ARLINGTON COUNTY, VIRGINIA

County Board Agenda Item
Meeting of July 9, 2011

DATE: July 1, 2011

SUBJECT: SP #78 SITE PLAN AMENDMENT for New Cingular Wireless PCS, LLC public utilities/telecommunications facility located at 1800 Jefferson Davis Highway (Sheraton Hotel Crystal City), (RPC# 36-016-004).

Applicant:
New Cingular Wireless PCS, LLC

By:
Alex Dowley
Authorized Agent
New Cingular Wireless PCS, LLC
7050 Oakland Mills Road
Columbia, Maryland 21046

C. M. RECOMMENDATION:

Adopt the attached ordinance to approve a site plan amendment to SP #78 for a public utilities/telecommunications facility for the Sheraton Hotel Crystal City, subject to the proposed conditions of the ordinance applicable only to this site plan amendment, and with no further scheduled County Board review.

ISSUES: This is a site plan amendment request for a new public utilities/telecommunications facility on an existing telecommunications facility site. No issues have been identified.

SUMMARY: New Cingular Wireless ("AT&T") is proposing to install twelve (12) new flush mounted, panel antennas and a rooftop equipment shelter for the Sheraton Hotel Crystal City. The proposed facility will function as a base transmission station for AT&T's wireless telecommunications network. AT&T is licensed by the Federal Communications Commission (FCC) and operates in full compliance with FCC regulations. The proposed rooftop equipment shelter will be 14 feet above the roofline of the hotel building and will match the exterior appearance and colors of the existing hotel building. The equipment shelter will also be setback from the building wall at distances ranging from 14 feet to 113 feet. The facility will be unmanned and only require infrequent visits by maintenance personnel. The proposed antenna and equipment shelter additions will not create an adverse visual impact on the surrounding area. The applicant provided staff an Electromagnetic Energy (EME) report for the site. The report

shows that New Cingular Wireless ("AT&T") will contribute less than five (5) percent of the maximum permissible exposure (MPE) allowed, and the site is compliant with FCC regulations. Furthermore, the proposal is consistent with the *Interim Guidelines for Telecommunications Facilities on County-Owned Property (Telecommunications Guidelines)*, which also applies to private properties and encourages the placement of antennas on existing structures. Therefore, staff recommends that the County Board adopt the attached ordinance to approve a site plan amendment to SP #78 for a public utilities/telecommunications facility for the Sheraton Hotel Crystal City, subject to the proposed conditions of the ordinance applicable only to this site plan amendment, and with no further scheduled County Board review.

BACKGROUND: There are currently antennas and related equipment that were previously approved on the site. The following provides information about the site:

Site: The site consists of the Sheraton Hotel at Crystal City.

To the north:	The Marriott Crystal Gateway Hotel at 1700 Jefferson Davis Highway (SP #144) zoned "RA-H-3.2".
To the south:	The Consumer Electronics Association building at 1919 South Eads Street (SP #258) zoned "C-2".
To the east:	Crystal Mall: Office Building 1 located at 1800 South Bell Street (SP #56) zoned "C-O".
To the west:	South Eads Street and The Crystal House Apartments

Zoning: The site is zoned "RA-H-3.2" Multiple-Family Dwelling and Hotel Districts.

Land Use: The site is designated on the General Land Use Plan (GLUP) as "High" Office-Apartment-Hotel.

Neighborhood: The site is not located within an active civic association. However, the Aurora Highlands Civic Association, Crystal City BID and two other interested parties were contacted about this site plan amendment request. As of the date of this report, they have not provided comments to staff.

DISCUSSION: New Cingular Wireless ("AT&T") is proposing to install a total of twelve (12) new flush mounted, panel antennas at the Sheraton Hotel Crystal City. There will be nine (9) antennas and three (3) future antennas measuring 54.9" x 11.8" x 6". The antennas will be finished in neutral, non-reflective materials that will match the appearance of the existing hotel building. In addition to the antennas, the applicant is proposing to install a new 11'5" x 20' equipment shelter and related utility connection equipment on the rooftop of the hotel building. The proposed rooftop equipment shelter will have a height of 12 feet and will be installed on a raised platform. The platform and equipment shelter will be 14 feet above the roofline of the hotel building. Under special provision, the Arlington County Zoning Ordinance (ACZO) allows this kind of structure to be permitted above the height limit by no more than 23 feet. The proposed equipment shelter will be setback from the building roofline by 14 feet at the shortest distance and 113 feet at the longest distance. The equipment shelter will be located within an area primarily surrounded by wide highways and commercial/office buildings and hotels.

Furthermore, the applicant agreed to a condition that the proposed rooftop equipment shelter and related utility connection equipment shall match the exterior appearance and colors of the existing hotel building (Condition #3). Therefore, the proposed antennas will not create an adverse visual impact on the surrounding area. The facility will be unmanned and only require infrequent visits by maintenance personnel.

The applicant submitted an Electromagnetic Energy (EME) Measurement and Site Compliance report that assesses the cumulative conditions for existing and proposed antennas on the site. The report demonstrates that New Cingular Wireless ("AT&T") contributes less than five (5) percent of the maximum permissible exposure (MPE) for the area. This result indicates that there will be no increase in health risk caused by the addition of twelve (12) flush mounted, panel antennas. Federal law prohibits localities from basing a decision on the environmental effects of radio frequency emissions if the facility complies with Federal Communications Commission (FCC) regulations.[1] The site is compliant with FCC regulations.

The Interim Guidelines for Placement of Telecommunications Facilities on County-Owned Property (Telecommunications Guidelines) were used to evaluate the application. The *Telecommunications Guidelines* offer direction in the way of design, visual impact, and compliance with Federal Communications Commission (FCC) regulations, among other things. The *Telecommunications Guidelines* can be applied to telecommunication facilities on privately owned as well as County-owned property. The *Telecommunications Guidelines* encourage the location of new antennas on existing structures, as opposed to constructing a new pole. The proposed antennas and equipment shelter meet these criteria. Attached are plans depicting the location and general appearance of the proposed antennas and equipment shelter.

CONCLUSION: The proposed site plan amendment is compliant with the County's *Telecommunications Guidelines* and FCC regulations. The proposed antenna and equipment shelter additions will not create an adverse visual impact on the area. The EME report shows that New Cingular Wireless will contribute less than five (5) percent of the MPE allowed. Therefore, staff recommends that the County Board adopt the attached ordinance to approve a site plan amendment to SP #78 for a public utilities/telecommunications facility for the Sheraton Hotel Crystal City, subject to the proposed conditions of the ordinance applicable only to this site plan amendment, and with no further scheduled County Board review.

[1] 47 U.S.C. § 332(c)(7)(B)(iv): "[n]o State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects or radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."

Site Plan Amendment Ordinance

WHEREAS, an application for a Site Plan Amendment dated May 6, 2011, for Site Plan #78 was filed with the Office of the Zoning Administrator: and

WHEREAS, as indicated in Staff Report[s] provided to the County Board for its July 9, 2011 meeting, and through comments made at the public hearing before the County Board, the County Manager recommends that the County Board approve the Site Plan Amendment subject to all previous conditions and new or revised conditions; and

WHEREAS, the County Board held a duly-advertised public hearing on that Site Plan Amendment on July 9, 2011, and finds, based on thorough consideration of the public testimony and all materials presented to it and/or on file in the Office of the Zoning Administrator, that the improvements and/or development proposed by the Site Plan as amended:

- Substantially complies with the character of master plans, officially approved neighborhood or area development plans, and with the uses permitted and use regulations of the district as set forth in the Zoning Ordinance.

- Functionally relates to other structures permitted in the district and will not be injurious or detrimental to the property or improvements in the neighborhood; and

- Is so designed and located that the public health, safety and welfare will be promoted and protected.

NOW THEREFORE, BE IT ORDAINED that, as requested by an application dated May 6, 2011, for Site Plan #78, and as such application has been modified, revised, or amended to include the drawings, documents, conditions and other elements on file in the office of Zoning Administration (which drawings are hereafter collectively referred to as "Revised Site Plan Application"), for a Site Plan Amendment to allow an additional public utilities/telecommunications facility known as RPC# 36-016-004, at 1800 Jefferson Davis Highway, approval is granted and the parcel so described shall be used according to the Revised Site Plan Application, subject to the following conditions:

1. The applicant agrees that the telecommunications facility will be constructed as shown on plans dated February 24, 2011 and approved by the County Board on July 9, 2011.

2. The applicant shall identify a community liaison who will be available to address any concerns regarding the facility operation. The name and telephone number of the liaison shall be provided to the Crystal City leaders and the Zoning Administrator.

3. The applicant agrees that the proposed rooftop equipment shelter and related utility connection equipment shall match the exterior appearance and colors of the existing hotel building.

4. The applicant agrees that the antennas shall be removed within ninety (90) days after any cessation of use.

PREVIOUS COUNTY BOARD ACTIONS:

September 24, 1969	Approved a site plan (Z-1945-69-1) for a 198-unit hotel (Sheraton Motor Inn).
March 14, 1973	Denied a site plan (Z-1945-69-1) for a 197-unit hotel (Ramada Inn).
November 8, 1975	Approved a site plan amendment (Z-1945-69-1) for a 168-unit hotel with reduced amenities instead of a 197-unit hotel with amenities.
March 22, 1977	Approved a site plan (Z-1945-69-1) for a 168-unit hotel (re-approval of previous site plan), subject to all previous conditions of site plan approval listed in the County Manager's report, dated October 29, 1975.
May 13, 1978	Approved a site plan amendment (Z-1945-69-1) extending the site plan approval to March 22, 1979, subject to all previous conditions of approval.
April 7, 1979	Approved a site plan amendment (Z-1945-69-1) extending the site plan approval from March 22, 1979 to March 22, 1980, subject to all previous conditions of approval.
September 15, 1979	Approved a site plan amendment (Z-1945-69-1), subject to the conditions outlined in the excerpt from the County Board minutes for the meeting of September 15, 1979.
October 18, 1980	Approved a site plan amendment (Z-1945-69-1), to revise mix of single room units and suites and to extend the expiration date to September 15, 1981; subject to the conditions of the County Manager's report dated October 2, 1980.
December 4, 1982	Approved a site plan amendment (Z-1945-69-1), for signs described in the County Manager's report of November 23, 1982, subject to the two 3' 6" x 42' 6" "Sheraton"

	signs on the North and South elevations being eliminated.
March 5, 1983	Approved a site plan amendment (Z-1945-69-1), to permit two 4' x 28' "Sheraton" signs horizontally mounted at the 12th floor level and the North and South elevations, subject to the condition that all letters be a minimum of 3" from the wall.

PROJECT INFORMATION

SCOPE OF WORK:	INSTALLATION OF WIRELESS COMMUNICATION ANTENNAS & EQUIPMENT SHELTER ON THE ROOF TOP OF AN EXISTING BUILDING. SITE IS AN UNMANNED TELECOMMUNICATIONS FACILITY.
SITE ADDRESS:	1800 JEFFERSON DAVIS HIGHWAY ARLINGTON, VA 22202
LATITUDE:	N 38° 51' 25.1056"
LONGITUDE:	W 77° 03' 09.6261"
GROUND ELEVATION:	51' AMSL
JURISDICTION:	ARLINGTON COUNTY
PARCEL ID:	36016004
ZONING:	RA-H-3.2
PARCEL SIZE:	40798 SQ. FT.
MAP PAGE	075-16
PROPERTY OWNER	18TH STREET HOTEL
MAILING ADDRESS:	1800 JEFFERSON DAVIS HIGHWAY ARLINGTON, VA 22202
PROPERTY CLASS CODE DESC.:	411-HOTEL-FULL SERVICE
NAME OF APPLICANT	NEW CINGULAR WIRELESS PCS LLC

UTILITY INFORMATION

POWER:	VEPCO	(888) 667-3000
TELCO:	VERIZON	(800) 483-5000

DRAWING INDEX

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NOTES

NOTE: MAGNETIC DECLINATION = 10° 46'W CHANGING BY 0° 0'W PER YEAR AS OF 02/14/11

at&t

AURORA HILN_CRYSTAL CITY SHERATON
10150577_4303

VICINITY MAP

DIRECTION:

DEPART 7150 STANDARD DR, HANOVER, MD 21076 ON STANDARD DR (SOUTH-WEST) 0.4 MI TURN LEFT (SOUTH-WEST) ONTO PARKWAY DR, THEN IMMEDIATELY TURN RIGHT (NORTH-WEST) ONTO PARK CIRCLE DR 0.4 MI TURN LEFT (SOUTH) ONTO COCA-COLA DR 0.4 MI TAKE RAMP (LEFT) ONTO SR-100 0.4 MI MD-100 / GLEN BURNIE, AT EXIT 9A, TAKE RAMP (RIGHT) ONTO SR-295 [BALTIMORE WASHINGTON PKWY] 20.9 MI MD-295 / BALT/WASH PKWY / WASHINGTON, TAKE RAMP (RIGHT) ONTO US-50 [NEW YORK AVE] 2.5 MI US-50 / WASHINGTON, ENTERING DISTRICT OF COLUMBIA, ROAD NAME CHANGES TO US-1 ALT [US-50] 1.3 MI ROAD NAME CHANGES TO US-50 [NEW YORK AVE NE] 0.7 MI TURN LEFT (SOUTH) ONTO I-395 4.0 MI I-395 / TUNNEL, ENTERING VIRGINIA, AT EXIT 8C, TURN LEFT ONTO RAMP 0.4 MI US-1 / POWHATAN CITY / CRYSTAL CITY / ALEXANDRIA, KEEP LEFT ONTO US-1 [JEFFERSON DAVIS HWY] 0.4 MI TURN RIGHT (WEST) ONTO LOCAL ROAD(S) 43 YDS ARRIVE AT SITE 1800 JEFFERSON DAVIS HIGHWAY, ARLINGTON, VA 22202

SCALE: 1"=4000'

NORTH

APPLICABLE BUILDING CODES AND STANDARDS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE:
VIRGINIA UNIFORM STATEWIDE BUILDING CODE (IBC 2009)

ELECTRICAL CODE:
NATIONAL ELECTRICAL CODE (NEC 2008)

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION.

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)
TIA 222-F, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES.
TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS.

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
IEEE 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM.
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT.
IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND "HIGH SYSTEM EXPOSURE").

TELCORDIA, GR-1275, GENERAL INSTALLATION REQUIREMENTS.

TELCORDIA, GR-1503, COAXIAL CABLE CONNECTORS.

ANSI T1.311, FOR TELECOMMUNICATIONS - DC POWER SYSTEMS - TELECOM ENVIRONMENTAL PROTECTION.

FOR ANY CONFLICT BETWEEN LISTINGS OF LISTED CODES AND STANDARDS REGARDING MATERIALS, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MORE RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

AT&T CONSTRUCTION: _____ AT&T RF: _____

AT&T COMPLIANCE: _____ AT&T REAL ESTATE: _____

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0	02-24-11	FINAL ZONING DRAWINGS	CDM	CDM
A	02-16-11	PRELIMINARY ZONING DRAWINGS	AWS	CDM

SCALE: AS SHOWN | DESIGNED: C. MORIN | DRAWN: AWS

BC ARCHITECTS ENGINEERS
FALLS CHURCH, VA

TITLE SHEET

DRAWING NUMBER: T-1 | REV: 0

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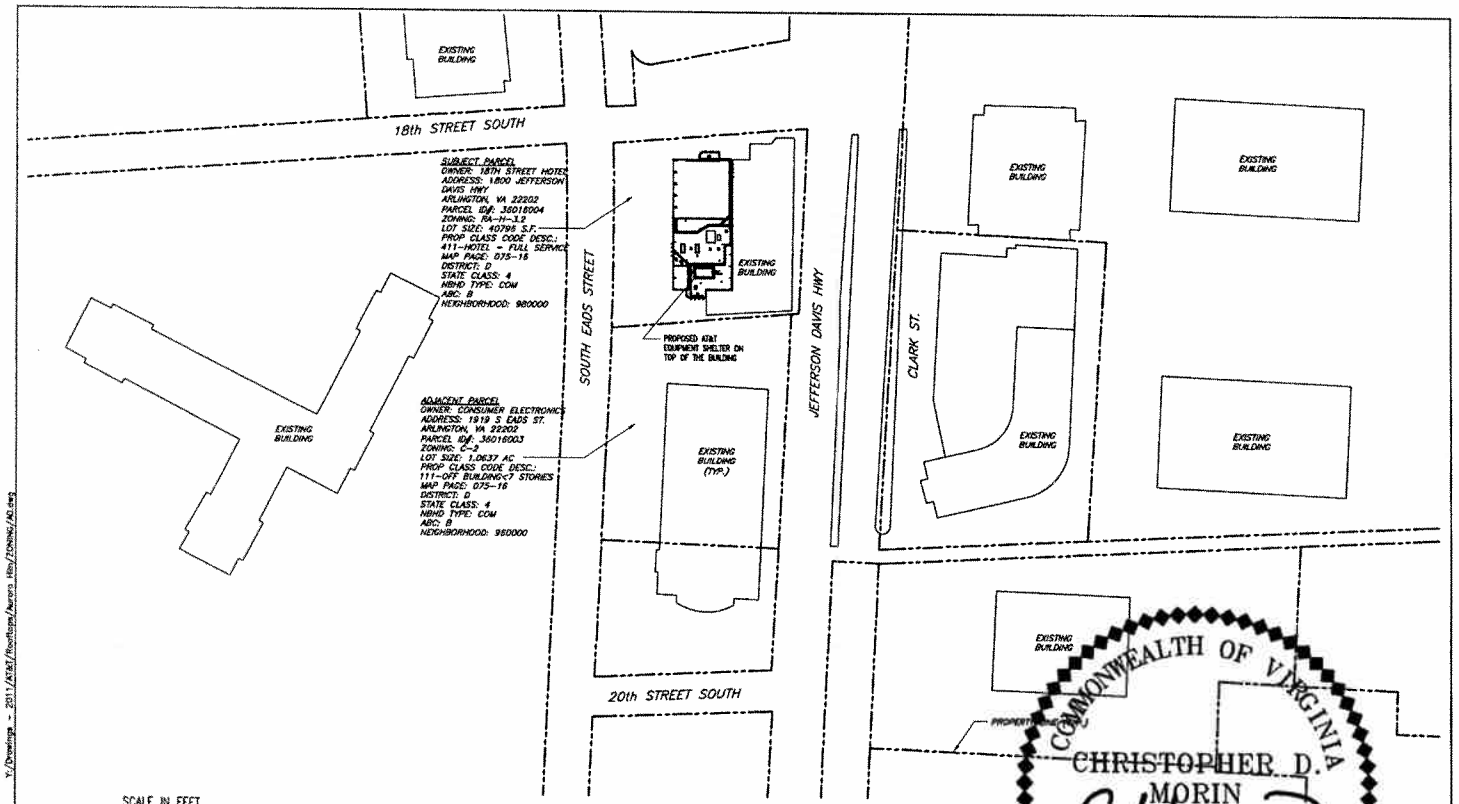

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7130 EDMANDS DR.
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NO.	DATE	REVISIONS	BY
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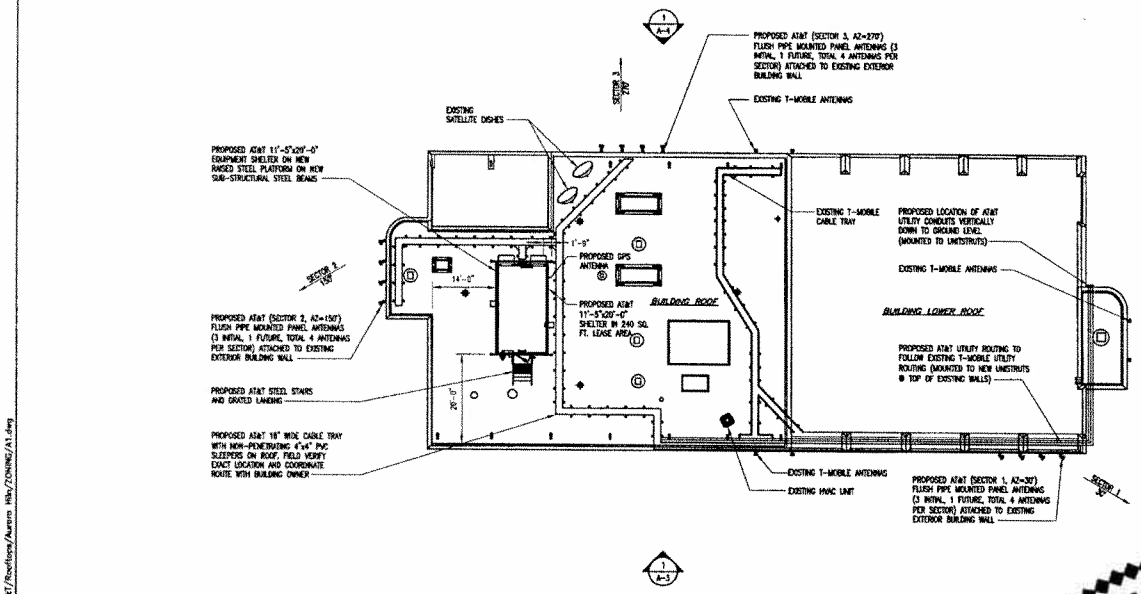
A	02-18-11	PRELIMINARY ZONING DRAWINGS	

SCALE: AS SHOWN | DESIGNED: C. MORIN | DRAWN: AWS

SITE PLAN

DRAWING NUMBER: A-0 | REV: 0



SCALE IN FEET

0 10 20 40 60

PROPOSED EQUIPMENT LOCATION PLAN AT ROOF (1/A-1)

SCALE 11x17 1"=20'
SCALE 8 1/2x11 1"=40'

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SCALE: AS SHOWN DESIGNED: C. MORIN DRAWN: AWS

PROJECT: EQUIPMENT LOCATION PLAN

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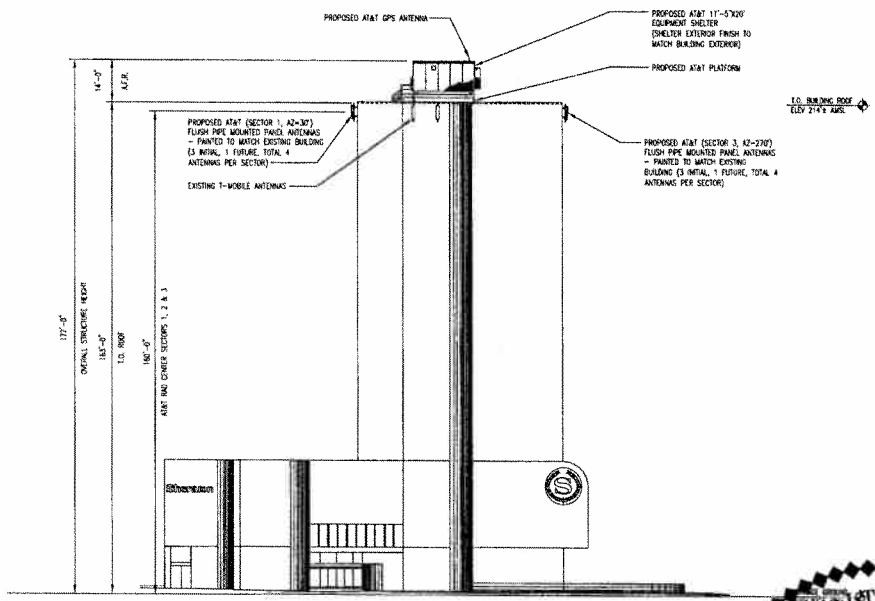

NORTH ELEVATION (1 / A-2)
SCALE: 11x17 1"=30'
SCALE: 8 1/2x11 1"=60'

SCALE IN FEET
0 15 30 60 90

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SCALE: AS SHOWN | DESIGNED: C. MORIN | DRAWN: AWS

BC ARCHITECTS ENGINEERS FALLS CHURCH, VA

NORTH ELEVATION

DRAWING NUMBER: A-2 | REV: 0

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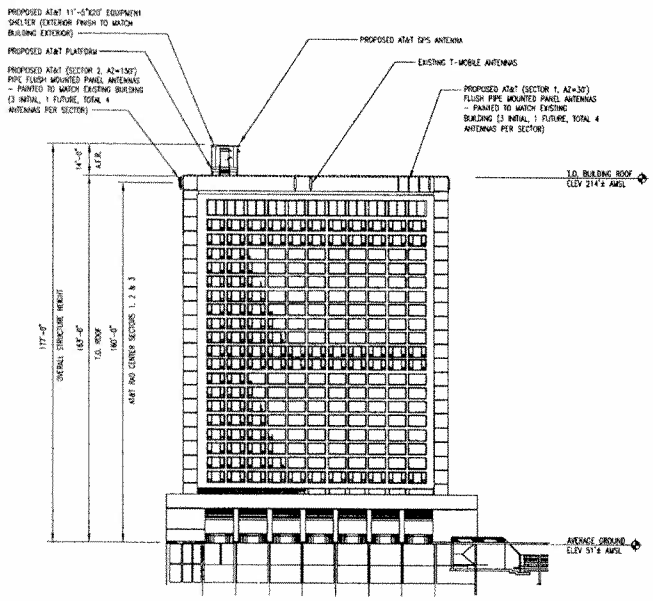
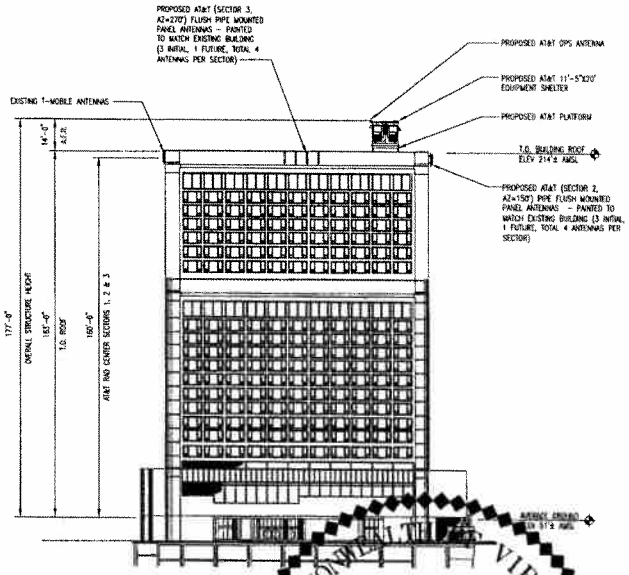


EAST ELEVATION (1/A-3)
SCALE: 11x17 1"=40'
SCALE: 8 1/2x11 1"=80'



WEST ELEVATION (2/A-3)
SCALE: 11x17 1"=40'
SCALE: 8 1/2x11 1"=80'

SCALE IN FEET
0 20 40 80 120

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SCALE: AS SHOWN DESIGNED C. MORIN DRAWN AWS

BC MORIN ENGINEERS FALLS CHURCH, VA

EAST AND WEST ELEVATIONS

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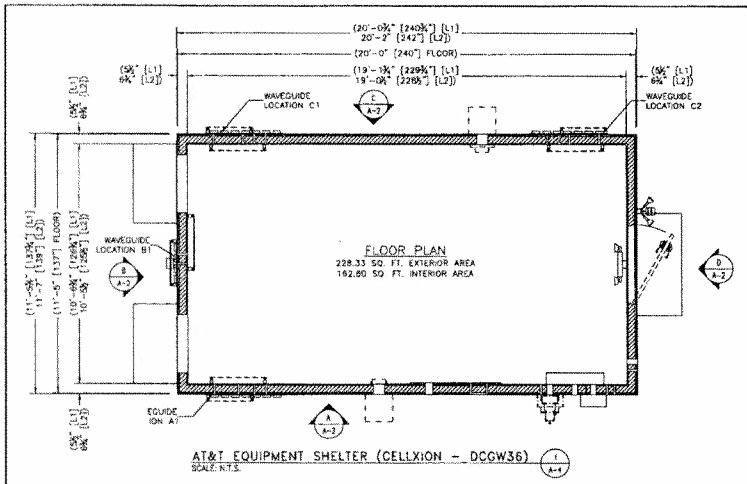
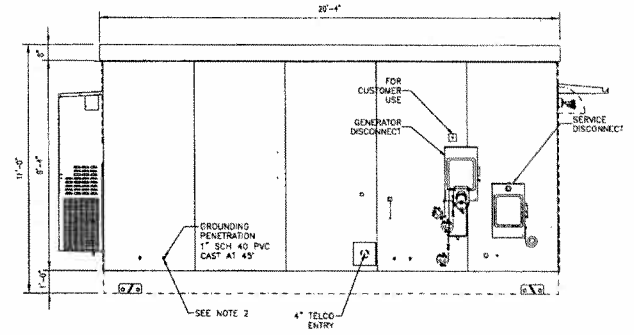
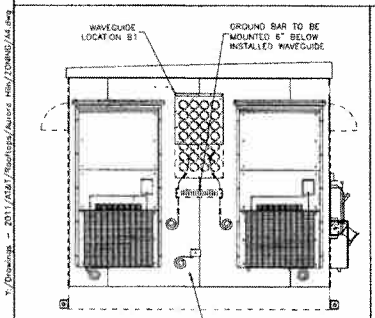


AT&T EQUIPMENT SHELTER (CELLXION - DCGW36)
SCALE: N.T.S.

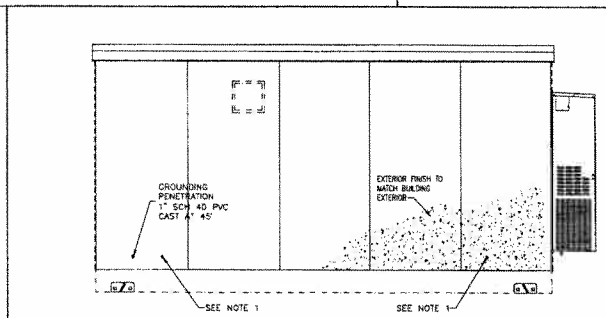


NOTES:
1. LIGHT FIXTURE TO BE INSTALLED AT MANUFACTURER, TESTED FOR FUNCTION, REMOVED AND PACKED INSIDE FOR SHIPMENT.
2. INSTALL ONLY AT REQUIRED WAVEGUIDE LOCATION

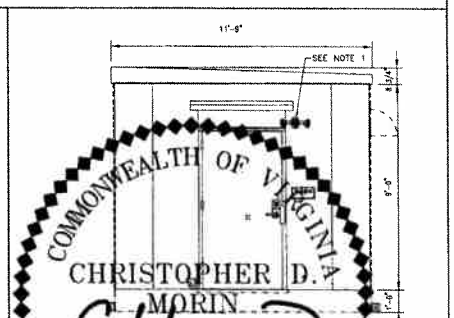
ELEVATION
SCALE: N.T.S.



ELEVATION
SCALE: N.T.S.



ELEVATION
SCALE: N.T.S.



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A	02-16-11	PRELIMINARY ZONING DRAWINGS	

SCALE: AS SHOWN | DESIGNED C. MORIN | DRAWN AWS | CHK

SHELTER DETAILS

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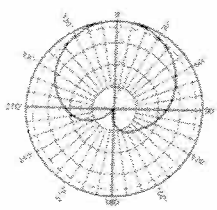
KATHREIN
SCALA DIVISION

800 10765 K
Dual Band Broadband 6', 65 Degree Antenna RET

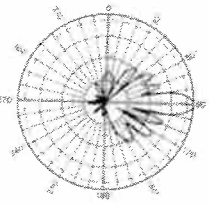
Kathrein's X-polarized antennas are designed for use in digital polarization diversity systems.

- X-polarized (+45° and -45°).
- UV resistant fiberglass radomes.
- Wideband vector dipole technology.
- DC Grounded metallic parts for impulse suppression.
- RET motor housed inside the radome and field replaceable.

698–894 MHz

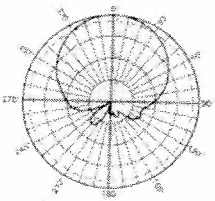


Horizontal pattern
±45°- polarization

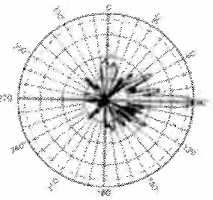


Vertical pattern
±45°- polarization
0°–10° electrical downtilt

1710–2170 MHz



Horizontal pattern
±45°- polarization



Vertical pattern
±45°- polarization
0°–10° electrical downtilt

General specifications:

Frequency range	698–894 MHz // 1710–2170 MHz
Impedance	50 ohms
VSWR	<1.5:1
Intermodulation (2x20w)	IM3:< -150 dBc
Polarization	+45° and -45°
Connector	4 x 7-16 DIN female (long neck)
Isolation	intrasystem >30 dB // intersystem >40 dB

See reverse for order information.

IRT specifications:

Logical interface ex factory[1]	AISG 1.1
Protocols	AISG 1.1 and 3GPP/AISG 2.0 compliant
Hardware interface[2]	2 x 8pin connector acc. IEC 60130-9; according to AISG: – IRTin (male): Control / Daisy chain in – IRTout (female): Daisy chain out
Power supply	10–30 V
Power Consumption	<1 W (standby); <8.5 W (motor activated)
Adjustment time (full range)	40 seconds
Adjustment cycles	>50,000
Certification	FCC 15.107 Class B Computing Devices

[1] The protocol of the logical interface can be switched from AISG 1.1 to 3GPP/AISG 2.0 and vice versa with a vendor specific command.

Please note: If the Primary of the RETsystem doesn't support the standard of the 'logical interface ex factory', the RCU must be switched to the appropriate standard of the Primary before installation. Please contact Kathrein for further information.

[2] The tightening torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

Specifications:

	698–806 MHz	824–894 MHz	1710–1755 MHz	1850–1990 MHz	2110–2170 MHz
Gain	15.3 dBi	15.8 dBi	18 dBi	18.5 dBi	18 dBi
Front-to-back ratio	>30 dB (co-polar) 34 dB (average)	>30 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)	>27 dB (co-polar) 34 dB (average)
Maximum input power per input	500 watts (at 50°C)	500 watts (at 50°C)	300 watts (at 50°C)	300 watts (at 50°C)	300 watts (at 50°C)
+45° and -45° polarization horizontal beamwidth	68° (half-power)	65° (half-power)	63° (half-power)	62° (half-power)	63° (half-power)
+45° and -45° polarization vertical beamwidth	11.8° (half-power)	10.8° (half-power)	5.8° (half-power)	5.8° (half-power)	5.8° (half-power)
Electrical downtilt continuously adjustable	0°–10°	0°–10°	0°–10°	0°–10°	0°–10°
Min sidelobe suppression for first sidelobe above main beam average	0° 5° 10° T 16 16 18 dB 18 20 20 dB	0° 5° 10° T 18 18 16 dB 20 22 20 dB	0° 5° 10° T 18 18 18 dB 20 22 20 dB	0° 5° 10° T 18 18 18 dB 20 22 20 dB	0° 5° 10° T 18 18 18 dB 20 22 20 dB
Cross polar ratio Main direction 0° Sector ±60°	25 dB (typical) >10 dB, 16 dB (avg)	20 dB (typical) >10 dB, 14 dB (avg)	25 dB (typical) >8 dB, 15 dB (avg)	30 dB (typical) >10 dB, 15 dB (avg)	25 dB (typical) >8 dB, 15 dB (avg)

RoHS Lead-Free

11209-FRO/e
936.A2693/f

AISG

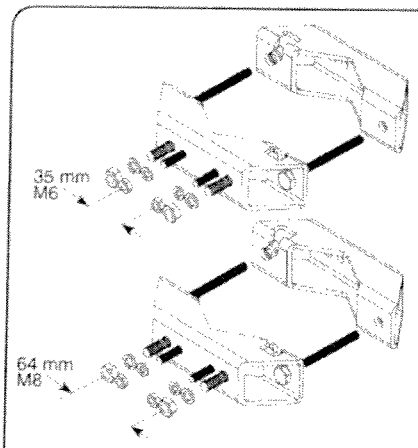
Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

KATHREIN
SCALA DIVISION

Preliminary

800 10765 K

Dual Band Broadband 6', 65 Degree Antenna RET

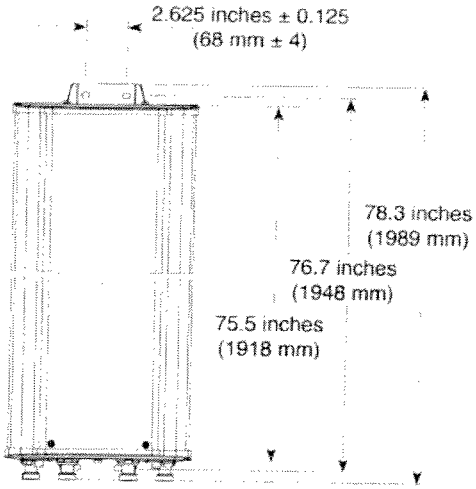


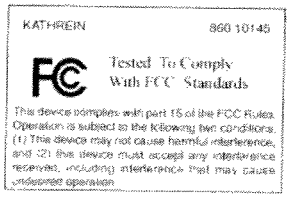
Mounting Brackets
for use with 2-point mount antennas
Mast dia. 2–4.5 inches (50–115 mm)
Weight: 4 lb (1.8 kg)

Mechanical Tilt Brackets
for use with 2-point mount antennas
Weight: 13 lb (5.9 kg)
(Model 850 10007)

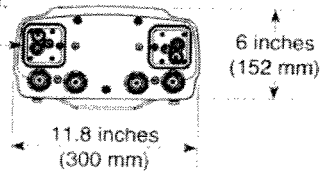
Mechanical specifications:

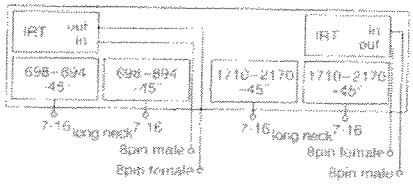
Weight	51.8 lb (23.5 kg)
Dimensions	75.5 x 11.8 x 6 inches (1918 x 300 x 152 mm)
Wind load Front/Side/Rear	at 93 mph (150kph) 221 lbf / 81 lbf / 230 lbf (980 N / 360 N / 1020 N)
Wind survival rating	150 mph (240 kph)
Shipping dimensions	85.1 x 12.7 x 7.5 inches (2161 x 322 x 190 mm)
Shipping weight	62.8 lb (28.5 kg)
Mounting	Mounting hardware included for 2 to 4.6 inch (50 to 115 mm) OD masts.





Note: Refer to part number 860 10145 for the specifications of the remote control actuator.





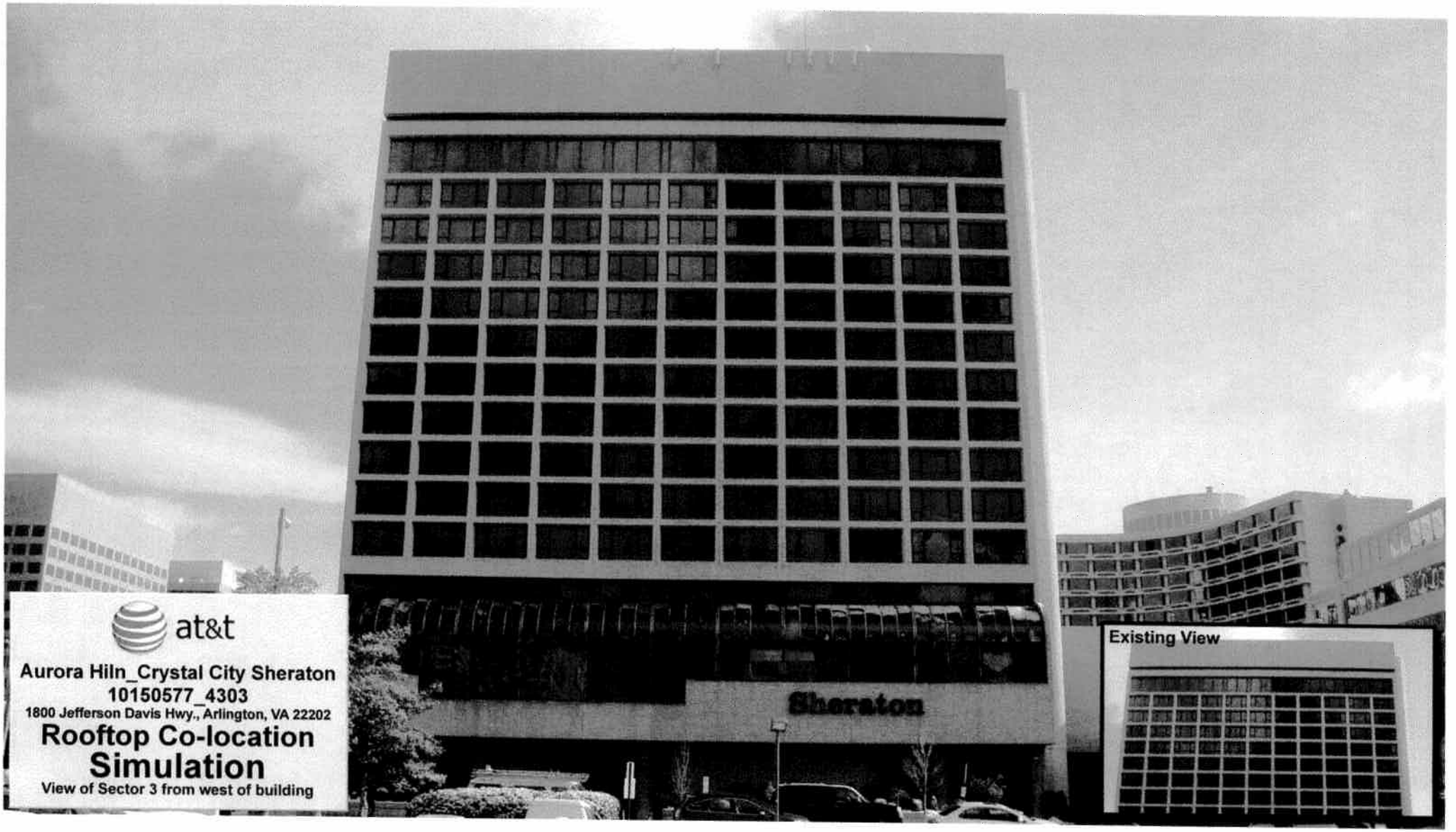
Order Information:

Model	Description
800 10765	Dualband antenna with mounting bracket 0°–10° // 0°–10° electrical downtilt
800 10765 K	Dualband antenna with mounting bracket and mechanical tilt bracket 0°–10° // 0°–10° electrical downtilt

*Mechanical design is based on environmental conditions as stipulated in TIA-222-G-2 (December 2009) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com


at&t
Aurora Hiln_Crystal City Sheraton
10150577_4303
1800 Jefferson Davis Hwy., Arlington, VA 22202
Rooftop Co-location
Simulation
View of Sector 2 & 3 from southwest of building
Existing View


at&t
Aurora Hiln_Crystal City Sheraton
10150577_4303
1800 Jefferson Davis Hwy., Arlington, VA 22202
Rooftop Co-location
Simulation
View of Sector 3 from west of building
Sheraton
Existing View


sheraton
at&t
Aurora Hiln_Crystal City Sheraton
10150577_4303
1800 Jefferson Davis Hwy., Arlington, VA 22202
Rooftop Co-location
Simulation
View of Sector 1 from northeast of building
Existing View

at&t

Aurora Hiln_Crystal City Sheraton
10150577_4303
1800 Jefferson Davis Hwy., Arlington, VA 22202

Rooftop Co-location Simulation

View of rooftop equipment shelter

Gould Digital Imaging

Bechtel Communications.

MPE Study Report
for
Site Name: Aurora Hilton
Site ID: 4303
Address: 1800 Jefferson Davis Hwy, Arlington, VA 22202
Date: 2/28/2011

Approved
Shaul (3/14/11)

NO.	DATE	REVISIONS	BY	CHK'D	APPROVALS
1	2/16/2011	Rev-0	Igor Chugunov	EW	
2	2/28/2011	Rev-1	Igor Chugunov	EW	

TABLE OF CONTENTS

1. Introduction

FCC requires all wireless antenna operators to perform an assessment of radiofrequency (RF) emissions from all the transmitting antennas at a site whenever antenna operations are added or modified, and to ensure compliance with Maximum Permissible Exposure (MPE) limit in the FCC regulations. The FCC regulations require any future antenna collocators to assess and assure continuing FCC compliance based on the effects of all proposed and existing antennas.

This analysis was completed to establish safe working distances for the Public utilizing guidelines set forth by the Federal Communications Commission (FCC) with regards to maximum human exposure limits; this has been accomplished by the use of predictive modeling software.

The modeling predictions have been done using 100% transmitter duty cycle. This will predict a worst case scenario for safety reasons. The purpose of this study is to determine safe distances for the general public from the antenna arrays and to bring the site into FCC/OSHA compliance. The predictive software tool utilizes a cylindrical model that provides spatially averaged power density that is calculated in one square foot increments (pixels). The composite RF fields are displayed as a percentage of the appropriate standard. As the plot legends will show, the RED exceeds the FCC Public MPE limits.

2. Site Description

The site Name: Aurora Hilton
Construction Number: 4303
Address: 1800 Jefferson Davis Hwy, Arlington, VA 22202
Latitude: 38.850917 N **Longitude:** 77.050639 W
Site Type: Rooftop

3. Antenna and Transmission Data

AT & T will be operating in four different frequency bands – 700, 850, 1900 & 2100 MHz - and plans to use three different technologies, called GSM, UMTS and LTE at the site. There are other operators at the site, namely, T-Mobile; unknown operator utilizes two MW dish antennas.

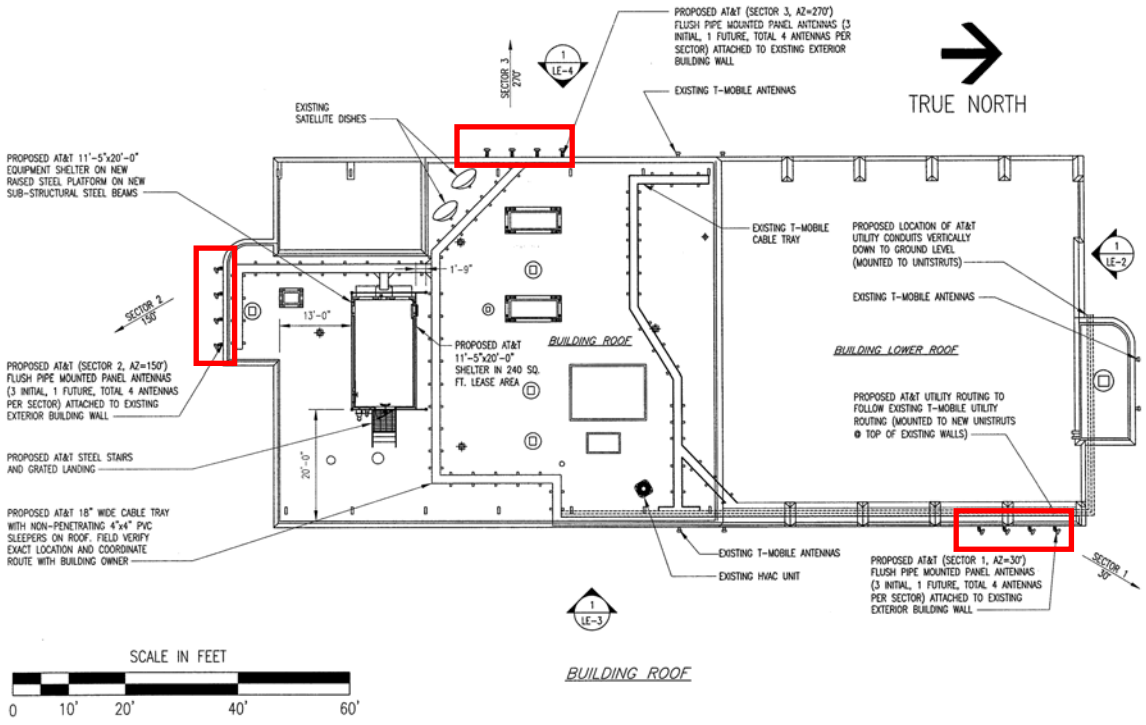
The analysis is done with the assumptions of maximum channel capacity & maximum transmitter power.

The table below summarizes the relevant technical data for the site.

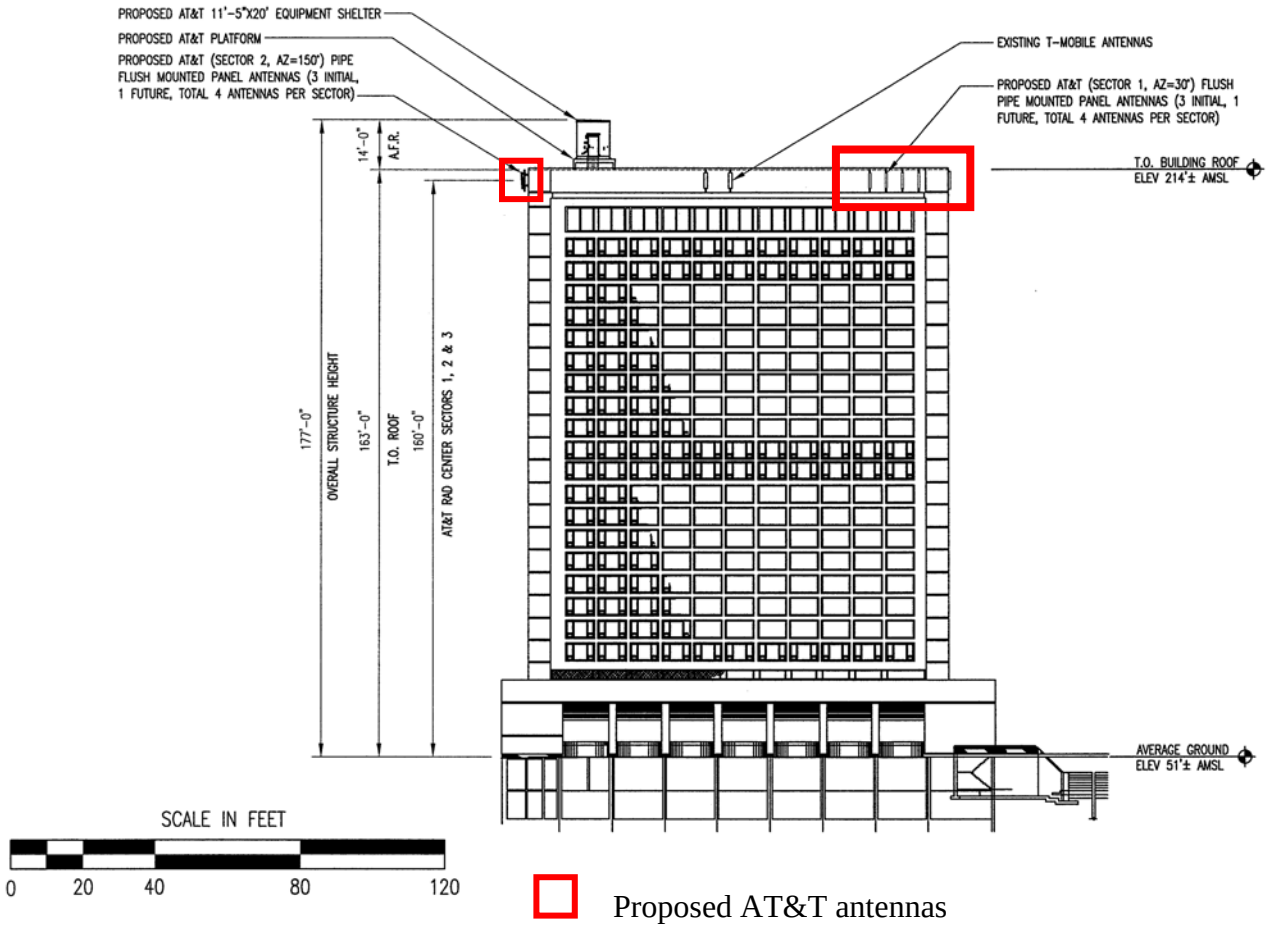
Wireless Provider	AT&T
Frequency	700 MHz
Antenna Manufacturer & Model	Kathrein 800 10765
Maximum Gain	15.3 dBi
RF Channels Per Sector (Max)	1 (LTE)
Max. Trans Power / RF Channel.	40 Watts
Antenna Center Line Position Above Ground Level	160’
Antenna Orientation	30, 150, 270 Degrees
Wireless Provider	AT&T
Frequency	850 MHz
Antenna Manufacturer & Model	Kathrein 800 10765
Maximum Gain	15.8 dBi
RF Channels Per Sector (Max)	4 (GSM), 2 (UMTS)
Max. Trans Power / RF Channel.	40 Watts
Antenna Center Line Position Above Ground Level	160’
Antenna Orientation	30, 150, 270 Degrees
Wireless Provider	AT&T
Frequency	1900 MHz
Antenna Manufacturer & Model	Kathrein 800 10765
Maximum Gain	18.5 dBi
RF Channels Per Sector (Max)	8 (GSM), 3 (UMTS)
Max. Trans Power / RF Channel.	40 Watts
Antenna Center Line Position Above Ground Level	160’
Antenna Orientation	30, 150, 270 Degrees
Wireless Provider	AT&T
Frequency	2100 MHz
Antenna Manufacturer & Model	Kathrein 800 10768
Maximum Gain	18 dBi
RF Channels Per Sector (Max)	1 (LTE)
Max. Trans Power / RF Channel.	40 Watts
Antenna Center Line Position Above Ground Level	160’
Antenna Orientation	30, 150, 270 Degrees
Wireless Provider	T-Mobile
Frequency	1900 MHz
Antenna Manufacturer & Model	Generic 1900 MHz 6’ panel antenna
Maximum Gain	16.1 dBi
RF Channels Per Sector (Max)	N/A
Max. Trans Power /sector	20 Watts

Antenna Center Line Position Above Ground Level	160’
Antenna Orientation	0,120,240 Degrees
Wireless Provider	Unknown
Frequency	8000 MHz
Antenna Manufacturer & Model	Generic 4’ MW dish antenna
Maximum Gain	42.1 dBi
RF Channels Per Sector (Max)	N/A
Max. Trans Power / antenna	0.1 Watts
Antenna Center Line Position Above Ground Level	165’
Antenna Orientation	225 Degrees

The areas surrounding antennas are not accessible to the general public, except for MW antennas. All panel antennas belonging to both AT&T and T-Mobile are flush-mounted on outside building walls.
The sketches below show the building plan with antenna position on a roof top and a building elevation.



Proposed AT&T antennas



4. ANALYSIS

The analysis methodology used for this report complies with the guidelines established by the Federal Communications Commission's (FCC) OET Bulletin 65. A copy of the bulletin can be downloaded from the FCC's website at:
http://www.fcc.gov/oet/info/documents/bulletins/#65

All analyses and graphics contained in this report were done with RoofView® [1] software. RoofView® uses a 'Near Field' and 'Far Field' approaches to calculate the RF Energy and determines the percentages of electromagnetic exposure as defined by the aforementioned bulletin. RoofView® is AT&T's approved roof top prediction software. For more information refer to the software's website:
http://www.radhaz.com/store.php/products/roofview

The RoofView software was selected to for an MPE study of this site. Such the choice was made since the antenna height is in a range of usual antenna heights in rooftop installation and because it provides actual map of power density levels.

5. RESULTS

[1] RoofView® is a trademark of Richard Tell Associates, Inc.

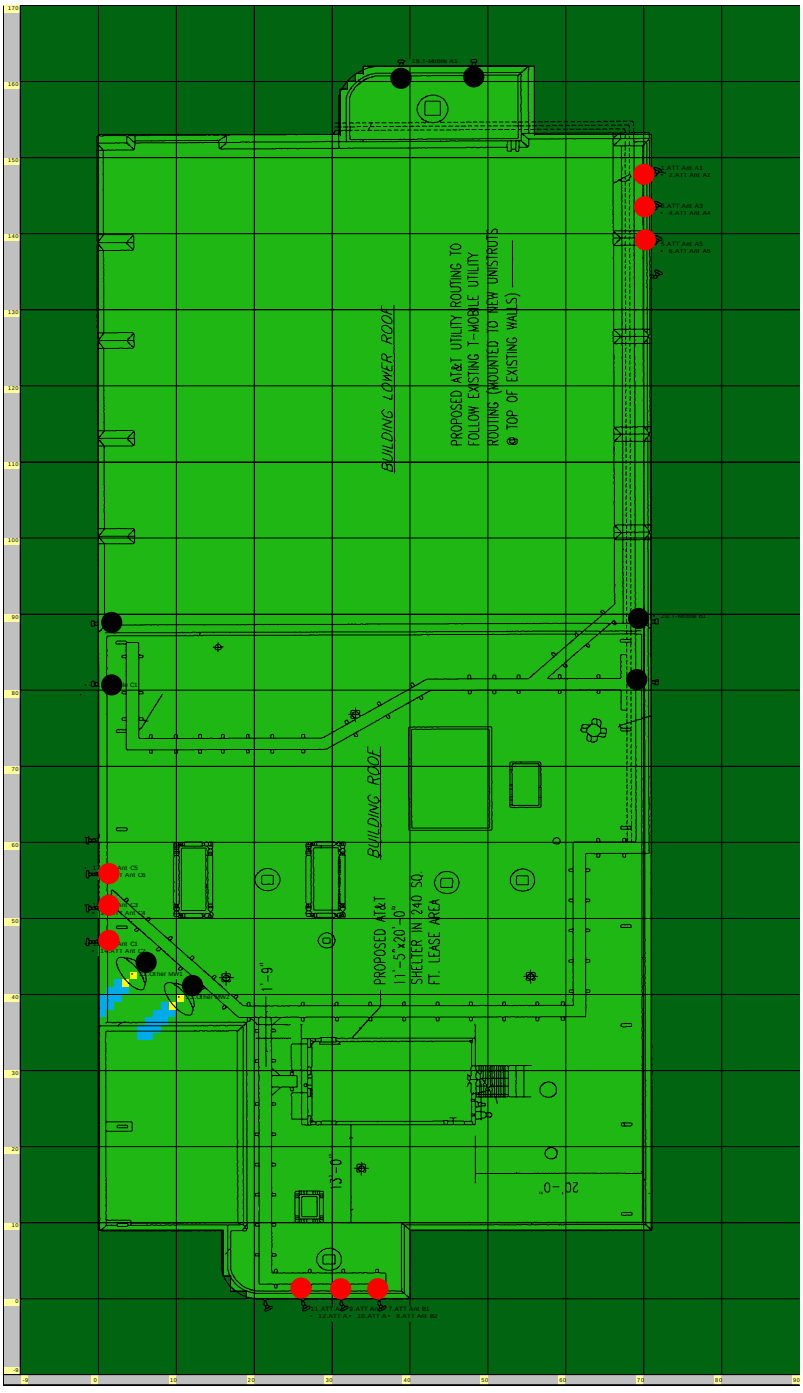
The predicted software plot of the Maximum Permissible Exposure (MPE) is given in the figure below. This site has been analyzed using the FCC PUBLIC STANDARD and FCC OCCUPATIONAL STANDARD. A representation of the building and surrounding area is shown.

NOTE: The plot grids are 10 feet increments. Individual pixels are 1 foot square.

FCC PUBLIC MPE Limits: See attachment B.
Note: Threshold definitions (see attachment C for signs)

GREEN	<= 100% of FCC Public Standards
BLUE	>100%to <=500% of FCC Public Standards
YELLOW	>500%to <=5000% of FCC Public Standards
RED	>5000% of FCC Public Standards

MPE Analysis of a building roof top



● Denotes AT&T antennas

● Denotes other operator antennas (if any)

Statistical Summary			
%MPE	SQ. FT.	%SQ. FT.	
	10654	99.15 %	of total ROOF Area
0 -100	10628	99.76 %	of Selected Area
101 - 500	22	0.21 %	of Selected Area
501 - 5000	4	0.04 %	of Selected Area
> 5000	0	0.00 %	of Selected Area
Roof Area	**10745**	**sq. ft.**	
Max %MPE	**772.3 %**		
Min %MPE	**0.1 %**		
Using Near/Far Spatial Avg Model			
With FCC 1997 Public Standard			

The above chart shows a summary of the exposure in the area where the AT&T antenna is mounted, in one square foot increments. It is seen that the worst case exposure is about 800% of the allowable limit for public exposure. This exposure occurs in front of MW antennas not belonging to AT&T

There are no walking areas around and in front of AT&T antennas.

In this case, the site is in compliance with FCC RF Safety requirements. No signage/barriers are needed except for notice sign(s) at the roof entrance(s).

6. CONCLUSION

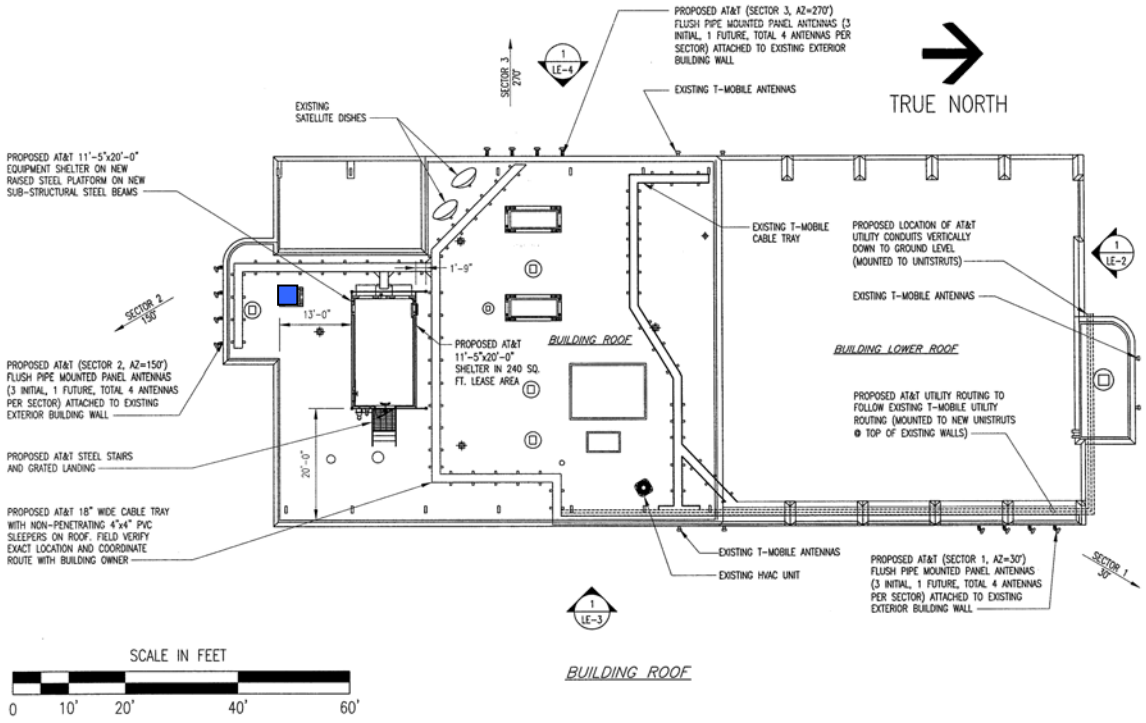
The results show that people on a roof can not be exposed to RF radiation levels in excess of the FCC PUBLIC STANDARD from AT&T antennas. Higher exposure may occur only for a person standing on the roof in front of MW antennas not belonging to AT&T. Staying away from the antennas will ensure that exposure levels are below the FCC PUBLIC STANDARD limits.

These results assume that the equipment uses the maximum transmitter capacity with 100% duty cycle and therefore are the worst case scenarios.

A Blue Notice Sign should be placed at all entrances to a rooftop. The signage will alert person who goes on a rooftop about active antennas mounted outside a roof perimeter and belonging to AT&T.

There is no walking area in front of AT&T antennas.

See the relative placement location for a signage as indicated in the figure below.

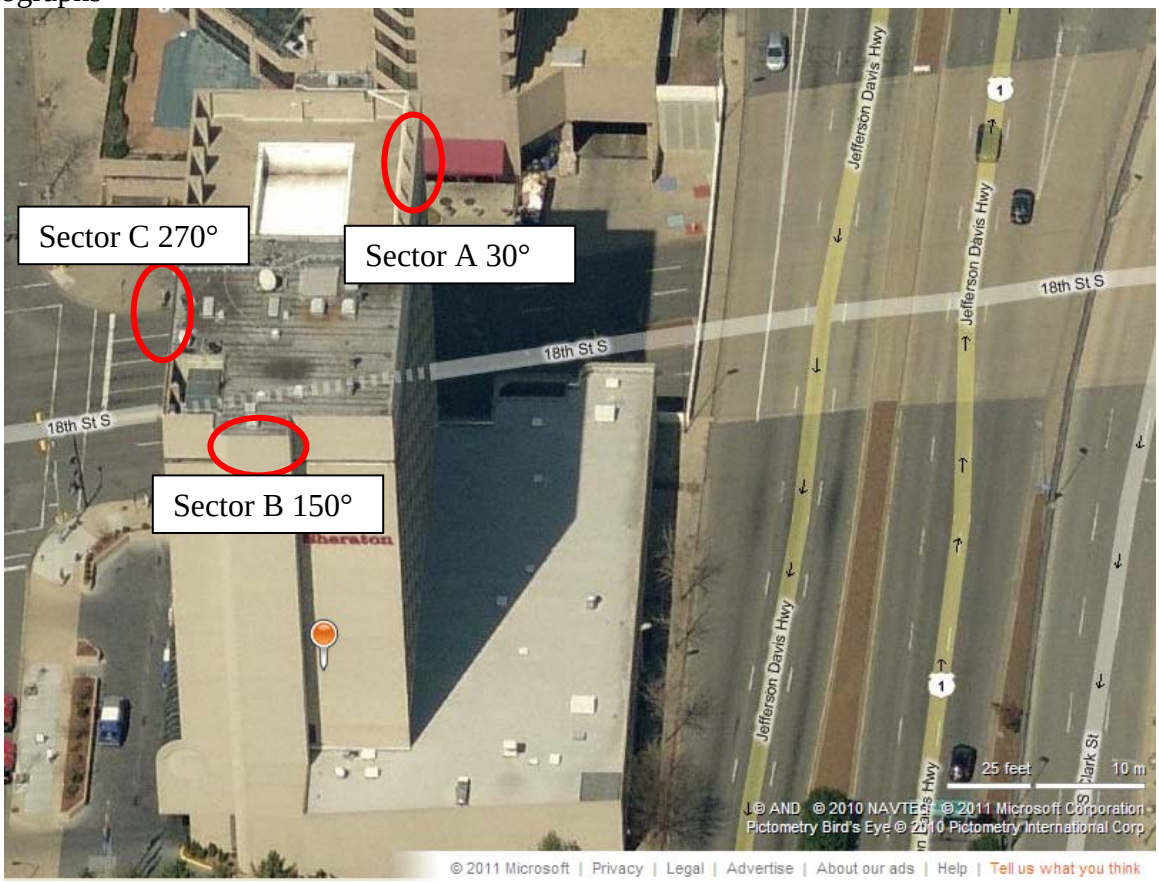


- Denotes Blue Notice Sign
- Denotes Yellow Caution Sign
- Denotes barrier

7. ATTACHMETS

ATTACHMENT A

Site Photographs



Site general view with proposed antenna positions *Photo credit of* [*http://www.bing.com/maps/*](http://www.bing.com/maps/)

Position of sector B (150°) antennas (behind a parapet, on an exterior wall)

Position of sector A (30°) antennas (behind a parapet, on an exterior wall)

Position of sector C (270°) antennas (behind a parapet, on an exterior wall)

Roof access hatch

ATTACHMENT B

Introduction to Compliance & Federal Requirements

1. Introduction to RF Exposure Compliance

This document presents the RF safety compliance policy of Cingular Wireless.

The policy's foundation is the body of Federal Communications Commission ("FCC"), Occupational Safety and Health Administration ("OSHA") and other federal and industrial best practices and standards (e.g., Institute of Electrical and Electronics Engineers ("IEEE")/American National Standards Institute ("ANSI"), and National Council on Radiation Protection and Measurement ("NCRP")) for human exposure that are accepted as the bases for radiofrequency ("RF") safety programs that provide the greatest protection against possible harmful effects of radiofrequency emissions ("RFE**"**).

Overall, it hoped that this edition's format and content will render it more appealing and of improved assistance to its users. Suggestions for further improvements are welcome.

2. Federal Requirements for RF Safety Compliance

The National Environmental Policy Act of 1969 required federal agencies to examine the effects of RFE on humans. The FCC's first RF exposure guidelines appeared in 1985 and were based on the 1982 IEEE/ANSI standards. In 1996, the FCC adopted the newer ANSI/IEEE C95.1-1992 standard. The FCC's Second Memorandum Opinion and Order (25 August 1997) effected the inclusion into the standards components of the 1996 NCRP standards that made them more stringent, though not in the frequency bands of cellular or public PCS interest.

Federal regulations impose upon wireless operators the requirement that all licensed transmitters comply with the FCC's RF exposure guidelines. The goal of this action is protection from RF exposures that exceed the levels that the FCC considers permissible from a health standpoint.

A) FCC Exposure Environments

The FCC defines two sets of exposure environments based on the awareness of persons who are being exposed. RF safety compliance centers on management of these two environments.

1. Occupational/Controlled Exposure

For FCC purposes, Occupational/Controlled exposure limits apply when persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. These exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above General Population/Uncontrolled limits (see definition below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate action.

2. General Population/Uncontrolled Exposure

For FCC purposes, General Population/Uncontrolled exposure limits apply when the general public is exposed or in which persons who are exposed as a consequence of their employment may not be

made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.

B) FCC Maximum Permissible Exposure Levels

The FCC's maximum permissible exposure ("MPE") levels for the two exposure environments are given in Table 1 and Table 2. Figure 1 is a graph of both MPEs as functions of frequency.

Table 1: MPE Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 -30	824/f	2.19/f	$(180/f^2)$*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	f/1500	30
1500– 100,000	--	--	1.0	30
f = frequency in MHz		* = Plane wave equivalent power density		

Table 2: MPE Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	$(900/f^2)$*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	--	--	f/300	6
1500– 100,000	--	--	5.0	6
f = frequency in MHz		* = Plane wave equivalent power density		

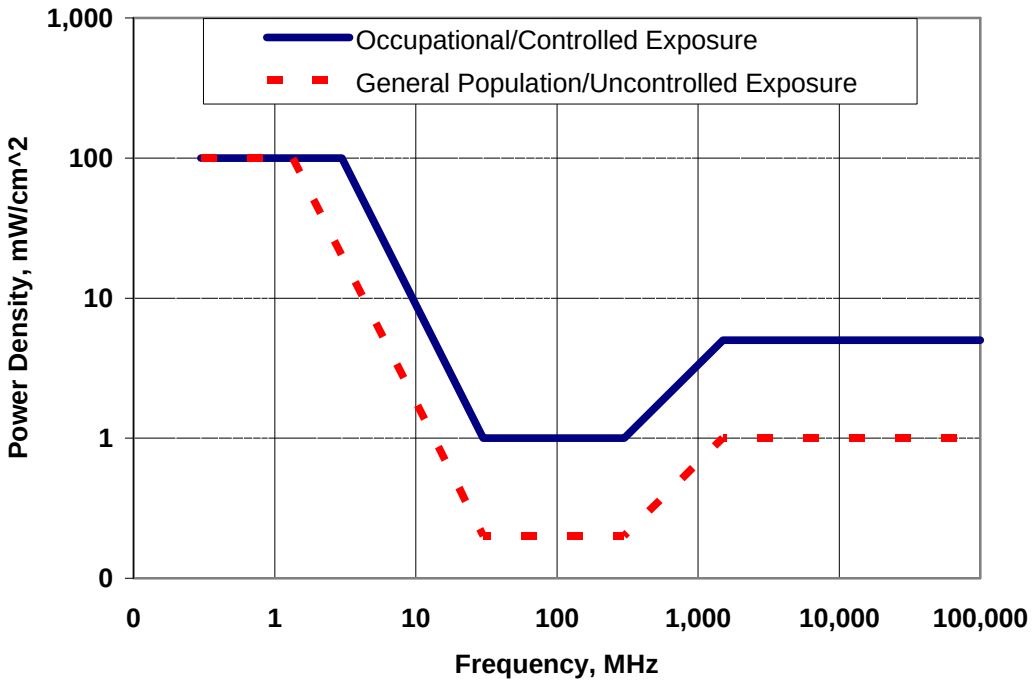


Figure 1: Graph of Maximum Permissible Exposures. Occupational/Controlled and General Population/Uncontrolled MPEs are functions of frequency.

The current FCC standards are accepted by federal agencies that are responsible for protection of public health and the environment. The Telecommunications Act of 1996 establishes the FCC's rules as a federal standard that preempts state and local regulation of RF exposure.

ATTACHMENT C

NOTICE signs alert persons that they are attempting to access an area in which RF exposure levels could potentially exceed the General Population - Uncontrolled MPE.

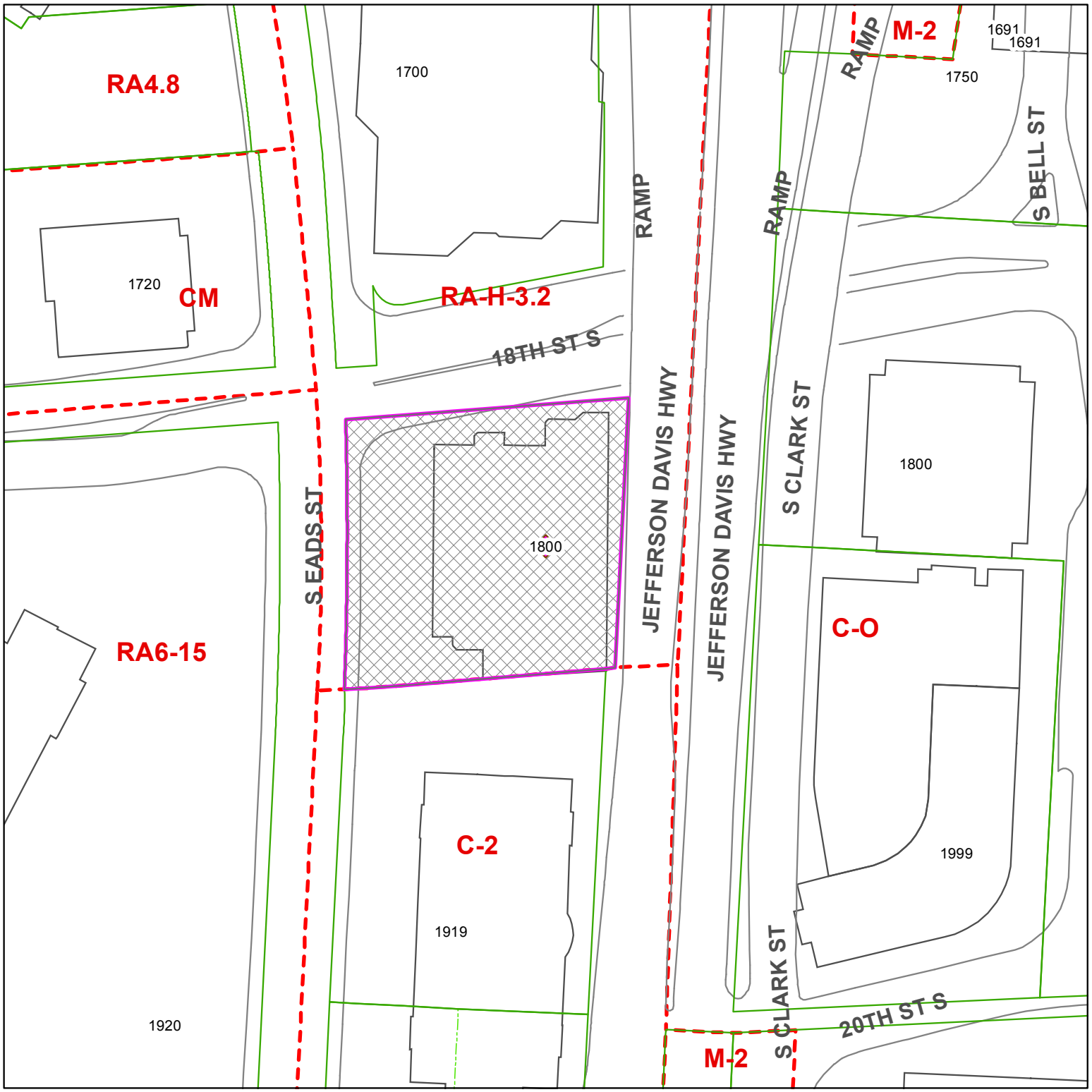
The signs must be posted in a visible area at each entrance to the site and at localized areas (in conjunction with any required barriers) when the RFE survey indicates that exposure levels in any area of the rooftop are equal to or exceed the General Population/Uncontrolled MPE.

CAUTION signs alert persons that they are attempting to enter an area in which RF exposure may exceed the Occupational/Controlled MPE.

The signs must be posted in a visible area at each entrance to the site and at localized areas (in conjunction with any required barriers) when the RFE survey indicates that exposure levels in any area of the roof top are equal to or exceed the Occupational - Controlled MPE.

WARNING signs alert persons that they are attempting to enter an area in which the RF exposure may exceed the Occupational/Controlled MPE by a factor of 10 or greater.

The signs must be posted in a visible area at each entrance to the site and at localized areas (in conjunction with any required barriers) where this level of exposure might occur.



SP #78

1800 Jefferson Davis Highway

RPC: 36-016-004

Case Location(s)

Scale: 1:1,200

Note: These maps are for property location assistance only.
They may not represent the latest survey and other information.

Department of Community Planning, Housing and Development **Planning Division**