

Case File Number: PLN15-0166**August 5, 2015**

Location:	1450 Fruitvale Avenue. (See map on reverse)
A.P.N. :	(033-2121-022-00) Installation of a Wireless Telecommunications facility involving twelve (12) new rooftop antennas located inside two sets of 8'x 8' penthouse screening enclosures; the associated mechanical equipment cabinet and generator located inside 15'-2" x 16'-2" penthouse screening enclosure located on the roof of the three-story commercial building.
Applicant:	The Lyle Company for Verizon Wireless.
Contact Person	Bryan Lincoln
Phone Number:	(916) 266-7052
Owner:	Fruitvale –Farnam Associates.
Planning Permits Required:	Major Conditional Use Permit and Regular Design Review to install new roof-top antennas and associated equipment (Mini Telecommunications Facility) located within 100' of a residential zone.
General Plan:	Neighborhood Center Mixed Use.
Zoning:	CN-3 Neighborhood Center.
Environmental Determination:	Exempt, Section 15301 and 15303 of the State CEQA Guidelines: minor alterations to existing facilities and small structure; Section 15183 of the State CEQA Guidelines: projects consistent with a Community Plan, General Plan or Zoning.
Historic Status:	Not a Potential Designated Historic Property; Survey Rating: N/A
Service Delivery District:	3
City Council District:	5
Status:	Pending
Finality of Decision:	Appealable to City Council within 10 days.
For Further Information:	Contact case planner Jason Madani at (510) 238-4790 or jmadani@oaklandnet.com

SUMMARY

The proposed project is to install a Wireless Telecommunications facility involving twelve (12) new rooftop antennas located inside two sets of 8'x 8' penthouse screening enclosures; the associated mechanical equipment cabinet and generator will be located inside a 15'-2" x 16'-2" penthouse screening enclosure located on the roof of the three-story commercial building. The site is located in a Neighborhood Center Commercial zone and within 100' of a residential zone. A Major Conditional Use Permit and Design Review are required to install a Mini Telecommunications Facility within 100' of a residential zone. The proposal will provide enhanced Telecommunications service to support the residential, commercial and civic uses in the neighborhood. The project meets all of the applicable findings for approval (see findings sections). Therefore, staff recommends approval of the project subject to the attached conditions of approval.

CITY OF OAKLAND PLANNING COMMISSION



0 125 250 500 750 1,000 Feet



Case File: PLN15166
Applicant: The Lyle Company for Verizon Wireless
Address: 1450 Fruitvale Avenue
Zone: CN-3

PROJECT DESCRIPTION

The Lyle Company for Verizon Wireless is proposing to install a Wireless Telecommunications facility involving twelve (12) new rooftop antennas located inside two sets of 8'x 8' penthouse screening enclosures; the associated mechanical equipment cabinet and generator located inside a 15'-2" x 16'-2" penthouse screening enclosure located on the roof of a three-story commercial building. (See attachment A)

PROPERTY DESCRIPTION

The subject property is an approximately 11,100 square foot parcel with a three-story commercial building. The subject property is located on the corner of Fruitvale Avenue and Farnam Street, and is within 100' of a residential zone.

BACKGROUND

Limitations on Local Government Zoning Authority under the Telecommunications Act of 1996 Section 704 of the Telecommunications Act of 1996 (TCA) provides federal standards for the siting of "Personal Wireless Services Facilities." "Personal Wireless Services" include all commercial mobile services (including personal communications services (PCS), cellular radio mobile services, and paging); unlicensed wireless services; and common carrier wireless exchange access services. Under Section 704, local zoning authority over personal wireless services is preserved such that the FCC is prevented from preempting local land use decisions; however, local government zoning decisions are still restricted by several provisions of federal law. Under Section 253 of the TCA, no state or local regulation or other legal requirement can prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service. Further, Section 704 of the TCA imposes limitations on what local and state governments can do. Section 704 prohibits any state and local government action which unreasonably discriminates among personal wireless providers. Local governments must ensure that its wireless ordinance does not contain requirements in the form of regulatory terms or fees which may have the "effect" of prohibiting the placement, construction, or modification of personal wireless services. Section 704 also preempts any local zoning regulation purporting to regulate the placement, construction and modification of personal wireless service facilities on the basis, either directly or indirectly, on the environmental effects of radio frequency emissions (RF) of such facilities, which otherwise comply with FCC standards in this regard. See, 47 U.S.C. 332(c) (7) (B) (iv) (1996). This means that local authorities may not regulate the siting or construction of personal wireless facilities based on RF standards that are more stringent than those promulgated by the FCC. Section 704 mandates that local governments act upon personal wireless service facility siting applications to place, construct, or modify a facility within a reasonable time. 47 U.S.C.332(c) (7) (B) (ii). See FCC Shot Clock ruling setting forth "reasonable time" standards for applications deemed complete. Section 704 also mandates that the FCC provide technical support to local governments in order to encourage them to make

property, rights-of-way, and easements under their jurisdiction available for the placement of new spectrum-based telecommunications services. This proceeding is currently at the comment stage. For more information on the FCC's jurisdiction in this area, contact Steve Markendorff, Chief of the Broadband Branch, Commercial Wireless Division, Wireless Telecommunications Bureau, at (202) 418-0640 or e-mail "smarkend@fcc.gov".

GENERAL PLAN ANALYSIS

The subject property is located within the Neighborhood Center Mixed Use General Plan Designation. The Neighborhood Center Mixed Use land use classification is intended to create, maintain and enhance mixed use neighborhood commercial centers. These centers are typically characterized by smaller scale, pedestrian-oriented, continuous street frontage with a mix of retail, housing, office, active open space, eating and drinking places, personal and business services, and smaller scale educational, cultural, or entertainment uses. The proposed unmanned wireless telecommunication facility will not adversely affect no detract from the Neighborhood Center Mixed characteristics of the neighborhood. The proposal will preserve a convenient and functional commercial building and will not likely affect the general quality and character of the neighborhood. The proposed project will have minimal effect on the existing structure and surrounding area.

ZONING ANALYSIS

The subject property is located in the CN-3 Neighborhood Commercial and within 100' of a RM-3 Mixed Housing Type Residential Zone. The intent of the CN-3 zone is to create, improve, and enhance areas neighborhood commercial centers that have a compact, vibrant pedestrian environment. The intent of the RM-3 is to create, maintain, and enhance residential areas characterized by a mix of single family homes, duplexes, townhouses, small multi-unit buildings at somewhat higher densities than in RM-2, and neighborhood businesses where appropriate. The project requires a Major Conditional Use Permit and Design Review for being within 100' of a residential zone. Staff finds that the proposed application meets applicable CN-3 Zoning and City of Oakland Telecommunications Regulations as discussed under the "Key Issues" and Section of "Findings" of this report.

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines lists the projects that qualify as categorical exemptions from environmental review. The proposed project is categorically exempt from the environmental review requirements pursuant to Section 15301, 15303 for additions and alterations to existing facilities, and small structures. In addition, the project is also exempt per Section 15183, for projects consistent with a community plan, general plan or zoning.

KEY ISSUES AND IMPACTS

1. Conditional Use Permit, Design Review

Section 17.33.02 of the City of Oakland Planning Code requires a Conditional Use Permit and Design Review to install a Mini Telecommunication Facility located in the CN-3 Neighborhood Commercial and within 100' of the RM-3 Mixed Housing Type Residential Zones. Furthermore, pursuant to Section 17.134.020 (A) (3) (i) and 17.136.050B of the Oakland Planning Code, Major Conditional Use Permit and Design Review is required for any telecommunication facility in or within one hundred (100) feet of the boundary of any residential zone. Major Conditional Use Permit and Design Review are listed and included in staff's evaluation as part of this report.

2. Project Site

Section 17.128.110 of Oakland's Telecommunication Regulations indicate that new wireless facilities shall generally be located on designated properties or facilities in the following order of preference:

- A. Co-located on an existing structure or facility with existing wireless antennas.
- B. City owned properties or other public or quasi-public facilities.
- C. Existing commercial or industrial structures in non-residential zones (excluding all HBX Zones and the D-CE3 and D-C-4 Zones).
- D. Existing commercial or industrial structures in residential zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.
- E. Other non-residential uses in residential zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.
- F. Residential uses in non-residential zones. (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).
- G. Residential uses in residential zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.

*Facilities locating on an A, B or C ranked preference do not require a site alternatives analysis. Facilities proposing to locate on a D through G ranked preference, inclusive, must submit a site alternatives analysis as part of the required application materials.

Since the proposed project involves installation new antennas on the existing commercial building and is located within 100' of a residential zone, the proposed project meets (C), hence a site alternatives analysis is not required.

Alternative Site Analysis:

The proposed project does not require alternative site analysis. But, the Lyle Company considered alternative sites on other buildings in this area but none of these sites are as desirable from a coverage perspective or from an aesthetics perspective to minimize visual impact. The proposed location is approximately equidistant from other search ring objectives proposed in the surrounding area so that service coverage can be evenly distributed.

Staff has reviewed the applicant's written evidence of an alternative sites analysis (see attachment A) and determined that the site selected conforms to the telecommunication regulation requirements. In addition, staff agrees that no other sites are more suitable. The project has met design criteria (C) since, the proposed rooftop telecommunication antennas and associate equipment cabinet are fully screened from public view.

3. Project Design

Section 17.128.120 of the City of Oakland Telecommunications Regulations indicates that new wireless facilities shall generally be designed in the following order of preference:

- A. Building or structure mounted antennas completely concealed from view.
- B. Building or structure mounted antennas set back from roof edge, not visible from public right-of way.
- C. Building or structure mounted antennas below roof line (facade mount, pole mount) visible from public right-of-way, painted to match existing structure.
- D. Building or structure mounted antennas above roof line visible from public right of-way.
- E. Monopoles.
- F. Towers.

The project meets design criteria (B) since the placement of the antennas, equipment cabinets, and generator within the rooftop penthouse structures located on the roof of the commercial building.

Written evidence must indicate why each higher preference design alternative cannot be used. Such evidence shall be in sufficient detail that independent verification could be obtained if required by the City of Oakland Zoning Manager. Evidence should indicate if the reason an alternative was rejected was technical (e.g. incorrect height, interference from existing RF sources, inability to cover required area) or for other concerns (e.g. inability to provide utilities, construction or structural impediments).

City of Oakland Planning staff have reviewed and determined that the site selected is conforming to all other telecommunication regulation requirements. The project has met design criteria (A and B) since the antennas and equipment cabinet are fully screened and meets the 1:1 ratio for equipment height setback from the edge of building roof line.

4. Project Radio Frequency Emissions Standards

Section 17.128.130 of the City of Oakland Telecommunication Regulations require that the applicant submit the following verifications including requests for modifications to existing facilities:

- a. The Telecommunications regulations require that the applicant submit written documentation demonstrating that the emission from the proposed project are within the limits set by the Federal Communications Commission. In the document (attachment B) prepared by HAMMETT & EDISON, INC, Consulting Engineers, the proposed project was evaluated for compliance with appropriate guidelines limiting human exposure to radio frequency electromagnetic fields. According to the report on the proposal, the project will comply with the prevailing standards for limiting public

exposure to radio frequency energy and, therefore, the proposed site will operate within the current acceptable thresholds as established by the Federal Government or any such agency that may be subsequently authorized to establish such standards.

b. Prior to final building permit sign off, an RF emissions report indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

The information submitted with the initial application was an RF emissions report, prepared by HAMMETT & EDISON, INC, Consulting Engineers (Attachment B). The report states that the proposed project will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not cause a significant impact on the environment. Additionally, staff recommends that prior to the final building permit sign off, the applicant submits certified RF emissions report stating that the facility is operating within acceptable thresholds established by the regulatory federal agency.

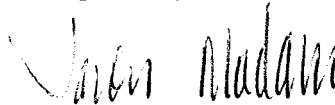
CONCLUSION

Staff believes that the new telecommunication facility will not have significant visual impacts on the operating characteristics of the existing commercial building. It will provide an essential telecommunication service to the community and the City of Oakland at large. It will also be available to emergency services such as Police, Fire and health response teams. Staff believes that the findings for approval can be made to support the Conditional Use Permit and, Design Review.

RECOMMENDATIONS:

1. Affirm staff's Environmental Determination
2. Approve the Conditional Use Permit and, Design Review, application (PLN15-166) subject to the attached Findings and Conditions of Approval

Prepared by:



Jason Madani
Planner II

Approved by:



Scott Miller,
Zoning Manager

Approved for forwarding to the
City Planning Commission



Darin Ranelletti Deputy Director
Bureau of Planning

ATTACHMENTS:

- A. Project Plans & Alternative site selection & Photo simulations
- B. Hammett & Edison, Inc. Consulting Engineer RF Emissions Report

FINDINGS FOR APPROVAL

This proposal meets the required findings under Sections 17.134.050 (General Use Permit criteria); and 17.136.050 (B) (Non-Residential Design Review criteria); 17.128.060(B) (Telecommunications Mini Facilities 17.128.060 (C), as set forth below. Required findings are shown in **bold** type; reasons proposal satisfies them are shown in normal type.

SECTION 17.134.050 – GENERAL USE PERMIT FINDINGS:

A. That the location, size, design, and operating characteristics of the proposed development will be compatible with, and will not adversely affect, the livability or appropriate development of abutting properties and the surrounding neighborhood, with consideration to be given to harmony in scale, bulk, coverage, and density; to the availability of civic facilities and utilities; to harmful effect, if any upon desirable neighborhood character; to the generation of traffic and the capacity of surrounding streets; and to any other relevant impact of the development.

The purpose of the project is to enhance wireless telecommunications service in the area. The installation of new antennas will not adversely affect the operating characteristics or livability of the existing area because the proposed antennas will be inside of a penthouse screening enclosure located on the roof of the commercial building. The facility will be unmanned and will not create additional vehicular traffic in the area.

B. That the location, design, and site planning of the proposed development will provide a convenient and functional living, working, shopping, or civic environment, and will be as attractive as the nature of the use and its location and setting warrant.

The location, design and site planning of the proposed development will provide enhanced telecommunication service for the area. It will maintain the use of the commercial building. The proposal will preserve the use of the existing commercial building and not expected to negatively affect the general quality and character of the neighborhood.

C. That the proposed development will enhance the successful operation of the surrounding area in its basic community functions, or will provide an essential service to the community or region.

The proposed development will enhance the successful operation of the surrounding area in its basic community function and will provide an essential service to the community or region. This will be achieved by improving the functional use of the site by providing a regional Telecommunications facility for the community and will be available to the Police, Fire Services, and the public safety organizations and the general public.

D. That the proposal conforms to all applicable design review criteria set forth in the DESIGN REVIEW PROCEDURE of Chapter 17.136 of the Oakland Planning Code.

The proposal conforms with all significant aspects of the Design Review criteria set forth in Chapter 17.136 of the Oakland Planning Code, as outlined below.

E. That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable plan or development control map which has been adopted by the City Council.

The subject property is located within the Neighborhood Center Mixed Use General Plan Designation. The Neighborhood Center Mixed Use land use classification is intended to create, maintain and enhance mixed use neighborhood commercial centers. These centers are typically characterized by smaller scale, pedestrian-oriented, continuous street frontage with a mix of retail, housing, office, active open space, eating and drinking places, personal and business services, and smaller scale educational, cultural, or entertainment uses. The proposed unmanned wireless telecommunication facility will not adversely affect and detract from the Neighborhood Center Mixed characteristics of the neighborhood. The proposal will preserve a convenient and functional commercial building and will not likely affect the general quality and character of the neighborhood. The proposed project will have minimal effect on the existing structure and surrounding area. It will rather provide wireless services in support of the commercial, residential and civic activities encouraged by the General Plan.

17.136.050(B) – NONRESIDENTIAL DESIGN REVIEW CRITERIA:

1. That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal to the total setting as seen from key points in the surrounding area. Only elements of design which have some significant relationship to outside appearance shall be considered, except as otherwise provided in Section 17.136.060;

The proposed twelve (12) new antennas are located inside the penthouse enclosure and will be camouflaged and blend in with the existing HVAC equipment located on the roof of commercial building and surrounding residential buildings. Photo simulations submitted for the project show the view of the proposed antennas and screen, as seen from the street, with minimum visual impacts. Therefore, the proposal will not have significant impacts on the operating characteristic of the existing commercial building and surrounding neighborhood.

2. That the proposed design will be of a quality and character which harmonizes with, and serves to protect the value of, private and public investments in the area;

See above #1 findings

3. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan,

or development control map which have been adopted by the Planning Commission or City Council.

See above #E

17.128.060(B) DESIGN REVIEW CRITERIA FOR MINI FACILITIES

1. Antennas should be painted and/or textured to match the existing structure:

The proposed screening enclosures are compatible with the existing building material, and blends in with the architectural style of the residential building.

2. Antennas mounted on architecturally significant structures or significant architectural details of the building should be covered by appropriate casings which are manufactured to match existing architectural features found on the building:

The proposed antennas and a generator are located inside the penthouse enclosure and will be camouflaged and blend in with the existing rooftop stairwell of residential building and surrounding residential buildings.

3. Where feasible, antennas can be placed directly above, below or incorporated with vertical design elements of a building to help in camouflaging:

See findings above.

4. Equipment shelters or cabinets shall be screened from the public view by using landscaping, or materials and colors consistent with surrounding backdrop:

The proposed screening enclosures are compatible with the existing building material, and blend in with the architectural style of the building.

5. Equipment shelters or cabinets shall be consistent with the general character of the area.

See above findings.

6. For antennas attached to the roof, maintain a 1:1 ratio for equipment setback; screen the antennas to match existing air conditioning units, stairs, or elevator towers; avoid placing roof mounted antennas in direct line with significant view corridors.

The placement of the antennas and generator within the rooftop penthouse located on the roof of commercial building meets 1:1 ratio for equipment setback from the edge of building roof line.

Section 17.128.060 (C) CONDITIONAL USE PERMIT (CUP) FINDINGS FOR MINI FACILITIES

1. The project must meet the special design review criteria listed in subsection B of this section (17.128.070B):

The proposed project meets the special design review criteria listed in section 17.128.070B. (see above).

2. The proposed project must not disrupt the overall community character:

The proposed Telecommunications facility is fully screened from public view and, therefore the proposal will not disrupt the overall community character surrounding the subject site.

3. In the Residential RH, RD, RM, RU-1, or RU-2 Zones, HBX Zones, and in the D-CE-3 and DCE-4 Zones, the project must not have any visual impact.

The proposed panel antennas and equipment cabinets are fully screened from public view, therefore the proposal will not have significant visual impact.

CONDITIONS OF APPROVAL
PLN15-166

STANDARD CONDITIONS:

1. Approved Use

Ongoing

a) The project shall be constructed and operated in accordance with the authorized use as described in the application materials, **PLN15-166**, and the plans dated **May 1st, 2015** and submitted on **May 21st, 2015** and as amended by the following conditions. Any additional uses or facilities other than those approved with this permit, as described in the project description and the approved plans, will require a separate application and approval. Any deviation from the approved drawings, Conditions of Approval or use shall required prior written approval from the Director of City Planning or designee.

b) This action by the City Planning Commission ("this Approval") includes the approvals set forth below. This Approval includes: **Installation of a Wireless Telecommunications facility involving twelve (12) new rooftop antennas located inside two sets of 8'x 8' penthouse screening enclosures; the associated mechanical equipment cabinet and generator located inside a 15'-2" x 16'-2" penthouse screening enclosure located on the roof of the three-story commercial building.**

2. Effective Date, Expiration, Extensions and Extinguishment

Ongoing

Unless a different termination date is prescribed, this Approval shall expire **two calendar years** from the approval date, unless within such period all necessary permits for construction or alteration have been issued, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this permit, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit for this project may invalidate this Approval if the said extension period has also expired.

3. Scope of This Approval; Major and Minor Changes

Ongoing

The project is approved pursuant to the **Oakland Planning Code** only. Minor changes to approved plans may be approved administratively by the Director of City Planning or designee. Major changes to the approved plans shall be reviewed by the Director of City Planning or designee to determine whether such changes require submittal and approval of a revision to the approved project by the approving body or a new, completely independent permit.

4. Conformance with other Requirements

Prior to issuance of a demolition, grading, P-job, or other construction related permit

- a) The project applicant shall comply with all other applicable federal, state, regional and/or local codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Building Services Division, the City's Fire Marshal, and the City's Public Works Agency.

- b) The applicant shall submit approved building plans for project-specific needs related to fire protection to the Fire Services Division for review and approval, including, but not
- c) limited to automatic extinguishing systems, water supply improvements and hydrants, fire department access, and vegetation management for preventing fires and soil erosion.

5. Conformance to Approved Plans; Modification of Conditions or Revocation

Ongoing

- a) Site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within 60-90 days of approval, unless an earlier date is specified elsewhere.
- b) The City of Oakland reserves the right at any time during construction to require certification by a licensed professional that the as-built project conforms to all applicable zoning requirements, including but not limited to approved maximum heights and minimum setbacks. Failure to construct the project in accordance with approved plans may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension or other corrective action.
- c) Violation of any term, conditions or project description relating to the Approvals is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approvals or alter these conditions if it is found that there is violation of any of the conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it; limit in any manner whatsoever the ability of the City to take appropriate enforcement actions.

6. Signed Copy of the Conditions

With submittal of a demolition, grading, and building permit

A copy of the approval letter and conditions shall be signed by the property owner, notarized, and submitted with each set of permit plans to the appropriate City agency for this project.

7. Indemnification

Ongoing

- i. To the maximum extent permitted by law, the applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the City of Oakland Redevelopment Agency, the Oakland City Planning Commission and its respective agents, officers, and employees (hereafter collectively called City) from any liability, damages, claim, judgment, loss (direct or indirect) action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul, (1) an approval by the City relating to a development-related application or subdivision or (2) implementation of an approved development-related project. The City may elect, in its sole discretion, to participate in the

defense of said Action and the applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.

- ii. Within ten (10) calendar days of the filing of any Action as specified in subsection A above, the applicant shall execute a Letter of Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Letter of Agreement shall survive termination, extinguishment or invalidation of the approval. Failure to timely execute the Letter of Agreement does not relieve the applicant of any of the obligations contained in this condition or other requirements or Conditions of Approval that may be imposed by the City.

8. Compliance with Conditions of Approval

Ongoing

The project applicant shall be responsible for compliance with the recommendations in any submitted and approved technical report and all the Conditions of Approval set forth below at its sole cost and expense, and subject to review and approval of the City of Oakland.

9. Severability

Ongoing

Approval of the project would not have been granted but for the applicability and validity of each and every one of the specified conditions, and if any one or more of such conditions is found to be invalid by a court of competent jurisdiction this Approval would not have been granted without requiring other valid conditions consistent with achieving the same purpose and intent of such Approval.

10. Job Site Plans

Ongoing throughout demolition, grading, and/or construction

At least one (1) copy of the stamped approved plans, along with the Approval Letter and Conditions of Approval, shall be available for review at the job site at all times.

11. Special Inspector/Inspections, Independent Technical Review, Project Coordination and Management

Prior to issuance of a demolition, grading, and/or construction permit

The project applicant may be required to pay for on-call special inspector(s)/inspections as needed during the times of extensive or specialized plan check review, or construction. The project applicant may also be required to cover the full costs of independent technical and other types of peer review, monitoring and inspection, including without limitation, third party plan check fees, including inspections of violations of Conditions of Approval. The project applicant shall establish a deposit with the Building Services Division, as directed by the Building Official, Director of City Planning or designee.

12. Days/Hours of Construction Operation

Ongoing throughout demolition, grading, and/or construction

The project applicant shall require construction contractors to limit standard construction activities as follows:

- a) Construction activities are limited to between 7:00 AM and 7:00 PM Monday through Friday, except that pile driving and/or other extreme noise generating

activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday.

- b) Any construction activity proposed to occur outside of the standard hours of 7:00 am to 7:00 pm Monday through Friday for special activities (such as concrete

pouring which may require more continuous amounts of time) shall be evaluated on a case by case basis, with criteria including the proximity of residential uses and a consideration of resident's preferences for whether the activity is acceptable if the overall duration of construction is shortened and such construction activities shall only be allowed with the prior written authorization of the Building Services Division.

- c) Construction activity shall not occur on Saturdays, with the following possible exceptions:

i. Prior to the building being enclosed, requests for Saturday construction for special activities (such as concrete pouring which may require more continuous amounts of time), shall be evaluated on a case by case basis, with criteria including the proximity of residential uses and a consideration of resident's preferences for whether the activity is acceptable if the overall duration of construction is shortened. Such construction activities shall only be allowed on Saturdays with the prior written authorization of the Building Services Division.

ii. After the building is enclosed, requests for Saturday construction activities shall only be allowed on Saturdays with the prior written authorization of the Building Services Division, and only then within the interior of the building with the doors and windows closed.

- d) No extreme noise generating activities (greater than 90 dBA) shall be allowed on Saturdays, with no exceptions.

- e) No construction activity shall take place on Sundays or Federal holidays.

- f) Construction activities include but are not limited to: truck idling, moving equipment (including trucks, elevators, etc) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

PROJECT SPECIFIC CONDITIONS:

13. Radio Frequency Emissions

Prior to the final building permit sign off.

The applicant shall submit a certified RF emissions report stating the facility is operating within the acceptable standards established by the regulatory Federal Communications Commission.

14. Operational

Ongoing.

Noise levels from the activity, property, or any mechanical equipment on site shall comply with the performance standards of Section 17.120 of the Oakland Planning Code and Section 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity

causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the Planning and Zoning Division and Building Services.

15. Compliance with Title 24

Prior to issuance of certificate of occupancy.

The applicant shall implement acoustical techniques in compliance with Title 24 to ensure that noise levels in interior spaces remain at or below 45 CNEL with all doors and windows closed.

16. Height Limitation

Ongoing.

The maximum height of the screening enclosure shall be 10 feet. Any height beyond 10 feet would compromise the appropriate scale and proportionality with the existing building mass.

Z D D R A W I N G S I G N - O F F

DATE: _____ TIME: _____ LATE-PLEASE RETURN BY: _____

SIGNATURE: _____ DATE: _____

SITE ACQUISITION: _____

PLANNING: _____

CONSTRUCTION: _____

MANAGEMENT: _____

CONSTRUCTION: _____

REAL ESTATE: _____

RF ENGINEER: _____

EQUIPMENT ENGINEER: _____

LINE ENG./TRANSPORT: _____

OTHER (IF APPLICABLE): _____

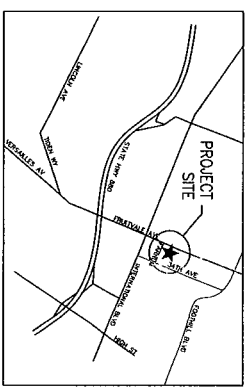
SIGNATURE: _____ DATE: _____

ATTACHMENT A



2785 Mitchell Drive, Walnut Creek, CA 94598

HAWTHORNE
1450 FRUITVALE AVENUE
OAKLAND, CA 94601
APN: 033-2121-022
LOCATION #: 296429



OAKLAND, CA

DIRECTIONS

1. HEAD NORTHWEST ON MITCHELL DR TOWARD OAK GROVE RD.
2. TAKE THE 2ND RIGHT ONTO YONKID VALLEY RD.
3. TURN RIGHT ONTO YONKID VALLEY RD AND BECOMES HILLSIDE AVE.
4. TURN RIGHT ONTO THE RAMP TO CA-24 W.
5. TURN LEFT ONTO CA-24 W TO OAKLAND. TAKE THE EXIT TOWARD FRUITVALE AVE/ALAMEDA FROM I-880 S.
6. CONTINUE ONTO CA-24 W.
7. CONTINUE ONTO THE RAMP TO STAY ON CA-24 W.
8. CONTINUE ONTO THE RAMP TO STAY ON CA-24 W.
9. CONTINUE ONTO THE RAMP TO STAY ON CA-24 W.
10. CONTINUE ONTO I-880 S.
11. TAKE THE EXIT TOWARD FRUITVALE AVE/ALAMEDA.
12. CONTINUE ONTO FRUITVALE AVE.
13. TURN LEFT ONTO FRUITVALE AVE.
14. CONTINUE STRAIGHT TO STAY ON FRUITVALE AVE.
15. TURN LEFT ONTO FRUITVALE AVE.

LOCATION PLAN

INDEX OF DRAWINGS

1. T1.1 TITLE SHEET, LOCATION PLAN, PROJECT DATA
2. C-1 CIVIL SURVEY SHEET
3. A1.1 OVERALL SITE PLAN
4. A2.1 EQUIPMENT LAYOUT PLAN
5. A2.2 ANTENNA LAYOUT PLAN
6. A3.1 PROJECT ELEVATIONS
7. A3.2 PROJECT ELEVATIONS



PROJECT DIRECTORY

APPLICANT:
VERIZON WIRELESS
C/O THE LIVE COMPANY
3140 GOLD CAMP DRIVE, SUITE 30
OAKLAND, CA 94612
CELL: 415-999-8464
www.verizonwireless.com

PROPERTY OWNER:
FRUITVALE PARK ASSOC. LLC
PO BOX 10644
OAKLAND, CA 94610

ARCHITECT:
MST ARCHITECTS, INC.
1520 RIVER PARK DRIVE
SACRAMENTO, CA 95815
CELL: 916-450-3500
www.mstarchitects.com

VERIZON WIRELESS:
3140 GOLD CAMP DRIVE, SUITE 30
OAKLAND, CA 94612
ATTN: ROBERT DUMMETT
CELL: 916-801-6720
rdummett@vzw.com

PROJECT SUMMARY

APPROVED: PARCEL NUMBER: 033-2121-022
LOCATION: CITY OF OAKLAND
TYPE OF CONSTRUCTION: S-2 (UNMANNED TELECOMMUNICATIONS FACILITY)
ZONING: V-B COMMERCIAL RETAIL

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE 2013 CALIFORNIA BUILDING CODE (CBC) AND THE 2013 CALIFORNIA ELECTRICAL CODE (CEC) AND THE 2013 CALIFORNIA PLUMBING CODE (CPC) AND THE 2013 CALIFORNIA ENERGY CODE (CEC) AND THE 2013 CALIFORNIA FIRE CODE (FC) AND THE 2013 CALIFORNIA ACCESSIBILITY REQUIREMENTS. THIS FACILITY IS UNMANNED AND NOT FOR HUMAN OCCUPANCY. THE FACILITY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE 2013 CBC AND THE 2013 CEC AND THE 2013 CPC AND THE 2013 FC AND THE 2013 AEC.

PROJECT DESCRIPTION

PROPOSED VERIZON WIRELESS UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING:
- (1) 15'-0"x16'-0" LEASE AREA.
- (2) 8'-0"x8'-0" LEASE AREA.
- (3) 8'-0"x8'-0" LEASE AREA.
- (4) 8'-0"x8'-0" LEASE AREA.
- (5) 8'-0"x8'-0" LEASE AREA.
- (6) 8'-0"x8'-0" LEASE AREA.
- (7) 8'-0"x8'-0" LEASE AREA.
- (8) 8'-0"x8'-0" LEASE AREA.
- (9) 8'-0"x8'-0" LEASE AREA.
- (10) 8'-0"x8'-0" LEASE AREA.
- (11) 8'-0"x8'-0" LEASE AREA.
- (12) 8'-0"x8'-0" LEASE AREA.
- (13) 8'-0"x8'-0" LEASE AREA.
- (14) 8'-0"x8'-0" LEASE AREA.
- (15) 8'-0"x8'-0" LEASE AREA.

PROJECT MILESTONES

12/08/2014 90% ZONING DOCUMENTS
12/17/2014 91% ZONING DOCUMENTS
01/06/2015 92% ZONING DOCUMENTS
04/06/2015 100% ZONING DOCUMENTS REV 1
05/01/2015 100% ZONING DOCUMENTS REV 2
XX/XX/XXXX 99% CONSTRUCTION DOCUMENTS
XX/XX/XXXX 100% CONSTRUCTION DOCUMENTS

MST ARCHITECTS
1520 River Park Drive, Sacramento, CA 95815
916 450 3500
www.mstarchitects.com

verizon WIRELESS
HAWTHORNE
1450 FRUITVALE AVENUE
OAKLAND, CA 94601

SHEET TITLE:
TITLE SHEET, LOCATION PLAN, PROJECT DATA

T1.1

NOT FOR CONSTRUCTION

MST ARCHITECTS
 1450 FRUITVALE AVENUE
 OAKLAND, CA 94601
 (415) 437-1000
 www.mstarchitects.com

verizon wireless
 1450 FRUITVALE AVENUE
 OAKLAND, CA 94601

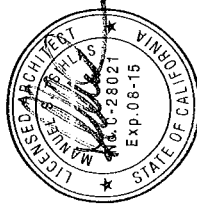
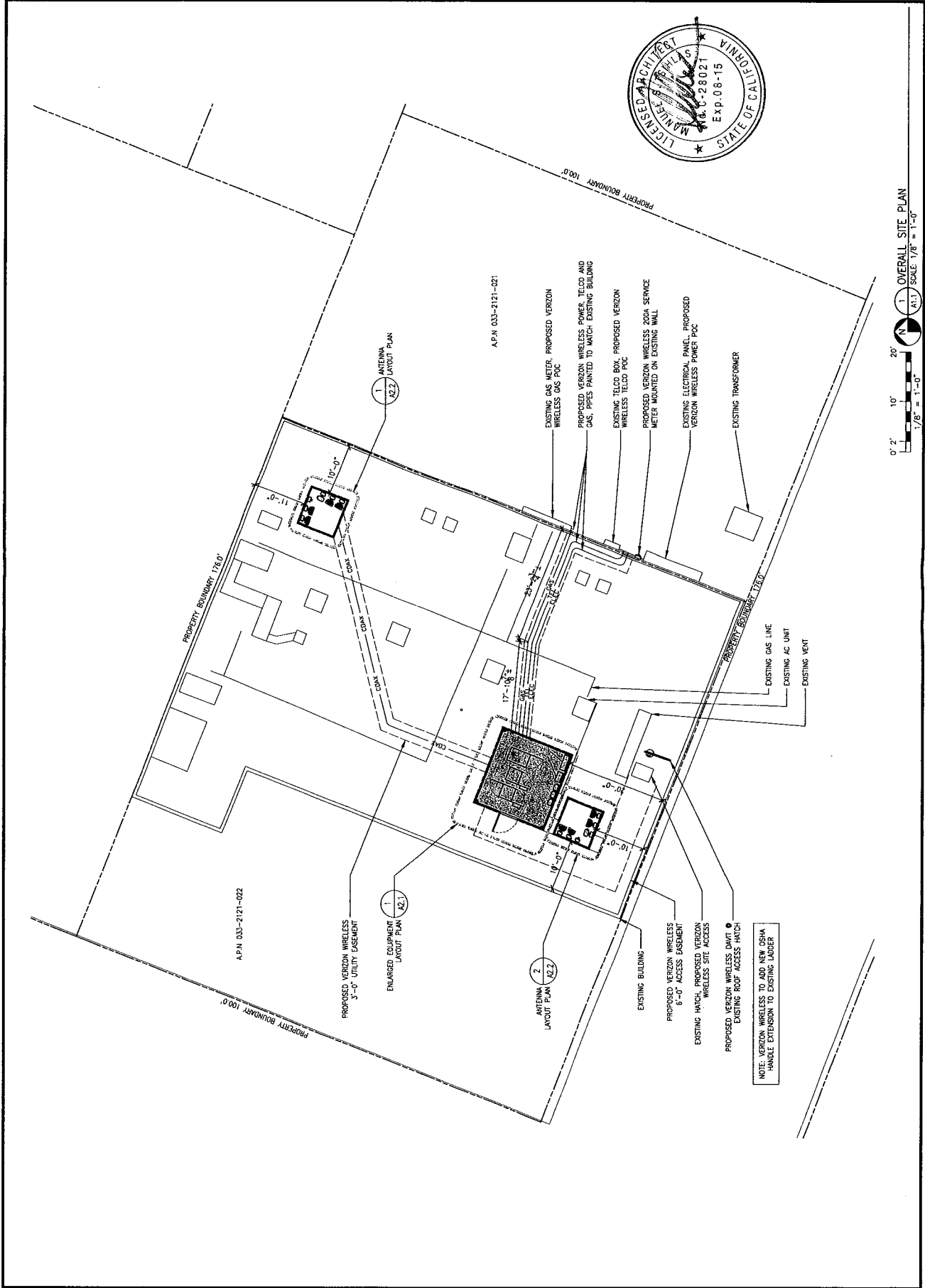
SHEET TITLE:
 OVERALL SITE PLAN

DATE: 08/15/15
 DRAWN BY: JAC
 CHECKED BY: JAC
 SCALE: AS SHOWN
 EXISTING: 08/15/15

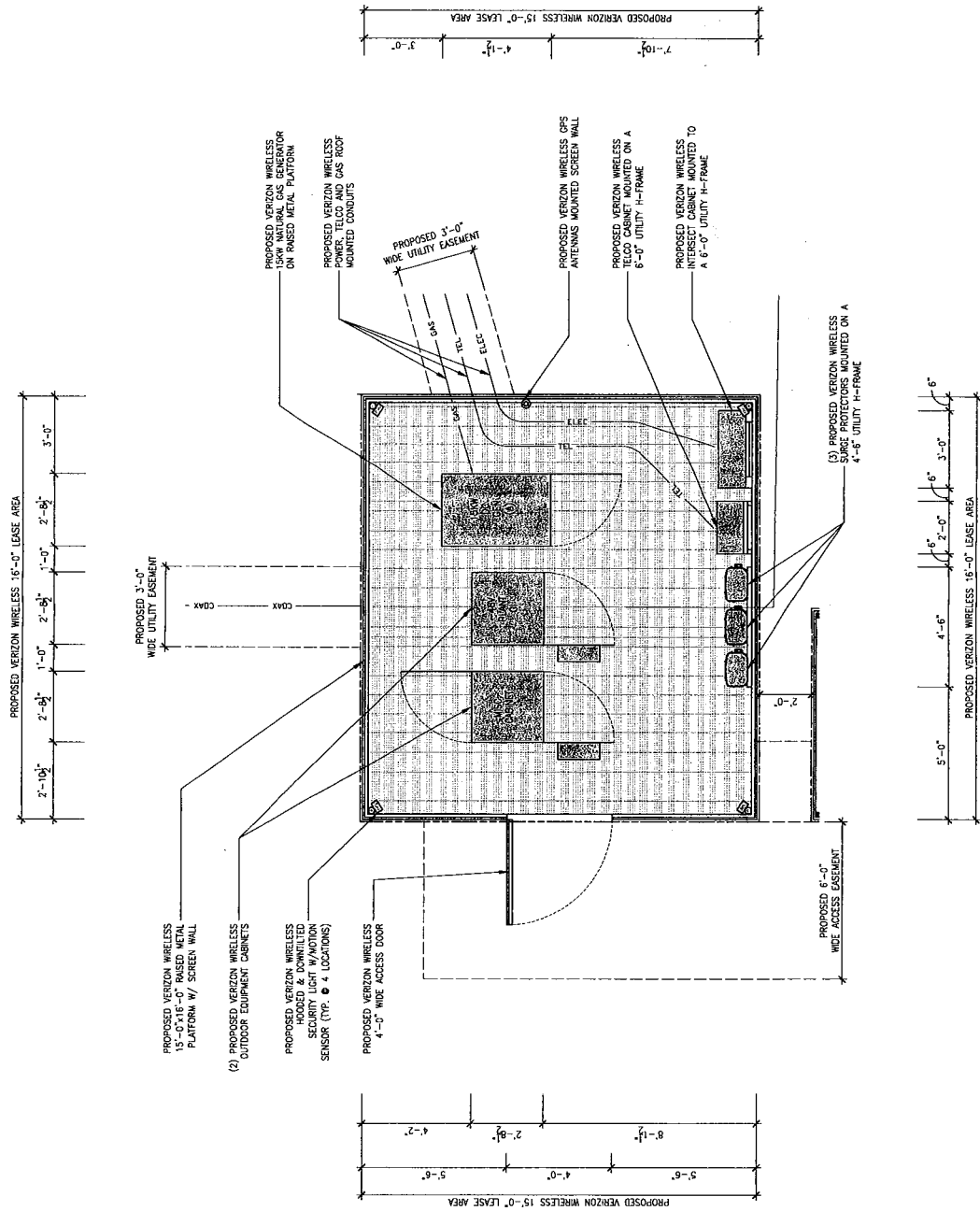
FILE: 001-056-AT-001
 DRAWN BY: JAC
 CHECKED BY: JAC
 SCALE: AS SHOWN
 EXISTING: 08/15/15

NO. 200-158

A1.1



1" OVERALL SITE PLAN
 A1.1 SCALE: 1/8" = 1'-0"



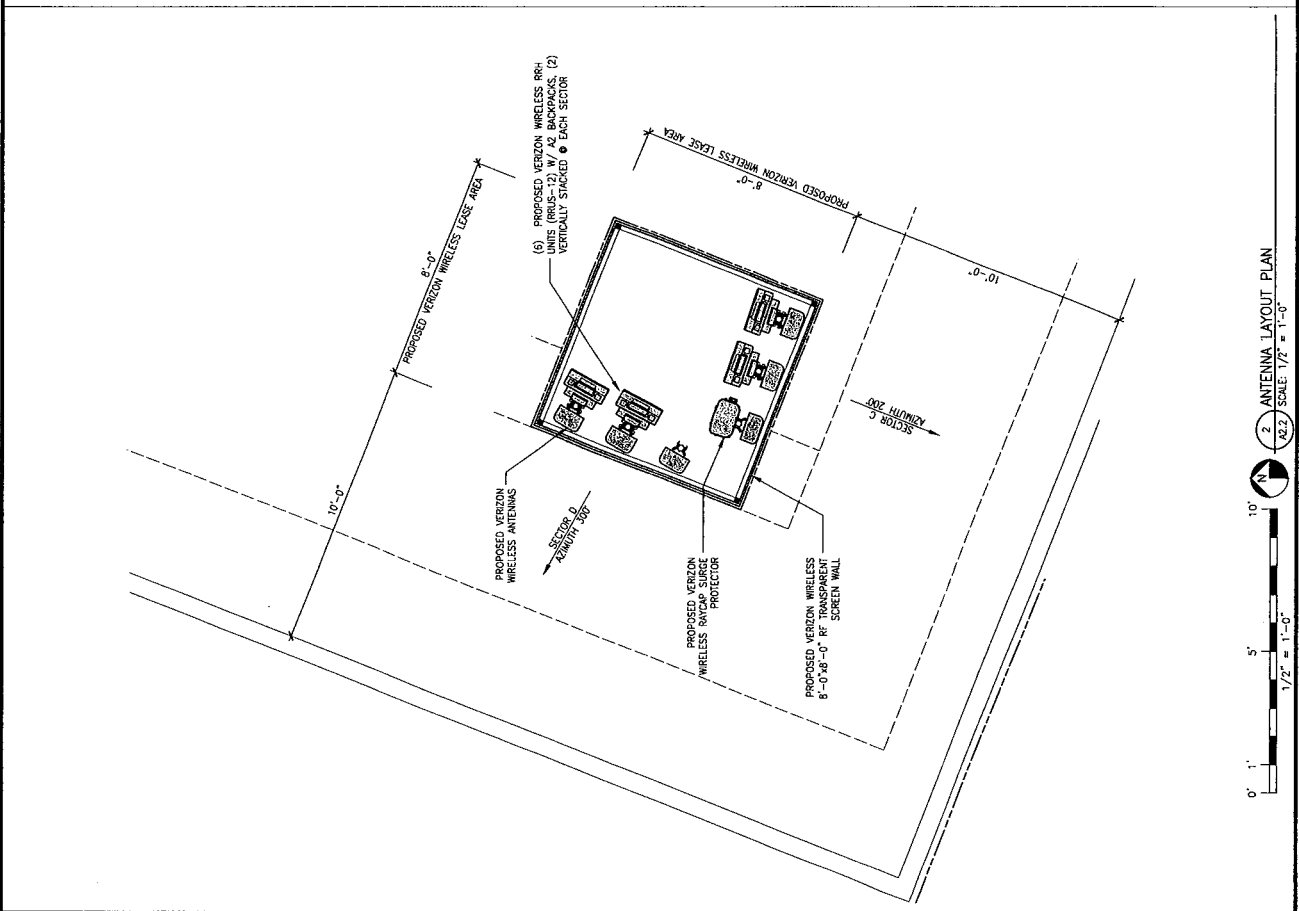
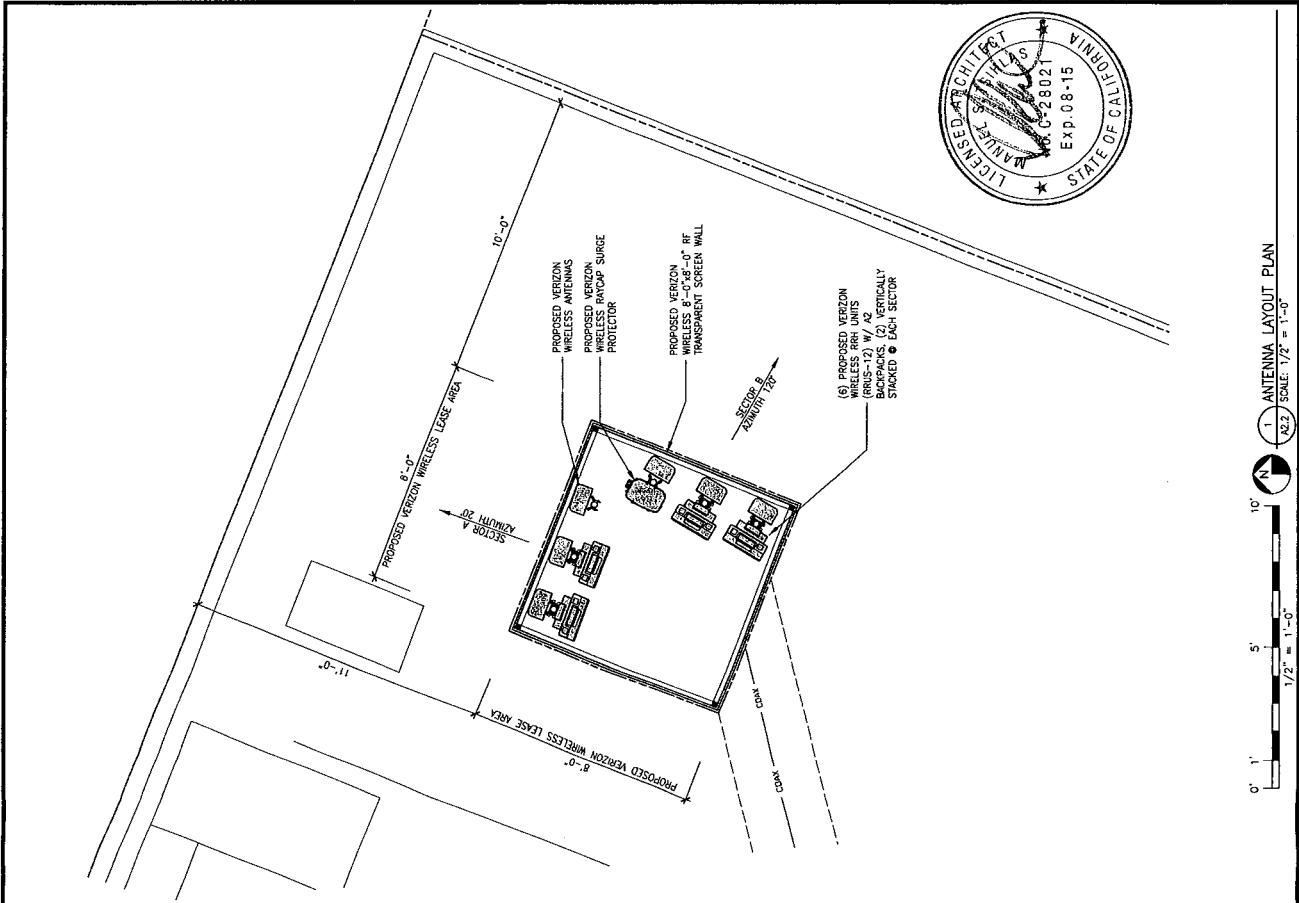
0' 1' 5' 10'

1/2" = 1'-0"

1 A2.1

EQUIPMENT LAYOUT PLAN

SCALE: 1/2" = 1'-0"





ATTACHMENT A

Existing



Proposed



view from Fruitvale Avenue looking northeast at site

AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507



296429 Hawthorne
1450 Fruitvale Avenue, Oakland, CA
Photosims Produced on 5-13-2015

Existing



Proposed



view from Fruitvale Avenue looking southeast at site

AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507



296429 Hawthorne
1450 Fruitvale Avenue, Oakland, CA
Photosims Produced on 5-13-2015



ATTACHMENT A

3140 Gold Camp Dr.
Rancho Cordova, CA 95670

Candidate Review Summary

To: Verizon Wireless-Shannon Collins and Stefano Iachella

From: The Lyle Company- Vivian Heinzl and Jerry Hanson

Date: September 22, 2014

Site: Hawthorne 296429 - 1450 Fruitvale Avenue, Oakland, CA 94601

Candidate A - Primary

Overview

The Hawthorne search ring is centered at the intersection of International Boulevard and Fruitvale Avenue in Oakland. The search ring falls within the jurisdiction of the City of Oakland and consists of a mix of commercial and residential uses. This is a capacity site which will offload the Oakland South and Coolfoot sites. The site will also provide coverage to the southwestern region of Oakland. RF requested an antenna center line of 50' for this site.

The Lyle Company discussed the search ring objectives with RF Engineer, Stefano Iachella, who indicated the importance of finding locations within or very near the center of the search ring and that a RAD center of 50' would be ideal but not essential. The area in the northeastern quadrant of the search ring was identified as his preferred site location.

Two candidates were identified in the search ring, however only one candidate, Candidate A (Fruitvale Farnam Associates) expressed interest in leasing space to Verizon. **This location has been approved by RF.** I strongly recommend this site as the primary candidate as additional viable candidates are not available.

Candidate A (Fruitvale Farnam Associates)

Lease Information:

Candidate A is a new build site at the search ring center and provides an ideal location to meet RF's objectives. Verizon will place outdoor equipment and antennas on an FRP screened rooftop platform. The platform and rooftop lease area will be 20' X 20'. Verizon's standby generator will be placed in the north corner of the rear parking lot. **The available RAD Ctr of 51' accomplishes SARF RAD Ctr objective of 50'.**

The property is owned by Park & Associates II LLC. The landlord has been very responsive and is eager to lease to Verizon. In addition, the landlord has agreed to the following terms: Initial lease rate is \$2,000 per month, 5-year initial term with four automatic 5-year term extensions, one 1-year option at \$2,000 and a 3% rent escalator.

Lease Probability: 95%

Zoning Information:

This site is located on a .254-acre parcel within the City of Oakland jurisdiction. The property is zoned for retail and office use. Verizon's equipment and antennas will be placed on an FRP screened platform on the roof. A standby generator will be placed in the north corner of the rear parking lot.

The City of Oakland's Municipal Code contains an ordinance that outlines standards that cover the siting, designing and permitting of wireless telecommunications facilities (17.128). The ordinance states "Macro Facilities may exceed the height limitation specified for all zones but may not exceed fifteen (15) feet above the roof line or parapet." (17.128.070). Verizon's FRP screen will be 10' above the 44' building and therefore complies with this requirement. This will allow for a 51' RAD centerline with 6' antennas. The ordinance also requires that "The equipment shelter or cabinet must be concealed from public view or made compatible with the architecture of the surrounding structures or placed underground." (17.128.070). Verizon's outdoor equipment and antennas will be mounted behind an FRP screened rooftop platform to mitigate visual impact.

The proposed facility is not within 1000' of a designated scenic highway.

Zoning Probability: 90%

Construction Information:

The site is located at 1450 Fruitvale Ave, Oakland, Ca 94601. It will consist of outdoor equipment and antennas mounted on a FRP screened rooftop platform. The platform and rooftop lease area will be 20' x 20'. The top of the FRP screen will be 10' above the 44' top of building. This will allow for a 51' RAD centerline with 6' antennas. With the existing 2' tall building parapet, the bottom of 6' antennas would be approximately 6' above the roof and 4' above the parapet. Other antenna locations are available but local zoning requires a one to one height to edge of building setback ratio as well as antenna screening.

A diesel generator will be located in a 12' x 7' parking stall at the northern corner of the rear parking lot. The parking lot has an existing security fence and gate this is closed at night. Bollards to protect the generator from vehicles should be sufficient.

Electrical service will come from the existing switch gear on the rear of the building. There was no access to the switch gear at the time of the walk to verify available meter sockets. If no meter sockets are available, VZW will install a new meter panel off of the existing switch gear. There is an AT&T telco box on the rear of the building. There was no access to this box at the time of the walk to verify that it is a valid POC but it was suggested that the MPOE is in an occupied office. There is natural gas on site if an alternative is needed to the diesel generator.

Site access will be the door to the stairwell at the rear of the building. There is an existing security gate on the roof access ladder.

Estimated Construction Costs:

GC:	\$130,000
Equipment & Antennas:	\$75,000
Generator:	\$25,000
Power/Telco:	\$60,000

Total:	\$290,000
---------------	------------------

Additional Site Locations Investigated:

1. A constructability walk was completed at the property located at 3256 International Boulevard, Oakland, CA 94601. It was determined that this candidate is not suitable due to the age and condition of the building. The building is a 100 year old church with questionable structure to support a full site on the roof. There is no interior or ground space available. The roof is difficult to access.

**Verizon Wireless • Proposed Base Station (Site No. 296429 “Hawthorne”)
1450 Fruitvale Avenue • Oakland, California**

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate the base station (Site No. 296429 “Hawthorne”) proposed to be located at 1450 Fruitvale Avenue in Oakland, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

Executive Summary

Verizon proposes to install twelve directional panel antennas above the roof of the three-story commercial building located at 1450 Fruitvale Avenue in Oakland. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy; certain mitigation measures are recommended to comply with FCC occupational guidelines.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission (“FCC”) evaluate its actions for possible significant impact on the environment. A summary of the FCC’s exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive FCC limit for exposures of unlimited duration to radio frequency energy for several personal wireless services are as follows:

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5–80 GHz	5.00 mW/cm ²	1.00 mW/cm ²
WiFi (and unlicensed uses)	2–6	5.00	1.00
BRS (Broadband Radio)	2,600 MHz	5.00	1.00
WCS (Wireless Communication)	2,300	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

General Facility Requirements

Base stations typically consist of two distinct parts: the electronic transceivers (also called “radios” or “channels”) that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A small antenna for reception of GPS signals is also required, mounted with a clear view of the sky.

**Verizon Wireless • Proposed Base Station (Site No. 296429 “Hawthorne”)
1450 Fruitvale Avenue • Oakland, California**

Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, “Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation,” dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna’s radiation pattern is not fully formed at locations very close by (the “near-field” effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the “inverse square law”). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

Site and Facility Description

Based upon information provided by Verizon, including zoning drawings by MST Architects, Inc., dated May 1, 2015, it is proposed to install twelve Amphenol Model HEX456CW0000 directional panel antennas within two new view screen enclosures to be installed above the northeast and southwest corners of the roof of the three-story commercial building located at 1450 Fruitvale Avenue in Oakland. The antennas would employ no downtilt, would be mounted at an effective height of about 51 feet above ground, 7 feet above the roof, and would be oriented in groups of three toward 20°T, 120°T, 200°T, and 300°T, to provide service in all directions. The maximum effective radiated power in any direction would be 10,860 watts, representing simultaneous operation at 4,460 watts for AWS, 4,160 watts for PCS, and 2,240 watts for 700 MHz service; no operation on cellular frequencies is presently proposed from this site. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.029 mW/cm², which is 3.0% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 4.7% of the public exposure limit. The maximum calculated level at the second-floor elevation of any nearby residence* is 0.88% of the public exposure limit. It should be noted that these results include several

* Located at least 70 feet away, based on photographs from Google Maps.



**Verizon Wireless • Proposed Base Station (Site No. 296429 “Hawthorne”)
1450 Fruitvale Avenue • Oakland, California**

“worst-case” assumptions and therefore are expected to overstate actual power density levels from the proposed operation. Levels are calculated to exceed the applicable public exposure limit on the roof of the subject building in front of the antennas, as shown in Figure 3.

Recommended Mitigation Measures

It is recommended that the roof access hatch be kept locked,[†] so that the Verizon antennas are not accessible to unauthorized persons. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training, to include review of personal monitor use and lockout/tagout procedures, be provided to all authorized personnel who have access to the roof, including employees and contractors of Verizon and of the property owner. No access within 22 feet directly in front of the antennas themselves, such as might occur during certain 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. It is recommended that boundaries be marked on the roof to identify areas that are calculated to exceed the FCC limits and that explanatory signs[‡] be posted at the roof access hatch and at the boundaries, readily visible from any angle of approach to persons who might need to work within that distance, as shown in Figure 3.

Conclusion

Based on the information and analysis above, it is the undersigned’s professional opinion that operation of the base station proposed by Verizon Wireless at 1450 Fruitvale Avenue in Oakland, California, 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. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Locking the roof access hatch is recommended to establish compliance with public exposure limits; training authorized personnel, marking boundaries, and posting explanatory signs is recommended to establish compliance with occupational exposure limits.

[†] If roof access hatch cannot be locked, it is recommended that secure barricades be installed instead of, and at the same locations as, the blue boundary markings shown in Figure 3.

[‡] Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.



**Verizon Wireless • Proposed Base Station (Site No. 296429 "Hawthorne")
1450 Fruitvale Avenue • Oakland, California**

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-20309, which expires on March 31, 2017. This work has been carried out under her direction, and all statements are true and correct of her own knowledge except, where noted, when data has been supplied by others, which data she believes to be correct.

May 19, 2015



Andrea L. Bright

Andrea L. Bright, P.E.
707/996-5200



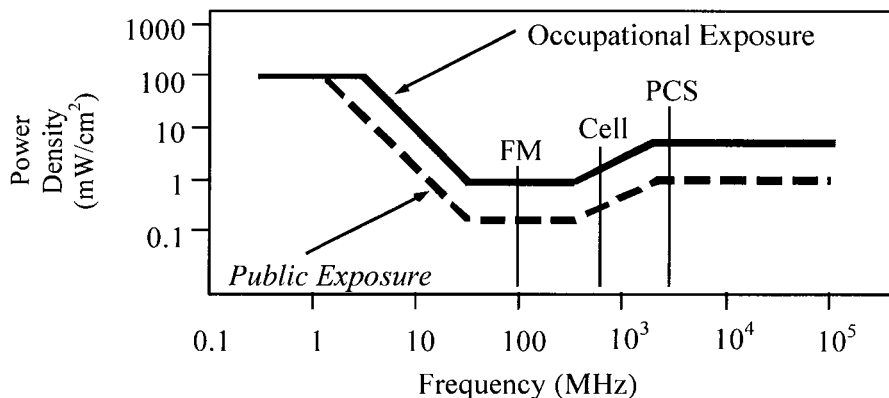
HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

FCC Radio Frequency Protection Guide

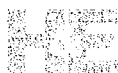
The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements (“NCRP”). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, “Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency	Electromagnetic Fields (f is frequency of emission in MHz)					
Applicable Range (MHz)	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm ²)	
0.3 – 1.34	614	<i>614</i>	1.63	<i>1.63</i>	100	<i>100</i>
1.34 – 3.0	614	<i>823.8/f</i>	1.63	<i>2.19/f</i>	100	<i>180/f²</i>
3.0 – 30	1842/f	<i>823.8/f</i>	4.89/f	<i>2.19/f</i>	900/f ²	<i>180/f²</i>
30 – 300	61.4	<i>27.5</i>	0.163	<i>0.0729</i>	1.0	<i>0.2</i>
300 – 1,500	3.54√f	<i>1.59√f</i>	√f/106	<i>√f/238</i>	f/300	<i>f/1500</i>
1,500 – 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has built those formulas into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radio sources. The program allows for the description of buildings and uneven terrain, if required to obtain more accurate projections.



RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

Near Field.

Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$, in mW/cm²,

and for an aperture antenna, maximum power density $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$, in mW/cm²,

where θ_{BW} = half-power beamwidth of the antenna, in degrees, and

P_{net} = net power input to the antenna, in watts,

D = distance from antenna, in meters,

h = aperture height of the antenna, in meters, and

η = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

Far Field.

OET-65 gives this formula for calculating power density in the far field of an individual RF source:

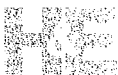
power density $S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$, in mW/cm²,

where ERP = total ERP (all polarizations), in kilowatts,

RFF = relative field factor at the direction to the actual point of calculation, and

D = distance from the center of radiation to the point of calculation, in meters.

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radiation sources. The program also allows for the description of uneven terrain in the vicinity, to obtain more accurate projections.

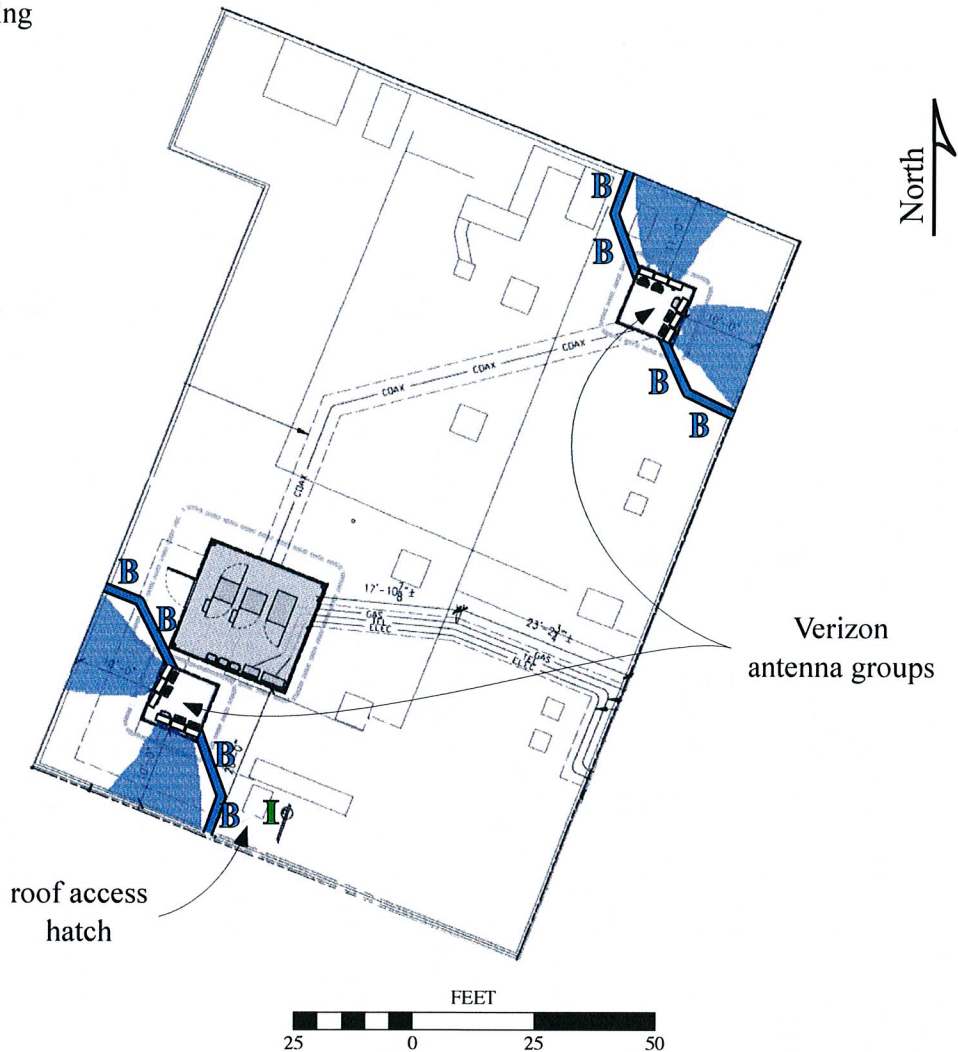


**Verizon Wireless • Proposed Base Station (Site No. 296429 "Hawthorne")
1450 Fruitvale Avenue • Oakland, California**

Calculated RF Exposure Levels on Roof

Recommended Mitigation Measures

- Lock roof access hatch*
- Mark boundaries as shown
- Post explanatory signs
- Provide training



Notes:

Base drawing from MST Architects, Inc., dated May 1, 2015.

Calculations performed according to OET Bulletin 65, August 1997.

Training should be provided to all persons with access to the roof (or just to areas within barricades, if installed).

Legend:	Less Than Public	Exceeds Public	Exceeds Occupational	Exceeds 10x Occupational
Shaded color	N/A			
Boundary marking	N/A			
Sign type	- Green INFORMATION	- Blue NOTICE	- Yellow CAUTION	- Orange WARNING

* If roof access hatch cannot be locked, install secure barricades at same locations, and in place of, outermost boundary markings shown above.



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

M4BW
Figure 3