reject the application for a Conditional Use Permit at this site. (Case# 2009.0562C).

	Print Name	Address	Signature
10	BRN PERRY-THISTLE	4 DIVISADERO 94117	
11	Megan Chesnut	2220 Geller #302 So. San Fran	
12		4037 23rd St San Francisco, CA 94114	
13	Kate Rozzi	1880 Filbert St San Francisco, CA 94123	
14	Margarita da Silva	4257 Polaris Ave Union City, CA 94587	
15	Rachel M. Mendes	2911 Lily St. S.F. Ca 94115	
16	Elaine Demps	1091 Dempsey Ave S.F Ca 94110	Elaine Demps
17	Lainie Motamedi	481 Dolores St SF 94110	
18	Talia K. Ulvade	2251 Gracedale St S. San Francisco, CA 94080	

Holy Family Day Home Parents and Guardians Against the proposed T-Mobile Cell Phone Antenna on St. Matthew's Church Steeple

Because this tower is unnecessary, undesirable and inappropriate for this location where over 2,500 young children go to school or live within a 1,500 ft. radius of it, we the undersigned are strongly opposed to its installation in the steeple of St. Matthew's Lutheran Church at 3281 16th Street in San Francisco. We call on the SF Planning Commission to reject the application for a Conditional Use Permit at this site. (Case# 2009.0562C).

	Print Name	Address	Signature
19	Bill Wallace	1830 Burrows St S.F. CA. 94134	
20	[illegible]	1122 Hampshire St. # 414 S.F. CA	
21	Ben Fife	125½ Ellert St SF CA 94110	
22	John Fitzgibbon	468 Dolores SF CA 94117	
23	Jeff Feinman	1283 43rd Ave SF CA 94122	
24	David Becker	65 Pearl St. S.F. CA 94103	
25	Josefina Tolama.	1551 Sonnydale. S.F. CA. 94134	
26	Elizabeth Calderon	1607 Graystone Ln Daly City CA 94014	
27	Charlene Reed	75 Brighton Ave	

Holy Family Day Home Parents and Guardians Against the proposed T-Mobile Cell Phone Antenna on St. Matthew's Church Steeple

Because this tower is unnecessary, undesirable and inappropriate for this location where over 2,500 young children go to school or live within a 1,500 ft. radius of it, we the undersigned are strongly opposed to its installation in the steeple of St. Matthew's Lutheran Church at 3281 16th Street in San Francisco. We call on the SF Planning Commission to reject the application for a Conditional Use Permit at this site. (Case# 2009.0562C).

	Print Name	Address	Signature
28	Dorothy Bowie	573 Dubuce Ave 94117	
29	Cornellia Fairley	59 Blysdale Ave 94134	Cornellia Fairley
30	Xochilt Alvarez	1486 Shafter Ave	Xochilt Alvarez
31	Anais Rocha	1152 Potrero Avenue San Francisco CA 94110	
32	Susana Tinoco	207 Augusta St	
33	Carmen Duran	38 Calgary St. S.F., CA 94134	Carmen Duran
34	Amalia Licea	38 Calgary St. S.F. Ca 94134	Amalia Licea
35	Kat Bohall	744 Church Apt A SF CA 94114	
36	Karla Mendez	2433 24th St SF CA 94110	

Holy Family Day Home Parents and Guardians Against the proposed T-Mobile Cell Phone Antenna on St. Matthew's Church Steeple

Because this tower is unnecessary, undesirable and inappropriate for this location where over 2,500 young children go to school or live within a 1,500 ft. radius of it, we the undersigned are strongly opposed to its installation in the steeple of St. Matthew's Lutheran Church at 3281 16th Street in San Francisco. We call on the SF Planning Commission to reject the application for a Conditional Use Permit at this site. (Case# 2009.0562C).

	Print Name	Address	Signature
37	XiomaraMartinez	2718 Yorba st	XiomaraMartinez
38	Veronica Valdez	455 EDDY st	Veronica Valdez
39	Lizeth Garcia	111 page st.	LG
40	Padilla Padilla	2608 San jose ave	
41	MARTHA GUZMAN	3582 18TH st #A	Martha Guzman
42	ISABEL JIMENEZ	3763 Mission st.	Isabel Jimenez
43	Ruben Bermudez	8 mc kinley	Ruben B
44	Oscar Reyes		Oscar Reyes
45	Roxana Martinez		Roxana Martinez

Holy Family Day Home Parents and Guardians Against the proposed T-Mobile Cell Phone Antenna on St. Matthew's Church Steeple

Because this tower is unnecessary, undesirable and inappropriate for this location where over 2,500 young children go to school or live within a 1,500 ft. radius of it, we the undersigned are strongly opposed to its installation in the steeple of St. Matthew's Lutheran Church at 3281 16th Street in San Francisco. We call on the SF Planning Commission to reject the application for a Conditional Use Permit at this site. (Case# 2009.0562C).

	Print Name	Address	Signature
46	Kelly Kremko	1855 California St #4 SF CA 94109	
47	Edyt Soto	245 Concord st. SF. CA 94112	
48	Angelica Rodriguez	3763 mission SF CA 94110	Angelica R.C.
49	Patricia Garcia	291 Capp st SF CA 94110	Patricia Garcia
50	Charlene Walters	2884 Cesar Chavez St SF CA 94110	
51	Armando Toledo	263 Moultries SF CA 94134	
52	David Hernandez	1718 Florida St #A SF CA	
53	Cicero Fairley	473 Ellis St S.F. Ca. 94102	Cicero Fairley
54	Leticia Orozco	8 Rue Blanchard Ave S.F CA. 94134	Leticia Orozco

Holy Family Day Home Parents and Guardians Against the proposed T-Mobile Cell Phone Antenna on St. Matthew's Church Steeple

Because this tower is unnecessary, undesirable and inappropriate for this location where over 2,500 young children go to school or live within a 1,500 ft. radius of it, we the undersigned are strongly opposed to its installation in the steeple of St. Matthew's Lutheran Church at 3281 16th Street in San Francisco. We call on the SF Planning Commission to reject the application for a Conditional Use Permit at this site. (Case# 2009.0562C).

Print Name	Address	Signature
55 Rogelio Soto	332 Gate st.	
56 Marlen Sanchez	1236 Utah ST	

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
1	GRACE K|M. gmail.com GRACE.M.KIM2782@ [illegible]	[illegible] DOLORES 1 SF, CA 94103	
2	Aaron A. Ruiz	540-Jones. St S.f. Ca.	
3	Katie O'Donnell	3257 16th St	
4	Jessie Hawk	3257 16th St.	
5	LYNN GALLEN	3220 - 16th St	
6	Daniel Duas	3525 Alv. Valencia	
7	Francis Vansteen	551 Edinburgh St. SF. CA	
8	Abigail Baldi	124 Prentiss St SF CA	
9	Miriam Speyer	594 Valencia St. SF CA 94110	

don't mail petition

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
10	Olivia Coombs Violeta	398 Dolores SF 94110	
11	Violeta Ramirez	1052 Potrero	Violeta Ramirez
12	Valeria Lopez	44 LANDERS	Valeria Lopez
13	Kevin Cronin	2725 20th st SF CA 94110	
14	TJ Bassa	1020 Post SF CA 94109	
15	Dexter Quan	S.F. CA 94117 61 Potomac St.	
16	Raju Kumar	440 Valencia Str. H.N.C401 SF ca 94103	
17	CARMEN GALO	25 Sanchez SHH 221 94114	Carmen Galo
18	Rose P Ortiz	Albuq. NM 87114 1620 2nd St NW	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
19	Bertrand Ardiano	434 Webster St.	
20	Amanda Parson	75 Gough 94102	
21	Jind Guadalupen	2906 Folsom St. apt. 1 SF. CA 94110	
22	PS Port	44 15th St	
23	CYNTHIA GASPAR	144 Bellevue Ave DALY CITY	
24	CATHERINE BARCENA	436A So. VAN NESS AVE S.F CA 94103	
25	OLIVIA BARCENA	436A So. VAN NESS AVE S.F. CA 94103	
26	Chris Usselm	1583 Church	
27	Rosamaria Castillo	239 Chenery St. S.F. Ca. 94131	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
28	Mari G Benitez	Guerrero St. 350	
29	BRIAN SMITH	172 HAIGHT ST #4 94102	
30	CHRIS HOUSTON	20 Mallorca Way No. 4 SF CA 94123	
31	Erin Winkler-McCue	2470 Washington St. SF, CA 94115	
32	BRIAN MCCARTHY	625 SCOTT #605 SF, CA 94117	
33	Xavier Cobos	25 Prospect St., SF, CA 94114	
34	Roger Werner	25 prospect st SF CA 94114	
35	Oscar Chan	545 ofarrell St	Oscar
36	Chrystine Lee	4th Dolores St. #3 94110	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
37	SONIA CALTVEDT	3519 19th St. SF, CA 94110	Sonia C. Caltvedt
38	Encarnacion S.	30 7th 94110 24 of SF CA.	
39	dixie TRACY-KINNEY	3165A 16th ST 94103	Dixie Tracy-Kinney
40	Chanate Roremus	240 Dolores St. Apt 238	
41	clare White	same as above	
42 Sanchez Elementary signed petition 43	Ana Lanuza Lanuza@SFUSD.edu 241-6380 335-2572	398 haight St. #12 SF CA 94102	
	katherine castillo	1067 Kirkwood Ave, SF, CA 94124	
44	Marilynn Gonzalez		Marilynn Gonzalez
45	Celso Lima		Celso Lima

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
46	ROSE KNIGHT Rose Knight	10th Ave. S.F 94118	Rose Knight
47	Nol Meyer	33 Pond St	
48	PAUL DONALD	121 DOLORES #2 SF 94103	
49	Janeen Rojas	121 Dolores #2 94103	
50	DORINA MAKRIGIANNAKIS	1234 Mc Allister St. #A. 1R SF	
51	Kathleen McGovern	674 Noe SF	Kathleen McGovern
52	Lenora Southworth	1842 - 15 #A SF. Ca. 94103	Southworth
53	Veronica Albarran	655 Alabarran 438 S.F. Ca. 94115	Veronica Albarran
54	Charles PIAZZA	438 GATEWAY DR #4 PACIFICA Ca. 94044	Charles Piazza

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
55	Clare Burke	481 Urbano Dr SF CA 94127	Clare Burke
56	Sarah Burke	481 Urbano Dr SF CA 94127	S B
57	AL ROGUE	615 CRESCENT AVE. SF CA 94110	A
58	Kate Leira	49 Landers SF 94114	Kate Leira
59	Sharon Kim		
60	MARIA LUZ TORRE	445 Church St SF 94114	Maria Luz Torre
61	James R. Ogren	66 Collingwood St S.F, CA 94114	James R. Ogren
62	Laura Lannon	3322 16th St Apt 3 SF, CA 94114	Laura Lannon

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
63	ERICA ARCHAMBAULT	3620 19th St #26 SF, CA	
64	Fran Bancroft	255 Dolores #6 SF, CA 94103	Fran Bancroft
65	William E CABRAL	405 Cal #3 SF, CA 94118-2	
66	ESTELA ARANAS	61 POTOMAC SF CA 94117	Estela Aranas
67	Victoria Sanchez	92 Linden San Francisco	Victoria Sanchez
68	Leilani Mangulabnan	1062 GILMAN DR. DALY CITY, CA	
69	Sidonia Tagasing	491 Vicksburg St San Francisco CA 94114	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
70	MELINA SPERA	2025 O'FARRELL SF CA 94115	
71	John Judice	31 HIDALGO TER SFCA 94103-2213	
72	MIROSLAV ELLNER	3369 17th ST San Francisco CA 94110	
73	René Juarez	401 Amazon Ave. San Francisco, CA 94112	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
74	John Sanchez	27 Chipley	
75	RAMESH BALAKRISHNAN	1326 E UTAH	
76	GILBERT WILLIAMS	456 Rolph St	
77	Eligio ZAMORA	3016 THST SF	Eligio Zamora
78	Jesse Majcher	948 Dolores St.	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
79	Verónica Garcia	134	st. 15	
80	Nancy Garcia	134	st Minna	
81	CHONI YANGZOM	627A Dolores St.	
82		2950 25 st	
83		Dolfon St.	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

	PRINT NAME	ADDRESS	SIGNATURE
84	BERT KATZ	240 DOLORES, S.F.	
85	MAUREEN GRACE	632 Guerrero St SF 94110	
86	John Garrity	"	

Please give all completed petitions to Jocelyn Colopy jocelyncolopy@yahoo.com or (415) 990-4460. Thank You!

MISSION DOLORES

~~CHILDREN'S DAY SCHOOL~~ COMMUNITY AGAINST CELL PHONE ANTENNAS IN ST. MATTHEW'S CHURCH STEEPLE

Because this industrial/commercial facility is unnecessary, undesirable and inappropriate for this location, which includes many schools including Children's Day School, We the Undersigned are strongly opposed to the installation by T-Mobile of four Cell Phone Antennas in the steeple of St. Matthews Lutheran Church at 3281 16th Street in San Francisco, and call on the San Francisco Planning Commission to reject the application for a Conditional Use Permit at this site (Case# 2009.0562C).

PRINT NAME	ADDRESS	SIGNATURE
87 Grace Walker	3555 17th St SF 94110	Grace Walker