

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square New Britain, Connecticut 06051 Phone: (860) 827-2935 Fax: (860) 827-2950

December 20, 2002

William Parker RCR Development, LLC 1 Kalisa Way, Suite 308 Paramus, NJ 07652

RE: **EM-T-MOBILE-034-021209** - Omnipoint Communications, Inc. (Omnipoint Facilities Network 2, LLC) d/b/a T-Mobile notice of intent to modify an existing telecommunications facility located at 36 Sugar Hollow Lake Road, Danbury, Connecticut.

Dear Mr. Parker:

At a public meeting held on December 19, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated December 9, 2002, and December 11, 2002. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Chairman

MAG/laf

c: Honorable Mark. D. Boughton, Mayor, City of Danbury Dennis Elpern, City Planner, City of Danbury Christopher B. Fisher, Esq., Cuddy & Feder & Worby LP

1 Kalisa Way, Suite 308 Paramus, New Jersey 07652



December 19, 2002

S. Derek Phelps
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

CONNECTICUT SITING COUNCIL

RE: Change of Applicant name for EM-T-Mobile-157-021127, EM-T-Mobile-135-021127, EM-T-Mobile-126-021209, EM-T-Mobile-034-021209, EM-T-Mobile-161-021209

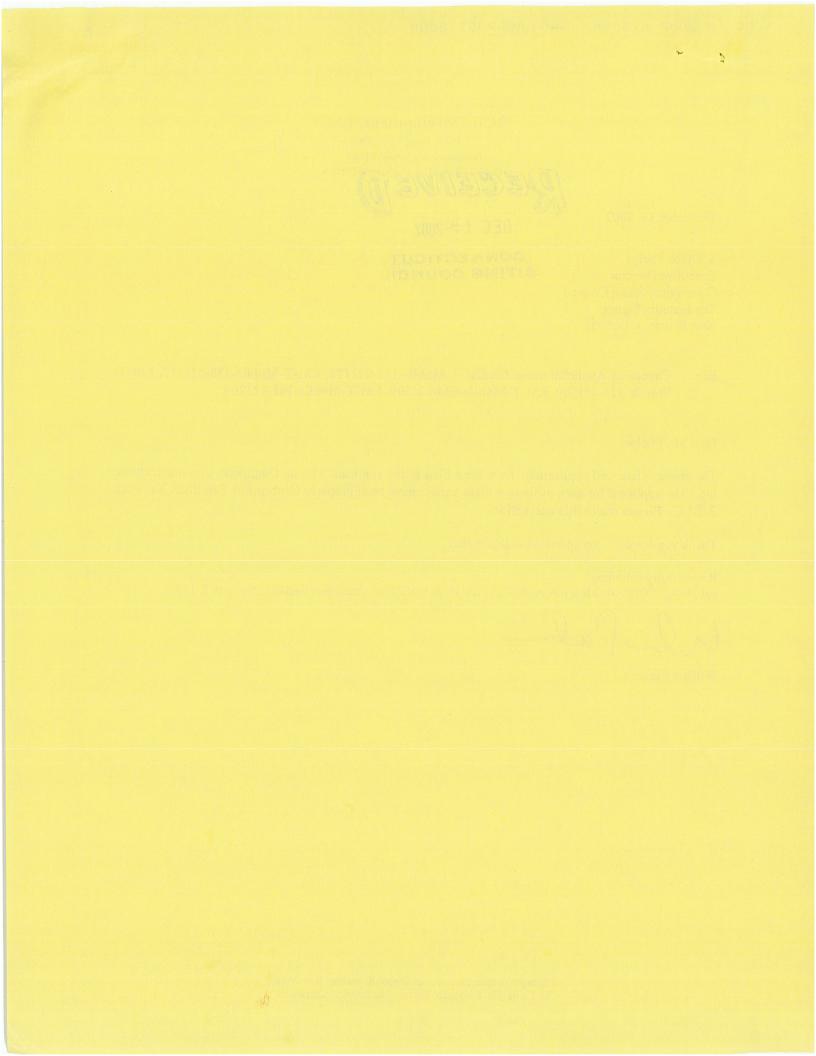
Dear Mr. Phelps:

The above referenced applications have been filed in the applicant's name Omnipoint Communications, Inc. The applicant for each of these notices should have been properly Omnipoint Facilities Network 2, LLC. Please make this correction.

Thank you for your consideration of this matter.

Respectfully submitted, RICHARD CONNOR RILEY & ASSOCIATES AS AGENT FOR Omnipoint Facilities Network 2, LLC.

William Parker



1 Kalisa Way, Ste. 308 Paramus, NJ 07652

Bill Parker

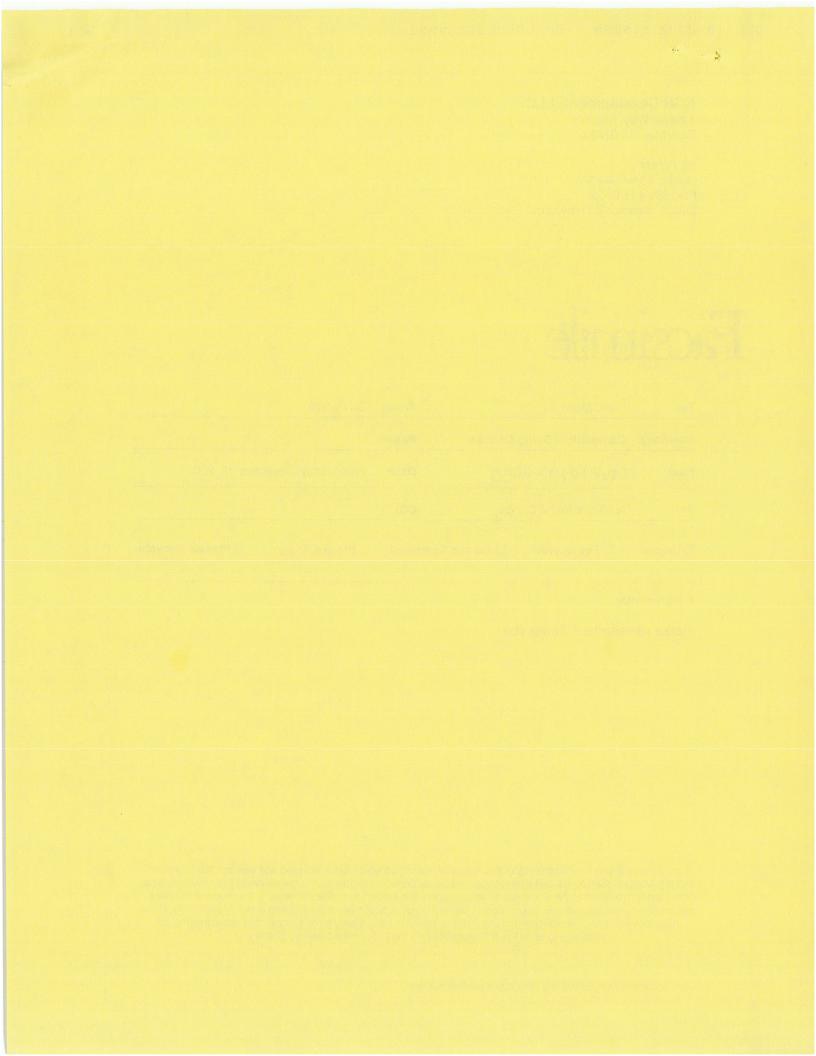
Mobile: 585-414-8526 Fax: 888-413-0209

E-Mail: wparker@rcriley.com

Facsimile

То:	David Matin Ty: Connecticut Siting Counsel (447) 827 - 2950 Applicant Name Chage		From:	Bill Parker		
Company:			Pages			
Fax:			Date:	Wednesday, December 18, 2002		
Re:			CC:			
☐ Urgent	☐ For Review	☐ Please Cor	mment	☐ Please Reply	☐ Please Recycle	
• Commer	nts:					
Please see	e attached. Thank y	ou.				

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1 Kalisa Way, Suite 308 Paramus, New Jersey 07652 O (201) 262-2229 F (201) 262-2126

December 11, 2002

S. Derek Phelps
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051



DEC 1 2 2002

CONNECTICUT SITING COUNCIL

RE: MODIFICATION of T-Mobile notice of intent to modify an existing telecommunications facility located at 36 Sugar Hollow Lake Road, Danbury, CT.

Dear Mr. Phelps:

A notice of intent to modify an existing telecommunications facility located at 36 Sugar Hollow Lake Road, Danbury, CT was filed with the Connecticut Siting Counsel on December 9, 2002. The attached detailed plans are to replace the drawing attached to the notice filed on December 9, 2002. Corrections were made to the equipment layout as shown on LE-1. The mounting scheme for the antennas has also changed as shown on LE-3. The cabinet and antenna specs as described in the notice and exhibits remains unchanged.

Thank you for your consideration of this matter.

Respectfully submitted,

RICHARD CONNOR RILEY & ASSOCIATES AS AGENT FOR T-MOBILE.

William Parker

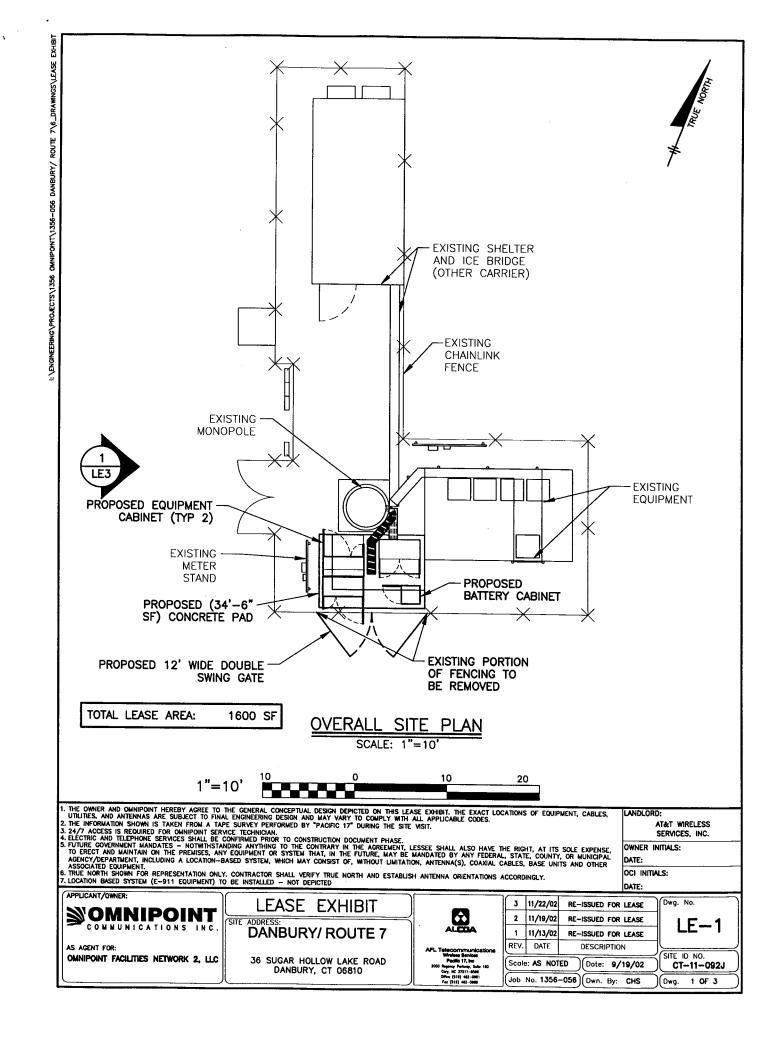
Attachments

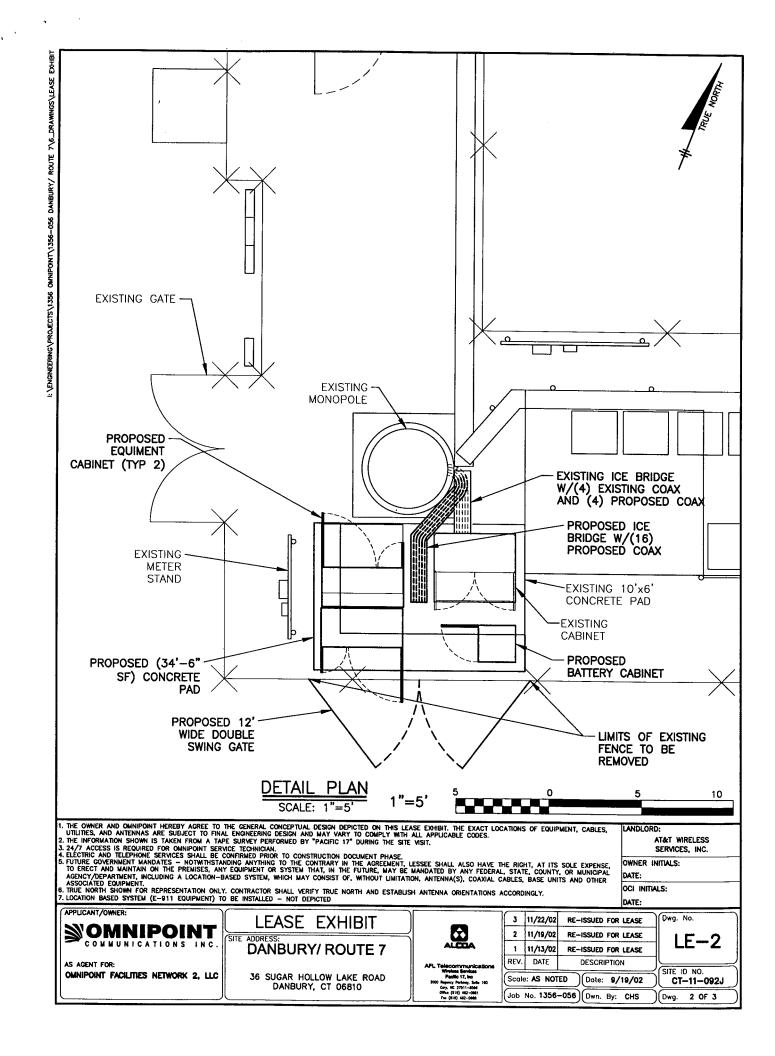
cc: Honorable Mark D. Boughton, Mayor, City of Danbury

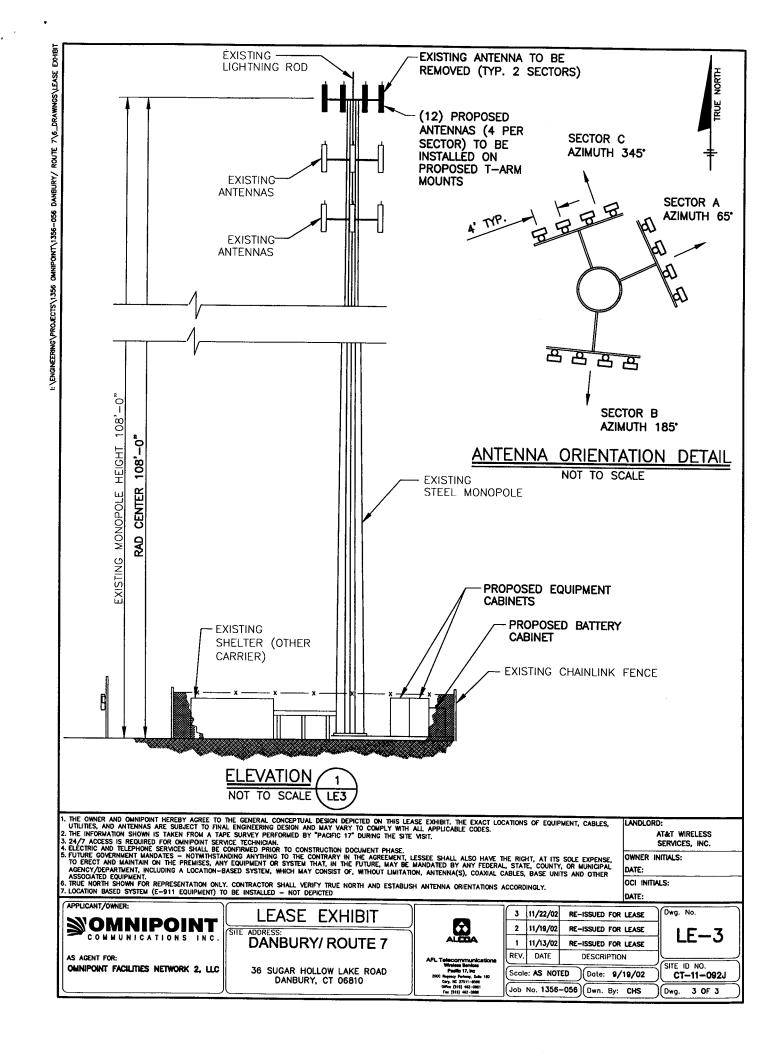
Dennis I. Elbern, Director of Planning & Zoning Department, City of Danbury



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1 Kalisa Way, Suite 308 Paramus, New Jersey 07652 O (201) 262-2229 F (201) 262-2126



December 9, 2002

S. Derek Phelps Executive Director Connecticut Siting Council Ten Franklin Square New Britain, CT 06051 CONNECTICUT
SITING COUNCIL

RE:

T-Mobile notice of intent to modify an existing telecommunications facility located at 36 Sugar Hollow Lake Road, Danbury, CT.

Dear Mr. Phelps:

I have enclosed one original plus 20 copies of the attached Notice of Modification. Also enclosed is the filing fee of one check in the amount of \$500.00. Please stamp one copy as received and return in the self-addressed envelope provided.

Thank you.

Respectfully submitted,

William Parker

RICHARD CONNOR RILEY & ASSOCIATES AS AGENT FOR T-MOBILE.

CT-11-092J

1 Kalisa Way, Suite 308
Paramus, New Jersey 07652
O (201) 262-2229 F (201) 262-2126

December 11, 2002

S. Derek Phelps
Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051



RE: MODIFICATION of T-Mobile notice of intent to modify an existing telecommunications facility located at 36 Sugar Hollow Lake Road, Danbury, CT.

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Thank you for your consideration of this matter.

Respectfully submitted,

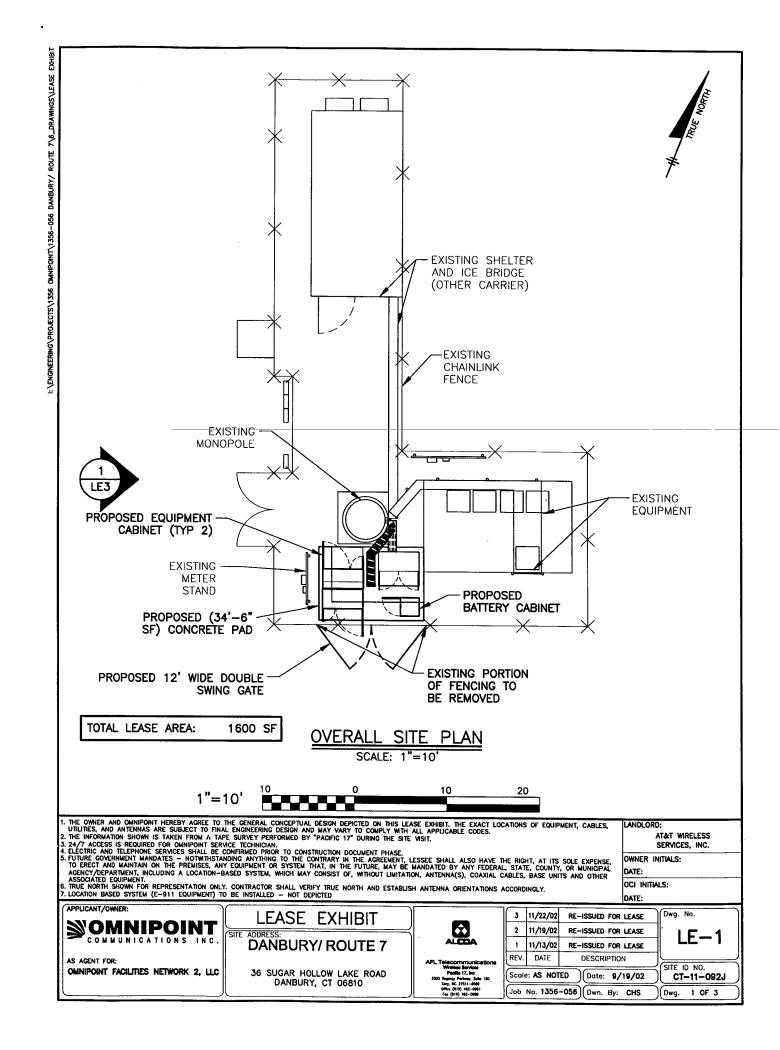
RICHARD CONNOR RILEY & ASSOCIATES AS AGENT FOR T-MOBILE.

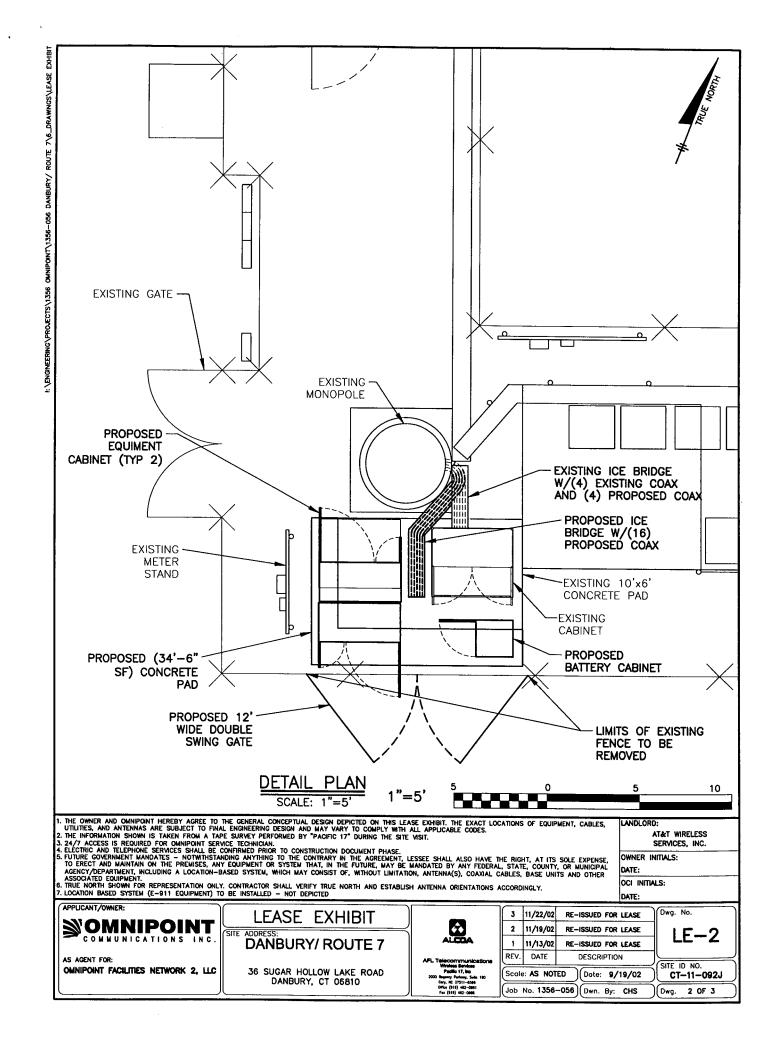
William Parker

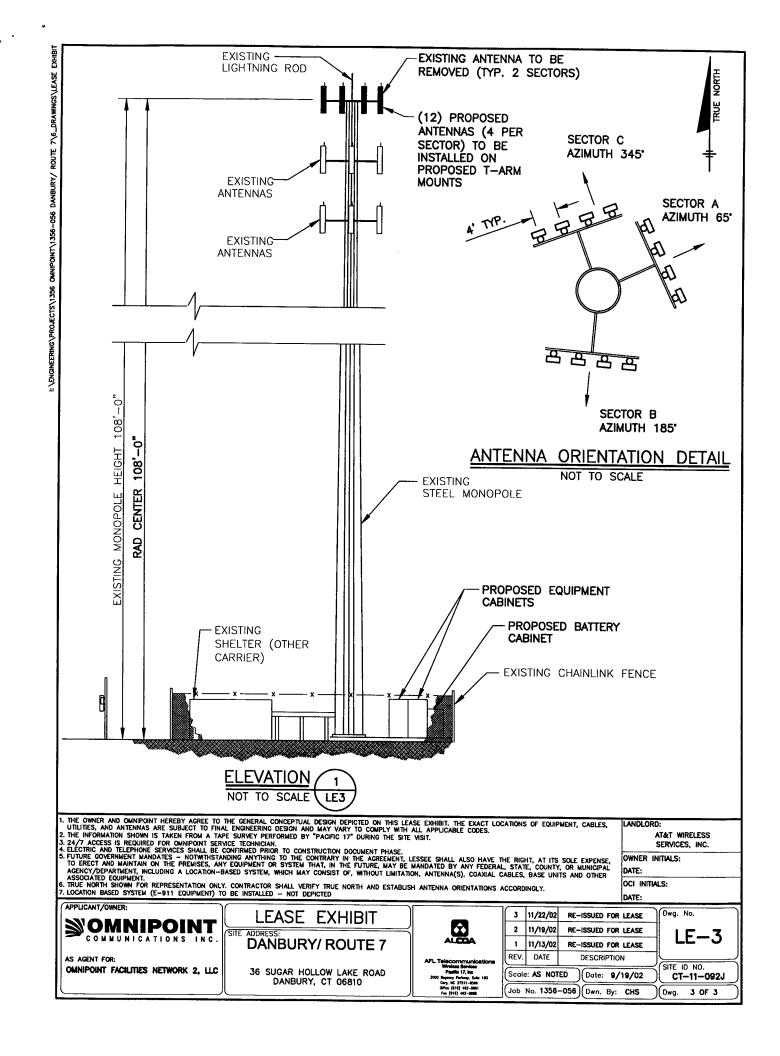
Attachments

cc: Honorable Mark D. Boughton, Mayor, City of Danbury

Dennis I. Elbern, Director of Planning & Zoning Department, City of Danbury







1 Kalisa Way, Suite 308 Paramus, New Jersey 07652 O (201) 262-2229 F (201) 262-2126



December 9, 2002

S. Derek Phelps **Executive Director** Connecticut Siting Council Ten Franklin Square New Britain, CT 06051

RE:

T-Mobile notice of intent to modify an existing telecommunications facility located at 36 Sugar Hollow Lake Road, Danbury, CT.

Dear Mr. Phelps:

Please be advised that Richard Connor Riley & Associates, L.L.C. represents Omnipoint Communications, Inc. a.k.a. T-Mobile (formerly VoiceStream Wireless Corporation) in the abovereferenced matter. Pursuant to Connecticut General Statutes §16-50aa, T-Mobile hereby requests an order from the Connecticut Siting Council ("Council") to approve the proposed upgrade of existing equipment, currently approved for shared use by the applicant of an existing tower located at 36 Sugar Hollow Lake Road, Danbury, CT. T-Mobile proposes to replace its existing antennas with twelve new antennas at the same elevation on the existing tower and replace one existing cabinet with three new Nortel S12000 BTS cabinets to be located at ground level. (see "Exhibit A"). Please accept this letter as notification, pursuant to R.C.S.A. § 16-50J-73, of construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50J-72(b)(2). In accordance with R.C.S.A. § 16-50J-73, a copy of this letter is being sent to Dennis I. Elbern, Director of Planning & Zoning Department.

Background

Effective as of the May 31, 2001 merger between Deutsche Telekom AG and T-Mobile, the corporate structure of T-Mobile has changed. T-Mobile holds the "A block" "Wideband PCS" license for the 2-GHz PCS frequencies for the greater New York City area, including the entire State of Connecticut. T-Mobile is licensed by the Federal Communications Commission (FCC) to provide PCS wireless telecommunications service in the State of Connecticut, which includes the area to be served by the proposed installation.

The tower at 36 Sugar Hollow Lake Road is an AT&T Wireless Services, Inc. 108 foot tower located on an AT&T Wireless Services, Inc. site. The coordinates for the site are 41°-20'-59" N and 73°-28'-6" W. The tower and surrounding land are owned by AT&T Wireless Services, Inc. T-Mobile and the tower owner have agreed to mutually acceptable terms and conditions for the proposed shared use of this tower, and the tower owner has authorized T-Mobile to act on its behalf to apply for all necessary local, state and federal permits, approvals and authorizations which may be required for the proposed shared use of this facility.

The compound layout of the tower site is shown in the attached Exhibit A. Existing antennas are listed on the structural analysis, attached as Exhibit C and also shown on the elevation drawing LE-3 as part of Exhibit A. T-Mobile proposes to remove its current antennas at the approximate one hundred five foot (105') centerline above the tower base plate ("ATBP"). T-Mobile proposes to replace the three existing panel antennas with twelve new antennas mounted on the existing platform to the tower. The new antennas will be comprised of an antenna cluster of three sectors, with four antennas per sector at the same one hundred five foot (105') centerline ATBP level (total of twelve). The model number for each antenna is EMS RR90-17-02 DP. The radio transmission equipment associated with these antennas is being updated. As stated above, three new Nortel S12000 BTS cabinets mounted on new concrete pad (see "Exhibit A"). No changes will be made to the compound fence, nor will the size of the compound be affected. Exhibit B contains specifications for the proposed antennas and equipment cabinets.

The planned modifications to the Danbury facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

- 1. The proposed modification will not increase the height of the tower. T-Mobile's new antennas will be installed with a centerline of approximately one hundred five foot (105') AGL, the same height of its existing antennas. The enclosed tower drawing confirms that the planned changes will not increase the overall height of the tower.
- 2. The installation of T-Mobile equipment, as reflected on the attached site plan, will not require an extension of the site boundaries. T-Mobile's proposed equipment cabinets will be replacing those already existing and located entirely within the existing compound.
- 3. The proposed modification to the facility will not increase the noise levels at the existing facility by six decibels or more. T-Mobile's equipment is self-contained and requires no additional heating, ventilation or cooling equipment.
- 4. The operation of the additional antenna will not increase the total radio frequency (RF) power density, measured at the site boundary, to a level at or above the applicable standard. The "worst-case" RF power density calculations, for a point at the site boundary, are attached hereto as Exhibit D.

For the foregoing reasons, T-Mobile respectfully submits that the proposed addition of antennas and equipment at the Danbury facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Thank you for your consideration of this matter.

Respectfully submitted,

RICHARD CONNOR BILEY & ASSOCIATES AS AGENT FOR T-MOBILE.

William Parker

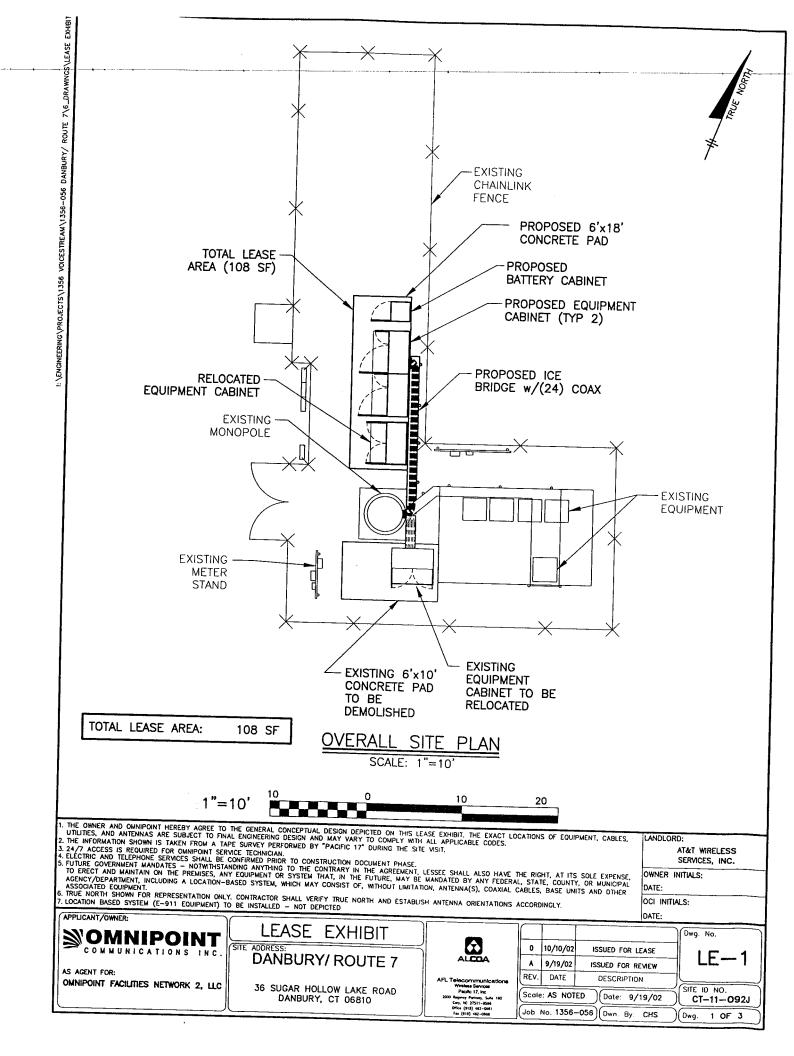
Attachments

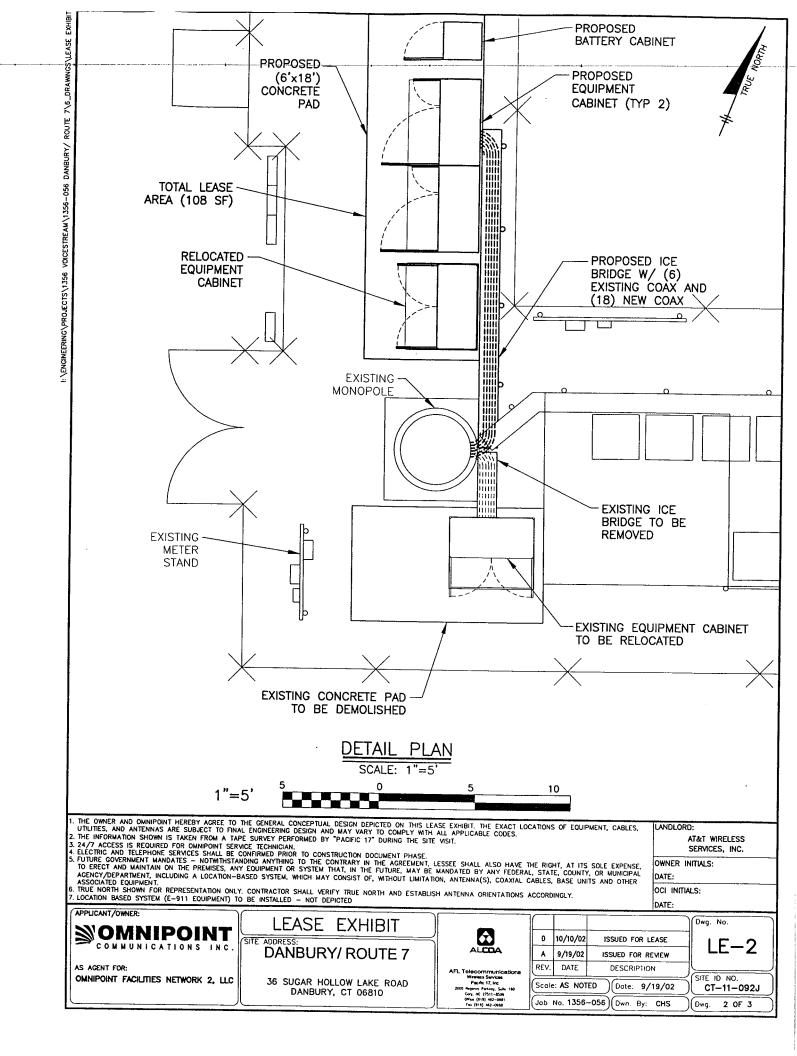
cc: Honorable Mark D. Boughton, Mayor, City of Danbury

Dennis I. Elbern, Director of Planning & Zoning Department, City of Danbury

Exhibit A

Compound Layout





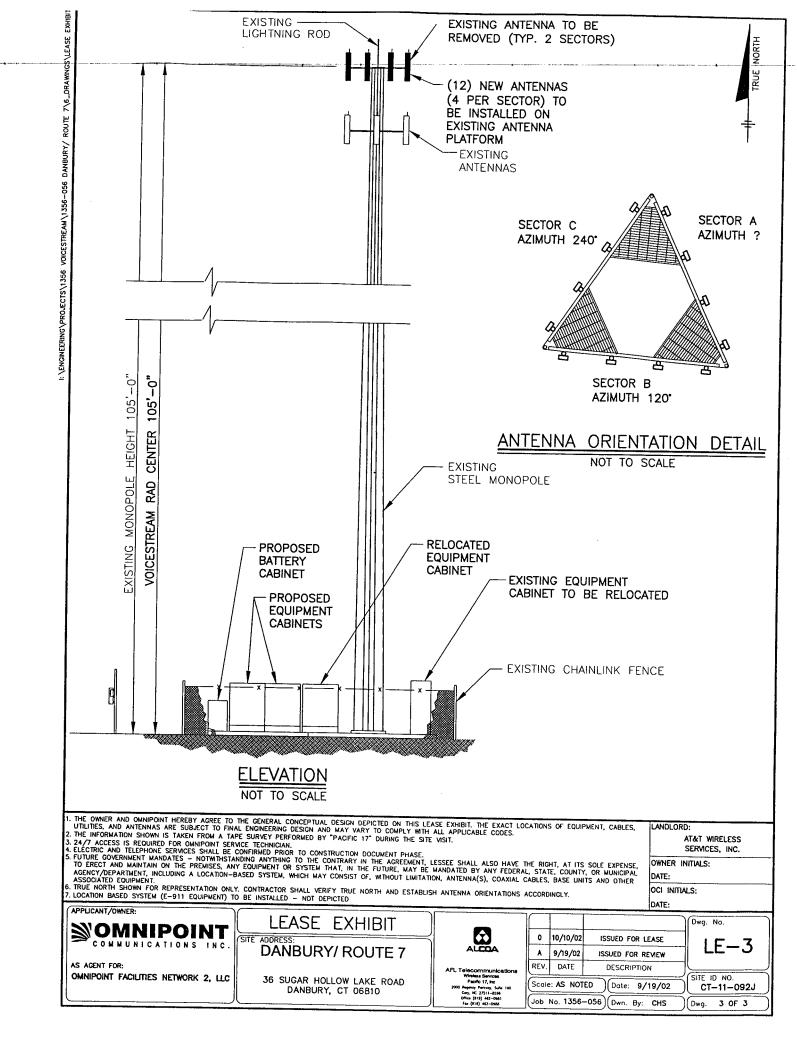


Exhibit B

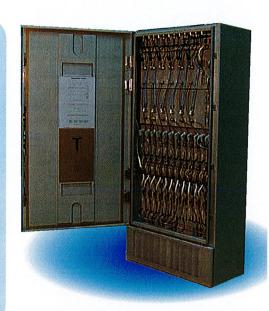
Equipment Specifications

Nortel Networks BTS S12000

As the mature GSM industry moves into the world of data, pressure has increased on capacity and so network enhancement and development costs are rising. The S12000 BTS is a product that should meet the needs of a mature GSM market by increasing site capacity and at the same time lowering the risks and the costs of introduction for existing S8000 customers. The S12000 BTS is aimed at offering high capacity in a cost effective unit, giving the right balance between product advancement, increased capacity and reduced costs.

The S12000 is built on an existing stable platform, the S8000, which is known for its quality and robustness. The reuse of a considerable amount of technology should help lower the risk and cost for the operators when introducing this new product into a mature network.

In the GSM voice and packet data environment, Nortel Networks offers an industry winning mix of quality, support and know-how only available from a company with a pedigree in carrier grade products covering voice and data.



The high capacity cell site

Pressure is building on GSM network capacity and spectrum efficiency. To address the growing needs of GSM capacity, Nortel Networks is introducing the S12000 BTS, which is an innovative development of the S8000 BTS. This innovative approach to network expansion and development is aimed at providing high capacity sites installed with low risk, reduced network impact and a lower cost of ownership.

The approach should bring protection for past investments and operational efficiency. New high capacity sites can now be added to the network or existing S8000 sites can be extended with the S12000 providing a single integrated high capacity BTS. A granularity of one carrier per TRX module adds to the flexibility of the S12000.

The S12000 could become a key component to the delivery of more capacity within a GSM/GPRS network and to drive down network costs. The S12000 offers nearly double the capacity of the S8000, thereby offering a more compact site and improved operational efficiency.

Lowering the cost of ownership and network introduction

It is not just the introduction of this evolution of a field proven and reliable technology that should reduce the cost of ownership but also the reduced spares holding and training requirements. By the design of the S12000, Nortel Networks has aimed to reduce the cost of introducing the S12000 into a mature GSM network. The S12000 should offer

the operator considerable savings in CAPEX and OPEX since all modules and skills are usable within the S8000 and S12000 BTS. The operator does not have to change the network Engineering and Operational procedures on the existing S8000 network.

Low introduction costs are invaluable when facing the financial pressures of network enhancements such as GPRS or new services such as UMTS. The use of the S12000 should put the operator in a position to make efficient use of all resources and reduce network complexity relieving pressure on investment and cash flow.



Dual DualPol® Product Data Sheets



DR85-17-XXDPL2Q

Dual DualPol® Polarization 1850 MHz - 1990 MHz



Electrical Specifications

Azimuth Beamwidth (-3 dB)
Elevation Beamwidth (-3 dB)
Elevation Sidelobes (Upper)
Gain
Polarization
Port-to-Port Isolation
Front-to-Back Ratio
Electrical Downtilt Options
VSWR

Connectors
Power Handling
Passive Intermodulation

Lightning Protection

88°
6.4°
≥ 14.5 dB
16.2 dBi (14.1 dBd)
Quad Linear, Slant (± 45°)
≥ 30 dB
≥ 33 dB
2°, 4°, 6°
1.35:1 Max
4; 7-16 DIN (female)

250 Watts CW ≤ -150 dBc [2 x 20W (+ 43 dBm)] Chassis Ground RF CONNECTORS

Mechanical Specifications

Dimensions (L x W x D)

Rated Wind Velocity Equivalent Flat Plate Area Front Wind Load @ 100 mph (161 kph) Side Wind Load @ 100 mph (161 kph) Weight 54 in x 12 in x 4 in (137.2 cm x 30.5 cm x 10.2 cm) 130 mph (209 km/hr) 4.5ft² (.42 m²) 130 lbs (576 N) 43 lbs (192 N) 24 lbs (11 kg)

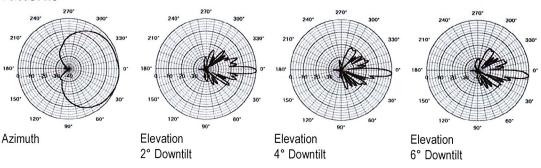


Mounting Options

MTG-P00-10, MTG-S02-10, MTG-DXX-20*, MTG-CXX-10*, MTG-C02-10, MTG-TXX-10*

Note: *Model number shown represents a series of products. See Mounting Options section for specific model number.

Patterns



Revised 05/14/02

Modular and flexible

The S12000 supports twelve TRX per cabinet and offers cost effective configurations from 2 to 16 TRX per cell in a tri-sector configuration. A dual band configuration of 6 + 6 TRX can be supported in a single cabinet for all coupling configurations. The integrated extension of existing S8000 sites gives increasable flexibility and investment protection.

High Performance

The Nortel Networks family of BTS holds a high market position for reliability, operability and service quality. The BTS provides high quality voice and data services, high coverage and building penetration and smooth call handovers.

It possesses many advanced RF feature to improve spectral usage and optimisation and so increase available capacity. The planned introduction of AMR and EDGE capabilities in the near future should further enhance spectrum efficiency. These high performance qualities are extremely important with the introduction of GPRS services.

The high performance radio and advanced digital processing of the S12000 provide one of the highest receive sensitivity in the market today, offering –115 dBm guaranteed and without the need for masthead amplifiers (-117dBm typical). The high performance radio enhances the resistance to interference, improving voice quality, data throughput, cell

coverage and service availability.

Nortel Networks experience in frequency hopping, fractional re-use, cell tiering and multi-layer management algorithms provide high spectrum efficiency which releases more capacity from a fixed allocation of spectrum.

Growing the business and ensuring success

The S12000 is future ready. The high capacity and flexibility, the introduction of AMR and EDGE, puts the operator in a position to meet the challenges and opportunities of GSM/GPRS. These advantages should enable the operator to capture new revenue, improve profitability and gain a better return on investment as the network develops and moves forward.

Frequency range		900 MHz GSM / 900 MHZ Extended GSM
		1800 MHz GSM and Dual Band GSM 900 / 1800
		850 MHZ GSM
	100	1900 MHz GSM and Dual Band GSM 850 / 1900
Receive sensitivity	w/o diversity	-110 dBm garanteed (w/o TMA)
	with diversity	-115 dBm garanteed (w/o TMA)
Dimensions	Height	1950 mm
	Width	910 mm
	Depth	450 mm
Weight	Empty cabinet	125 kg
	Fully equipped	345 kg
Capacity	Standard	12 TRX per radio cabinet
		Up to 3 radio cabinets
	Optional	Up to 4 radio cabinets
Configuration	Monoband Trisectorial	
	Dual Band Trisectorial	S222_222 (1 radio cabinet)
		Mono-BCCH dual band cells
	Cell Splitting	Cell splitting across radio cabinets
Amplifier output power	Standard	30W (+/- 0.5 dB)
	Optional	60W (+/- 0.5 dB)
Transmission coupling		All coupling configurations
		From Duplexers to 4 Ways Hybrid Coupling (H4D
Power control	Static	6 steps of 2 dB
	Dynamic	15 steps of 2 dB
Frequency Hopping		RF Synthetised
Supported vocoders		Full Rate (FR)
		Enhanced Full Rate (EFR)
		Adaptive Multi-Rate - Full Rate (AMR FR)
		Adaptive Multi-Rate - Half Rate (AMR HR)
Encryption algorithms		A5/1 & A5/2
Power supply	Nominal	DC -48 V
Operational temperature range		-5°C to +45°C
Max acoustic noise		65 dB(A)
Backhaul	Standard	6 E1 / T1 links
	Optional	8 E1 / T1 links

in North america, the Caribbean, Middle East, and Latin America: and Africa: 1cl: 1-80-c-4-Nortel Tel: 0-80-80-8008-9009* or 1-506-674-5470 or +44 (0)20 8920 4618

In Asia: Tel: 65-287-2877

for more information contact your Nortel Networks account representative, or visit: www.nortelnetworks.com/contact
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66185.13/02-02

Exhibit C

Structural Analysis

Structural Analysis of 105 ft. Monopole for Omnipoint Communications, Inc. at Danbury / RT 7

Site No: CT-11-092J

Site Name: Danbury / RT 7

Site Location: 36 Sugar Hollow Lake Rd. Danbury,

Connecticut

Date: November 5, 2002

1356.056

Prepared For:



AFL Telecommunications

Wireless Services Pacific 17, Inc 485 North Keiler Road, Suite 180 Maitiand, Florida 32751 Office (407) 661-1765 Fax (407) 661-1766

Engineer (Prepared By):
Daniel F Southwick, P.E.
2000 Regency Parkway, Suite 160
Cary, NC 27511
(919) 462-0981

TABLE OF CONTENTS

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Method of Analysis
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Conclusion
Provisions of Analysis & Disclaimer 7

Appendix

Monopole Analysis Output Appurtenance Loads Drawings LE-1 Site Plan

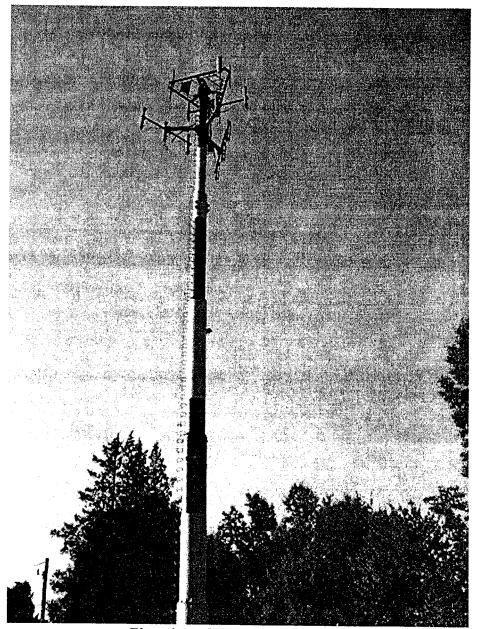
LE-2 Detail Plan

LE-3 Elevation

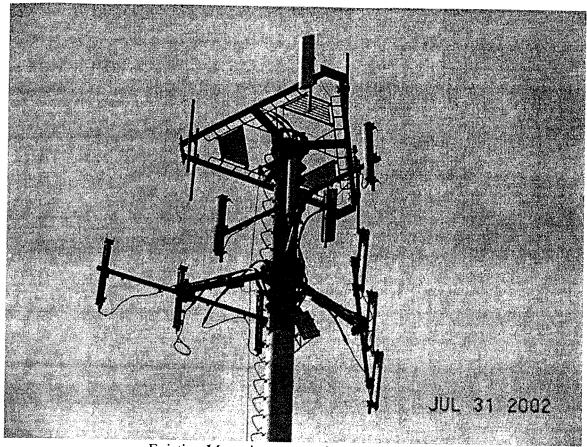
INTRODUCTION

At the request of Omnipoint Communications, Inc. (Omnipoint), Pacific 17 has performed a structural analysis on the telecommunication structure of site CT-11-092J in Danbury, Connecticut. The analysis is based on information obtained from the tower manufacturer, Pirod inc. project number 205714.

At this site, we shall be investigating the effects of adding (12) EMS panel antennas w/(24) 1 5/8" dia. coax cables on the pole with a rad center of 108' AGL.



Elevation of the 105 ft Monopole



Existing Mounting at top of Monopole

SITE LOCATION

This site is located in Danbury, Connecticut. The basic wind speed prescribed by EIA 222-F is 85 mph with no ice and 74 mph with ½" of ice.

REPORT SUMMARY

This statement highlights the conclusion section. Additional information, assumptions and requirements are contained within this report and should be reviewed. <u>Passed</u> indicates modification is within allowable stress range. <u>Failed</u> indicates modification is outside allowable stress range and recommendations are contained within.

STRUCTURAL ANALYSIS: <u>PASSED</u> FOUNDATION ANALYSIS: <u>PASSED</u>

ANALYSIS CRITERIA AND LOADING

The monopole is analyzed with the existing appurtenances along with the proposed configuration of antennas and coaxial cables. Its behavior was studied under the provisions of TIA/EIA-222-F with a wind speed of 85 mph with no radial ice (74 mph with $\frac{1}{2}$ " radial ice). The following table lists the appurtenance loading considered for the analysis:

Claustin	Antenna		Mounting		Coaxial Transmission Cables	
Elevation (ft)	Qty	Туре	Qty	Туре	Qty	Dia. (in.)
105	12	PROPOSED EMS RR65-19-00 PANEL	1	EXISTING LOW PROFILE PLATFORM	24	1-5/8
105	2	ASSUMED EXISTING DB980 PANEL			2	1-5/8
95	9	ALLGON 7262 PANEL	3	EXISTING 12' T-MOUNTS	9	1-5/8

Since some of the mechanical and physical properties of the existing appurtenances were unavailable, the dimensions have been determined from pictures and measurements taken during site visits. Their weight was established from catalogs of manufacturers who developed similar mountings and antennas. If Omnipoint has more specific information about the existing appurtenances mounted on this tower, it should be forwarded to Pacific 17 for review.

METHOD OF ANALYSIS

The analysis was performed with the help of the software PLS Pole. A model of the structure was created with the information contained in Pirod's structural drawings # 205714-B dated 06/07/2000. The model was analyzed under the provisions of EIA/TIA 222-F.

Allowable stresses were compared with the maximum stresses developed for each member and connection of the tower under extreme weather conditions. The proper material properties and end connectivity were assigned to each member to reflect the structural behavior of the tower.

RESULTS

A. Steel Members

The following represents the performance characteristics of the tower members under extreme wind loads. The capacities of the members and connections include the EIA allowable stress increase of 33% for wind load cases. The results of the analysis are confined in the output excerpt included in appendix A of this report. The value 1.00 represents full capacity used with no reserve.

ELEVATIONS	LOAD/CAPACITY	
80'-105'	25%	
40'-80'	50%	
0'-40'	64%	

All structural members are within allowable capacity. The connections of the members are also adequate for the revised loads.

B. Foundations

The foundation design reactions obtained from this analysis are compared with the values provided by the manufacturer's design drawings. The following lists the magnitude of the reactions at the base of the tower.

REACTIONS	ANALYSIS	DESIGN
SHEAR	13.69 kips	13.4 kips
DOWNWARD	23.3 kips	26.4 kips
MOMENT	921.1 kip-ft	1049.3 kip-ft

The magnitudes of the analysis reactions are within 2% of the original design base reactions values. Therefore the foundation is deemed adequate to resist the new proposed loading.

C. Tower Deflections

During extreme wind, the structure will undergo displacements that will affect the performance of the emitting equipment. They are presented for information only and should be forwarded to an RF Engineer.

85 mph with no ice

LOCATION	LATERAL (FT)	SWAY (DEGREE)
TOP OF TOWER	2.1	0.00
PROPOSED ANTENNA	2.1	0.00

D. Existing Mounting

The current mounting is judged adequate to support the new configuration of antennas. The existing mounting will accommodate a clear spacing of 36" between the antennas.

CONCLUSIONS:

The analysis of the telecommunication monopole located on Omnipoint site CT-11-092J in Danbury, Connecticut was based on the tower configuration provided by Pirod Inc. drawing # 205714-B issued on 06/07/2000.

The results of this analysis are based on:

- The current antenna configuration as of July 2002. Future collocations foreseen
 by Omnipoint (other than the one listed in this report) or by other carriers have
 not been considered in this analysis.
- All structural members are assumed free of deficiencies.
- Proper tower alignment.
- The structure is plumb and its condition is essentially as erected.

The results of this report are conditional upon the placement of the (24) 1-5/8" dia. new coaxial transmission lines inside of the monopole. The results are also conditional upon the installation of the new Omnipoint antennas on the existing mounts with an effective wind area of no more than 114 ft² (including ½" of ice) per sector. Should either one of these conditions be violated, the results of this report will be null and void.

Consequently, Pacific 17 recommends the addition of (12) EMS panel antennas with (24) 1-5/8" internal coaxial transmission cables at 105 ft AGL on the #CT-11-092J telecommunication monopole located in Danbury, Connecticut.

Pacific 17 is extremely pleased to support Omnipoint in its infrastructure development. If you have any question, contact us immediately at (407) 661-1765.

Emmanuel Poulin, P.E. Engineering Manager

AFL Telecommunications

PROVISIONS OF ANALYSIS & DISCLAIMER

The structural information on the existing building could not be obtained and therefore this analysis covers only the platform itself. Should this information become available to the Building owner or Omnipoint Wireless through further research, the document should be forwarded immediately to the engineer for investigation. If an alternate support method is required, the engineer will request a new P.O. from Omnipoint Wireless and revise the calculations.

The analysis and the conclusions contained in this report are based only on information obtained from Omnipoint wireless and from site visits. No visual inspection of the roof structure was possible due to the restricted access on the floor below the roof of the building at the location of the platform. The engineer declines any responsibility for damages that were originated prior to modification of the platform frame.

In addition, it is assumed that the structure has been properly built and maintained, including, but not limited to the following:

- No significant deterioration or damage to any component.
- The condition of the building is essentially as originally erected.
- No loads exceeding the design capacity of the building are attached to the structure.

Furthermore, the information and conclusions contained in this Report were determined by application of the standard engineering and analysis procedures and formulae. The engineer assumes no obligations to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised.

Monopole Analysis Output

```
danbury rt 7 ct-11-092j analysis output latest
TYPE='PLS_POLE INPUT FILE' VERSION='10.1' UNITS='INTERNAL' SOURCE='PLS-POLE Version
5.30' USER='Pacific 17' FILENAME='r:\1356.000 voicestream new york\056 danbury - rt
7\engineering\danbury rt 7 ct-11-092j analysis output latest.txt'
   0 ; use edf suffixes
   VOICESTREAM NY-DANBURY CT-11-092J
   COLLOCATION ANTENNAS
  imbalance, ascorm, dasat, pwiter, min stiffness
0; Joints Geometry: joint label\nrestraint 1-6\nx,y,z\nhas master, symetry code,
relative dist\nfrom, to joint, is secondary, fraction
  0 ; number truss properties
       ; number beam properties
        ; number cable properties
  0; number subs properties
  0 0 1 1 0; analysis option, print rotations, echo input, gen diffs, load type to
  use, followed by .lca, .lic, .eia filename lines
  r:1356.000 voicestream new york056 danbury - rt 7\engineering\pls pole
 model\danbury rt 7 ct-11-092j steel monopole loads.eia
 0 0 1 -0.5 2 0.25 ; show ID views, use user ID ratios, use negative ratios, min ratio, max ratio, increment
 1 1 1 1; offset arms, offset braces, offset guys, offset posts
1 2; auto add to parts list, part add action
1000.00000000000 0.142857142857 0.0000000000000; wind reference height, power
 ground elevation
                  0\ 1\ 0\ 0\ 1\ 1\ 1\ 1\ 0\ 0\ 0\ 0\ 1; postproc exe name, post proc output name, post
 proc cmd line, post proc options, postproc name options, post proc unit system, auto
 save, generate analysis results, summary, copy bmp-dxf, annot, usage graph report,
 view
r:\0997.000 florida power\pls pole library\steel\default.ssl
r:\0997.000 florida power\pls pole library\cables\cable library.cab
0 ; Structure Cable Connectivity: label\n origin\n joint\n property
 r:\0997.000 florida power\pls pole library\cables\cable library.cab
0; Guy Connectivity: label\n origin\n joint\n property
r:\0997.000 florida power\pls pole library\steel\sfrbasic.brc
       Brace Connectivity: label\n origin\n joint\n property
 r:\0997.000 florida power\pls pole library\concrete\cpobasic.dvt
r:\0997.000 florida power\pls pole library\concrete\cpobasic.dvt
0 ; Davit Arm Connectivity: label\n origin\n joint\n property
r:\0997.000 florida power\pls pole library\steel\sfrbasic.tdv
0 ; Tubular Davit Arm Connectivity: label\n origin\n joint\n property
r:\0997.000 florida power\pls pole library\steel\sfrbasic.xrm
0 ; X-Arm Connectivity: label\n origin\n joint\n property
r:\0997.000 florida power\pls pole library\steel\sfrbasic.xtm
0 ; Tubular X-Arm Connectivity: label\n origin\n joint\n property
r:\0997.000 florida power\pls pole library\steel\sfrbasic.eqp
0 ; Equipment Connectivity: label\n origin\n joint\n property
0 ; attach label, desc
0; attach label, desc
r:\0997.000 florida power\pls pole library\wood\wood material library.mat
0; load name, attach label, dead load, tran wind area, long wind area
36; appurt name, from joint, to joint, is flat, is inside, unit weight, width,
```

perimeter

```
danbury rt 7 ct-11-092j analysis output latest '(1) 1-5/8" COAX FOR EMS RR65-1' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8" COAX FOR EMS RR65-2' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8"
             COAX FOR EMS RR65-3' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8" COAX FOR EMS RR65-4' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8" COAX FOR EMS RR65-5' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8" COAX FOR EMS RR65-6' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 0
'(1) 1-5/8" COAX FOR EMS RR65-7'
                                   'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 0.0507999996647 0.159511998947
  (1) 1-5/8"
            COAX FOR EMS RR65-8'
                                   'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8" COAX FOR EMS RR65-9' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8" COAX FOR EMS RR65-10' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
  (1) 1-5/8" COAX FOR EMS RR65-11' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-12' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-13' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-14' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-15' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-16' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-17'
                                   'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-18'
                                   'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-19'
                                   'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-20' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-21' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
(1) 1-5/8" COAX FOR EMS RR65-22' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR EMS RR65-23' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
O
 (1) 1-5/8" COAX FOR EMS RR65-24' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 (1) 1-5/8" COAX FOR DB980-1' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                   0
'(1) 1-5/8" COAX FOR DB980-2' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                   0
'(1) 1-5/8" COAX FOR 7262-1' 'POLE:g' 'POLE:ant2' 0 1 15.1776556988
                                                                                  0
'(1) 1-5/8" COAX FOR 7262-2' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                  0
'(1) 1-5/8" COAX FOR 7262-3' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                  0
'(1) 1-5/8" COAX FOR 7262-4' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                 0
'(1) 1-5/8" COAX FOR 7262-5' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                 0
'(1) 1-5/8" COAX FOR 7262-6' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                 0
                                        Page 2
```

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```
danbury rt 7 ct-11-092j analysis output latest
 '(1) 1-5/8" COAX FOR 7262-7' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                        0
 '(1) 1-5/8" COAX FOR 7262-8' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
 '(1) 1-5/8" COAX FOR 7262-9' 'POLE:g' 'POLE:ant1' 0 1 15.1776556988
                                                                                        0
 '(1) 1-5/8" COAX FOR DISH-1' 'POLE:g' 'POLE:dish' 0 1 15.1776556988
 1; support label, long shear, tran shear, comp, uplift, long moment, tran moment,
 torsional moment
 POLE:g' 59606.1545579 59606.1545579 102309.071256
                                                                     0 1422659.36758
 1422659.36758
                                                                                    0
r:\0997.000 florida power\pls pole library\concrete\cpobasic.inl
 0 ; Clamp Insulator Connectivity
0 ; Suspension Insulator Connectivity
  ; Strain Insulator Connectivity
    Post Insulator Connectivity
    2-Parts Insulator Connectivity
    insulator link: insulator label, tip label, set name, insulator type, set #,
phase #, is dead end 'CANT1' 'POLE:ANT1' '0 0 0 0
r:\0997.000 florida power\pls pole library\steel\sfrbasic.spp
1; Steel Pole Connectivity: label\n origin\n joint\n property
POLE
CT-11-092J
   Attachment Labels Relative to a Pole_Element: joint label\nrestraint
1-6\nx,y,z\nhas master, symetry code, relative dist\nfrom, to joint, is secondary,
fraction
 POLE:ant1'
00000
0 0 0 0
0 0 0 1523999951232
'POLE:ant2' 0 0 0 0 0 0
0 0 0 0
0 0 3 047999902464
'POLE:dish'
000000
0 0 0 18.287999414784
0,0,0
            0
                                         0
                                                       0
                                                                     0
r:\0997.000 florida power\pls pole library\concrete\square1.cpp
0 ; Concrete Pole Connectivity: label\n origin\n joint\n property
r:\0997.000 florida power\pls pole library\wood\wpobasic.wpp
0 ; wood Pole Connectivity: label\n origin\n joint\n property
0
r:\0997.000 florida power\pls pole library\mast\default.mas
0 ; Mast Connectivity: label\n origin\n joint\n property
0 ; Vang Connectivity: label\n origin\n joint\n property
0 ; defe
3 1 1 1
   defect desc, attach, azimuth, diameter, long left, tran left
0 1.524 0 0
```

```
danbury rt 7 ct-11-092j analysis output latest
TYPE='STRUCT FILE' VERSION='4.3' UNITS='INTERNAL' SOURCE='PLS-POLE Version 5.30'
USER='Pacific 17' FILENAME='r:\1356.000 voicestream new york\056 danbury - rt
7\engineering\danbury rt 7 ct-11-092j analysis output latest.txt'
 VOICESTREAM NY-DANBURY CT-11-092J
 32.003999 0.000000
 0
 Α
 pls_pole.exe
 pls_pole.exe
TYPE='PRT FILE' VERSION='2' UNITS='US' SOURCE='PLS-POLE Version 5.30' USER='Pacific
17' FILENAME=''
0; number of user columns
0 1
KEY
DES
1
PIROD INC
1 1
TYPE='PLT FILE' VERSION='4.3' UNITS='SI' SOURCE='PLS-POLE Version 5.30' USER='Pacific 17' FILENAME=''
VOICESTREAM NY-DANBURY CT-11-0923
23 23 1 1 0 0
19; # of shapes
1 2
0.000000 0.000000
-1.000000 1.000000
-1.000000 -1.000000 1.000000 1.000000
1.000000 - 1.000000 - 1.000000 1.000000
-1.000000 -1.000000 1.000000 1.000000
1.000000 -1.000000 -1.000000 1.000000
-0.577300 -1.154700 -0.577300 0.577300 1.154700 0.577300
1.000000 0.000000 -1.000000 -1.000000 0.000000 1.000000
-0.414210 -1.000000 -1.000000 -0.414210 0.414210 1.000000 1.000000 0.414210
1.000000 \ 0.414210 \ -0.414210 \ -1.000000 \ -1.000000 \ -0.414210 \ 0.414210 \ 1.000000
6 12
-0.267950 -0.732050 -1.000000 -1.000000 -0.732050 -0.267950 0.267950 0.732050
1.000000 1.000000 0.732050 0.267950
1.000000\ 0.732050\ 0.267950\ -0.267950\ -0.732050\ -1.000000\ -1.000000\ -0.732050
-0.267950 0.267950 0.732050 1.000000
7 16
-0.198900 -0.566500 -0.847700 -1.000000 -1.000000 -0.847700 -0.566500 -0.198900
0.198900 0.566500 0.847700 1.000000 1.000000 0.847700 0.566500 0.198900
1.000000 \ 0.847700 \ 0.566500 \ 0.198900 \ -0.198900 \ -0.566500 \ -0.847700 \ -1.000000
-1.000000 -0.847700 -0.566500 -0.198900 0.198900 0.566500 0.847700 1.000000
8 4
-1.414000 0.000000 1.414000 0.000000
0.000000 -1.414000 0.000000 1.414000
-1.000000 -1.000000 0.000000 1.000000 1.000000 0.000000
0.577300 -0.577300 -1.154700 -0.577300 0.577300 1.154700
10 8
-0.765370 -1.082390 -0.765370 0.000000 0.765370 1.082390 0.765370 0.000000
0.765370\ 0.000000\ -0.765370\ -1.082390\ -0.765370\ 0.000000\ 0.765370\ 1.082390
11 12
-0.517640 -0.896570 -1.035280 -0.896570 -0.517640 0.000000 0.517640 0.896570
1.035280 0.896570 0.517640 0.000000
0.896570\ 0.517640\ 0.000000\ -0.517640\ -0.896570\ -1.035280\ -0.896570\ -0.517640
```

Page 4

```
danbury rt 7 ct-11-092j analysis output latest
  0.000000 0.517640 0.896570 1.035280
  12 16
 -0.390180 -0.720960 -0.941980 -1.019590 -0.941980 -0.720960 -0.390180 0.000000
 0.390180 \ 0.720960 \ 0.941980 \ 1.019590 \ 0.941980 \ \overline{0.720960} \ \overline{0.390180} \ 0.\overline{000000}
 0.941980 0.720960 0.390180 0.000000 -0.390180 -0.720960 -0.941980 -1.019590
 -0.941980 -0.720960 -0.390180 0.000000 0.390180 0.720960 0.941980 1.019590
 13 12
 -0.223500 -0.654310 -1.000000 -1.000000 -0.654310 -0.223500 0.223500 0.654310
 1.000000 1.000000 0.654310 0.223500
 0.626070 0.506870 0.223500 -0.223500 -0.506870 -0.626070 -0.626070 -0.506870
 -0.223500 0.223500 0.506870 0.626070
 14 12
 -0.223500 -0.506870 -0.626070 -0.626070 -0.506870 -0.223500 0.223500 0.506870
 0.626070 0.626070 0.506870 0.223500
 1.000000 0.654310 0.223500 -0.223500 -0.654310 -1.000000 -1.000000 -0.654310
 -0.223500 0.223500 0.654310 1.000000
 15 12
 -0.229880 -0.667530 -1.000000 -1.000000 -0.667530 -0.229880 0.229880 0.667530
 1.000000 \ 1.000000 \ 0.667530 \ 0.229880
 0.688330 0.547440 0.229880 -0.229880 -0.547440 -0.688330 -0.688330 -0.547440
 -0.229880 0.229880 0.547440 0.688330
 16 12
 -0.229880 -0.547450 -0.688330 -0.688330 -0.547450 -0.229880 0.229880 0.547450
 0.688330 0.688330 0.547450 0.229880
 1.000000 0.667530 0.229880 -0.229880 -0.667530 -1.000000 -1.000000 -0.667530
 -0.229880 0.229880 0.667530 1.000000
 17 12
 -0.238590 -0.684430 -1.000000 -1.000000 -0.684430 -0.238590 0.238590 0.684430
1.000000 1.000000 0.684430 0.238590
0.766420 0.596470 0.238570 -0.238570 -0.596470 -0.766420 -0.766420 -0.596470
 -0.238570 0.238570 0.596470 0.766420
18 12
-0.238570 -0.596470 -0.766420 -0.766420 -0.596470 -0.238570 0.238570 0.596470
0.766420 0.766420 0.596470 0.238570
1.000000 0.684430 0.238590 -0.238590 -0.684430 -1.000000 -1.000000 -0.684430
 -0.238590 0.238590 0.684430 1.000000
19 18
-0.342020 -0.642790 -0.866020 -0.984810 -0.984810 -0.866020 -0.642790 -0.342020
0.000000 0.342020 0.642790 0.866020 0.984810 0.984810 0.866020 0.642790 0.342020
0.939690\ 0.766040\ 0.500000\ 0.173650\ -0.173650\ -0.500000\ -0.766040\ -0.939690
-1.000000 -0.939690 -0.766040 -0.500000 -0.173650 0.173650 0.500000 0.766040
0.939690 1.000000
Undeformed Geometry
1 144 'POLE:g'
2 0 'POLE:t' ''
3 0 'POLE:ant1'
4 0
5 0 'POLE:ant2' ''
60 '
70'''
80""
90""
10 0 '' ''
     11 11
11 0
12 0 'POLE:dish' ''
13 0 '
14 0 '' ''
15
     11 11
  n
  0 ''
       . .
16
        1.1
17 0
     F 1
18 0
19 0 '' ''
```

```
danbury rt 7 ct-11-092j analysis output latest
 20 0 '' ''
 21 0 '' ''
      1 1
 22 0
      11 11
 23 0
                 2 3 1 184549442
 3 4 2 184549378
     3 184549378
4 184549378
0.000 0.000 0.000
0.000 0.000 32.004
0.000 0.000 31.852
0.000 0.000 30.404
0.000 0.000 28.956
0.000 0.000 27.432
0.000 0.000 25.908
0.000 0.000 24.384
0.000 0.000 22.860
0.000 0.000 21.336
0.000 0.000 19.812
0.000 0.000 18.288
0.000 0.000 16.764
0.000 0.000 15.240
0.000 0.000 13.716
0.000 0.000 12.192
0.000 0.000 10.668
0.000 0.000 9.144
0.000 0.000 7.620
0.000 0.000 6.096
0.000 0.000 4.572
0.000 0.000 3.048
0.000 0.000 1.524
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```
danbury rt 7 ct-11-092j analysis output latest
  0 0
  0 0
  0 0
  0 0
  0 0
  0 0
  0 0
  0 0
 0 0
 0 0
 TYPE='DXF ATTACHMENTS' VERSION='1' UNITS='US' SOURCE='PLS-POLE Version 5.30' USER='Pacific 17' FILENAME='r:\1356.000 voicestream new york\056 danbury - rt 7\engineering\danbury rt 7 ct-11-092j analysis output latest.txt'
 0; number dxf files attached
 TYPE='BMP ATTACHMENTS' VERSION='1' UNITS='US' SOURCE='PLS-POLE Version 5.30' USER='Pacific 17' FILENAME='r:\1356.000 voicestream new york\056 danbury - rt 7\text{engineering\danbury rt 7 ct-11-092j analysis output latest.txt'
 0 0; number bmp files attached, minimum pixel size

TYPE='ANNOTATION' VERSION='2' UNITS='US' SOURCE='PLS-POLE Version 5.30'

USER='Pacific 17' FILENAME='r:\1356.000 voicestream new york\056 danbury - rt
 7\engineering\danbury rt 7 ct-11-092j analysis output latest.txt
0; Number annotation records

TYPE='RTF FILE' VERSION='1' UNITS='SI' SOURCE='PLS-POLE Version 5.30' USER='Pacific
 17' FILENAME='r:\1356.000 voicestream new_york\056 danbury - rt
7\engineering\danbury rt 7 ct-11-092j analysis output latest.txt'
{\rtfl\ansi\ansicpg1252\deff0\deflang1033{\fonttbl{\f0\fswiss\fprq2\fcharset0}
\viewkind4\uc1\pard\f0\fs20 PLS-POLE Version 5.30 1:25:28 PM Friday, October 11,
\par Pacific 17
\par
\par Insert your notes, comments, pictures, etc. here. You can also check the
\par "Enable Automatic Project Revision Tracking" option in the General Data dialog
\par and the program will automatically append a list of changes made to this model
\par to the end of this report. This report is automatically saved whenever you
\par your project.
\par
\par }
```

Appurtenance Loads

AFL Telecommunications

Wireless Services Pacific 17, Inc

485 North Heller Road, Sulta 180 Maldern, Florido 32751 Office (407) 661–1705 Fax (407) 661–1766

CODE: TIA/EIA-222-F

APPURTENANCE DESIGN DATA

LOCATION: DANBURY, CONNECTICUT

10/21/02 1308.056

NAME: TT CHECKED: EP

MANUFACTURER: PIROD

105 FT. TELECOMMUNICATION STRUCTURE

85 MPH WIND VELOCITY 0 INCH RADIAL ICE STEEL MONOPOLE

		MISC. APPUR	APPURTENANCES	CES											
АРТ. ТҮРЕ	ELEV. A.G.L. QUANTITY DIAMETER ft. (inch)		AREA TI	AREA TOTALAREA G _H K ₂ (tt.²)	₫		Qz Fnorm	re ig	7 3 8 5	W. T	Wt.	FORCE 0°	.09	FORCE 60° FORCE 90°	FORCE 90°
(1) LOW PROFILE PALTFORM (12) PROPOSED EMS RH65-19-00 PANEL ANTENNAS (2) ASSUMED DB980 PANEL ANTENNAS	105 1 105 12 105 2		20.00 62.85 14.56	20.00 62.85 14.56	1.16 1. 1.16 1.	1.392 25. 1.392 25. 1.392 25.	25.745 0.597 25.745 1.875 25.745 0.434	-	3		1.200 0.276 0.044	<	×	>	>
(1) LOW PROFILE PLATFORM (9) ALLGON 7262 PANEL ANTENNAS	95 1 95 12	2.2	20.00	20.00 24.80	1.16 1.1	1.353 25. 1.353 25.	Sub Total 25.020 0.580 25.020 0.719	2.905 0.580 0.719	<u> </u>		1.520 1.200 0.130	2.905	1.453	2.516	2,905
							Sub Total	al 1.299			1.330	1.299	0.649	1.125	1.299

AFL Telecommunications

Wireless Services Pacific 17, Inc

485 North Keller Road, Suite 150 Matkand, Flarida 32751 Office (407) 661–1765 Fox (407) 661–1765

NAME: TT CHECKED: EP

LOCATION: DANBURY, CONNECT 10/21/02 1308.056

MANUFACTURER: PIROD

APPURTENANCE DESIGN DATA

CODE: TIA/EIA-222-F

105 FT. TELECOMMUNICATION STRUCTURE

73.6 MPH WIND VELOCITY
0.50 INCH RADIAL ICE
STEEL MONOPOLE

			MISC. APPURI ENANCES	H ENA	NCES										
APT. TYPE	ELEV. A.G.L. QUANTITY	SUANTITY	gg.	AREA	AREA TOTAL AREA GH	Q.	λ,	27	F noa	ιτ.	Wt.	FORCE 0°	FORCE 60°	FORCE 60° FORCE 90°	FORCE 90°
	11		(inch)	(H)	(#.)				kips	kips	kips	×	×	>	>
(1) LOW PROFILE PALTFORM	105			25.00	25.00	1.16	1.392	19.303	0.559	0.559	000				
(12) PROPOSED EMS RR65-19-00 PANEL ANTENNAS	105	12		72.75	72.75	1.16	1.392	19.303	1.627	1.627	0.624				
(2) ASSUMED DB980 PANEL ANTENNAS	105	α.		16.20	16.20	1.16	1.392	19.303	0.362	0.362	0.131				
															_
									Sub Total	2.548	2.755	2.548	1.274	2.207	2 548
(1) LOW PROFILE PLATFORM	95	-		25.00	25.00		1.353	18.759	0.543	0.543	2.000				
(9) ALLGON 7262 PANEL ANTENNAS	95	12		30.13	30.13	1.16	1.353	18.759	0.655	0.655	0.326				
									Sub Total	1.198	2.326	1.198	0.599	1.038	1 198
									_					}	}

Exhibit D

Power Density Calculations



An Analysis of the Radio Frequency Environment in the Vicinity of a Proposed Omnipoint Communications Expansion Installation

CT-11-092J 36 Sugar Hollow Lake Road Danbury, CT

Prepared for
Omnipoint Communications

Prepared by
PierCon Solutions, LLC
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1.0 INTRODUCTION

This report is an analysis of the radio frequency (RF) environment surrounding an existing monopole at 36 Sugar Hollow Lake Road, Danbury, CT. The analysis includes contributions from the existing wireless carriers and the proposed expansion of Omnipoint's communications facility. Measurements taken from the latest FCC compliance statement for the 36 Sugar Hollow Lake Road site, Engineering data collected by PierCon Solutions and analytical techniques defined by the Federal Communication Commission's Office of Engineering and Technology Bulletin 65 (OET65) were utilized in calculating the RF fields associated with the proposed expansion. Worst-case assumptions were used in the Omnipoint calculations and actual levels will be significantly lower than the corresponding analytical values.

The results of this analysis indicate that the cumulative level of RF energy that the public may be exposed to is below the Federal Communications Commission (FCC) standards for continuous exposure in all normally accessible areas. Specifically, the worst-case power density from the wireless facility at 6 feet above ground level (AGL) is 16.9221% of the maximum permissible exposure limit for the general public. Therefore, the calculations at street level are approximately 6 times below the FCC limit for continuous exposure to the general public.

2.0 TECHNICAL DATA

The existing Omnipoint communications facility will be expanded to 12 antennas, 4 per sector, with a total of 12 channels per sector. The technical parameters utilized in the analytical study are identified in the tables to follow:

Omnipoint Radio Parameters (Expansion)	
Frequency	1930 MHz
Antenna Centerline Height (AGL)	108 feet
Antenna Type	Directional
Antenna Manufacturer	EMS
Antenna Model	DR85-17-00DPL2Q
Antenna Length	54 inches
Antenna Gain	16.2 dBi
Antenna Tilt	0°
Transmit Power / Channel	20 Watts
Total RF Channels After Expansion	12
Total Loss	3.98 dB
Ground Reflection Factor	.64

Measurements from Latest FCC Complian	nce Statement:
Total % MPE of Existing Installations excluding	ng present Omnipoint installation
Total % of FCC Standard	3.093%

3.0 MATHEMATICAL ANALYSIS

The FCC's Office of Engineering and Technology Bulletin 65 (OET65) defines the appropriate formulas for calculating power density exposure levels. The area of interest in relation to the subject site occurs at ground or street level. This area occurs in the far field of the antenna. Therefore, the far-field formula is utilized for the calculations.

The following FCC-defined far-field formula was utilized in calculating the power density levels:

S = (1.64) (GRF) (Number of Channels) (power W/Channel) / πR^2

Where: $S = power density in mW/cm^2$

GRF = ground reflection factor (0.64)

R = distance from antenna to street or ground level

The FCC mandates that the calculations make conservative assumptions to insure that the calculations result in worst-case results. Transmitters are assumed to operate continuously and at maximum power whereas in reality transmitters operate intermittently. Additionally, these calculations assume that the point of interest is in the main beam of the antenna, where the gain of the antenna is at a maximum. In reality, the point of interest is rarely in the main beam of the antenna.

The table below indicates the maximum power density levels and maximum % MPE for the general population from the expanded Omnipoint facility calculated at 6' above ground level (AGL), along with the measurements from the existing installations.

Calculations/Measurements	Maximum Power Density at 6' Above Ground Level (mW/cm²)	Maximum Permissible Exposure Level at 6' Above Ground Level
Omnipoint Expanded Facility	0.138291	13.8291%
Existing Installations excluding present Omnipoint installation		3.093%
Total of FCC limit for maximum exposure		16.9221%

4.0 CONCLUSION

This report represents PierCon Solutions' analysis of the RF environment in the vicinity of an Omnipoint Communications expansion facility on an existing monopole at 36 Sugar Hollow Lake Road, Danbury, CT. The analysis includes calculated data for the expanded Omnipoint facility along with measurements from the existing installations. Worst-case assumptions were utilized to assure safe side estimates. The calculated data was referenced against the applicable standard depending upon location and access.

The results of the analysis indicate that the maximum level to which the public may be exposed to is below all applicable health and safety limits. Specifically, in all normally accessible areas, the maximum level will be 16.9221% or approximately 6 times below the safety criteria for continuous exposure of the general public as defined by the FCC.

Based upon the measurements and calculations provided herein, it is the opinion of PierCon Solutions that the subject site will be in full compliance with the FCC regulations as well as the Connecticut Siting Council, ANSI, IEEE and the NCRP.

5.0 TABLE OF MPE EXPOSURE LIMITS

Table 1. LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time $ 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	ì.0	6
300-1500			f/300	6
1500-100,000			5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time $ 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

NOTE 1: *Occupational/controlled* limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: *General population/uncontrolled* exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

6.0 REFERENCES

- [1] FCC OET Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", Edition 97-01, August 1997.
- [2] FCC 47 CFR 1.1307 Parts 1, 2, 15, 24 and 97.
- [3] FCC OET Bulletin 56, "Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields", Fourth Edition, August 1999.
- [4] FCC 47 CFR 1.1310 "Practice and procedure, Radiofrequency radiation exposure limits"
- [5] NARDA "Non-Ionizing Radiation Handbook"
- [6] Rutgers University, "Management of Electromagnetic Energy Hazards", October 1993.
- [7] Telecommunications Act of 1996
- [8] Report and Order, ET Docket 93-62, FCC 96-326, adopted August 1, 1996, 61 Federal Register 41,006 (1996), 11 FCC Record 15,123 (1997).
- [9] "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86 (1986), National Council on Radiation Protection and Measurements (NCRP), Bethesda, MD.
- [10] ANSI/IEEE C95.1-1992, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz." Copyright 1992, The Institute of Electrical and Electronics Engineers, Inc., New York, NY.