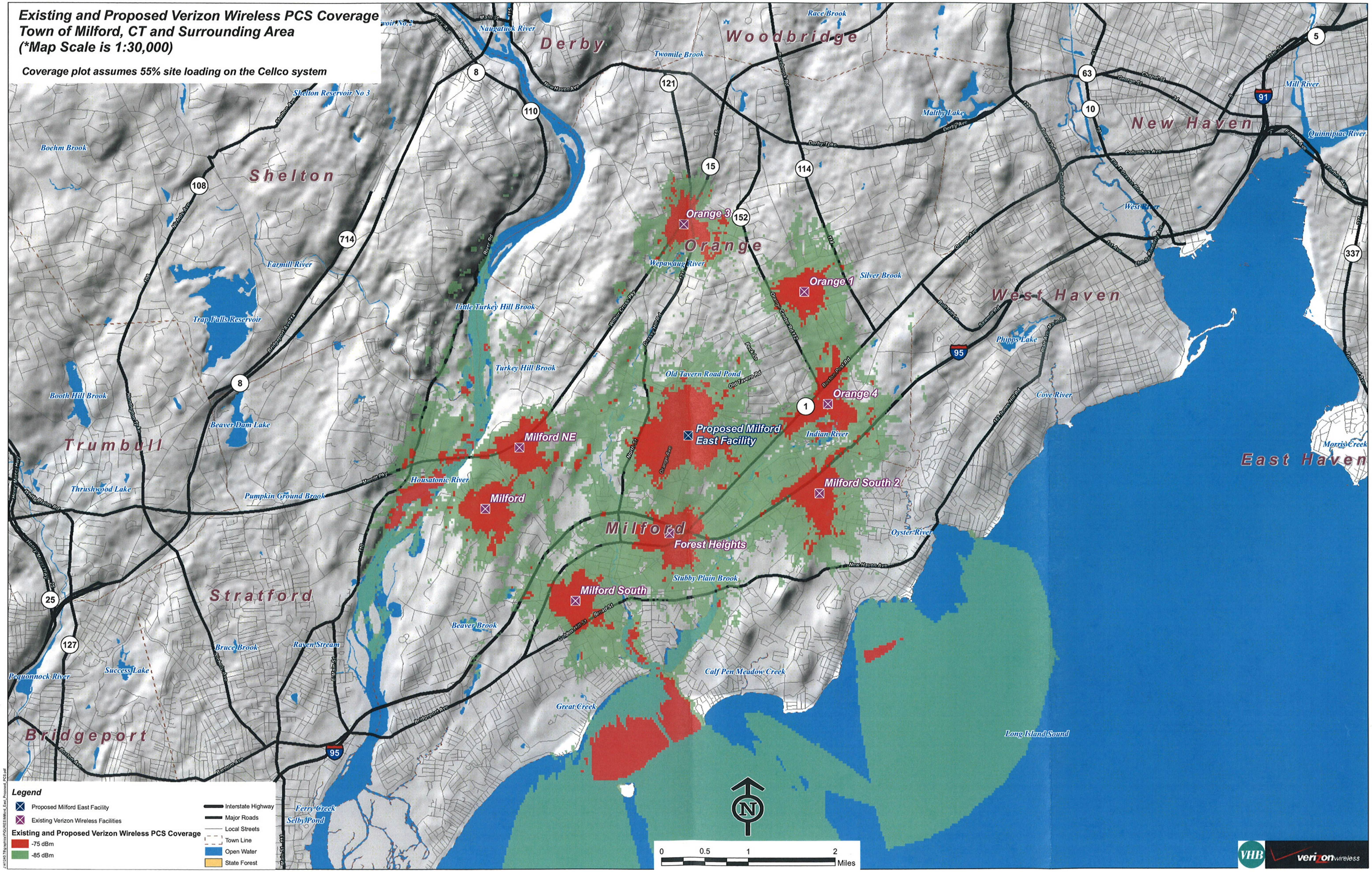
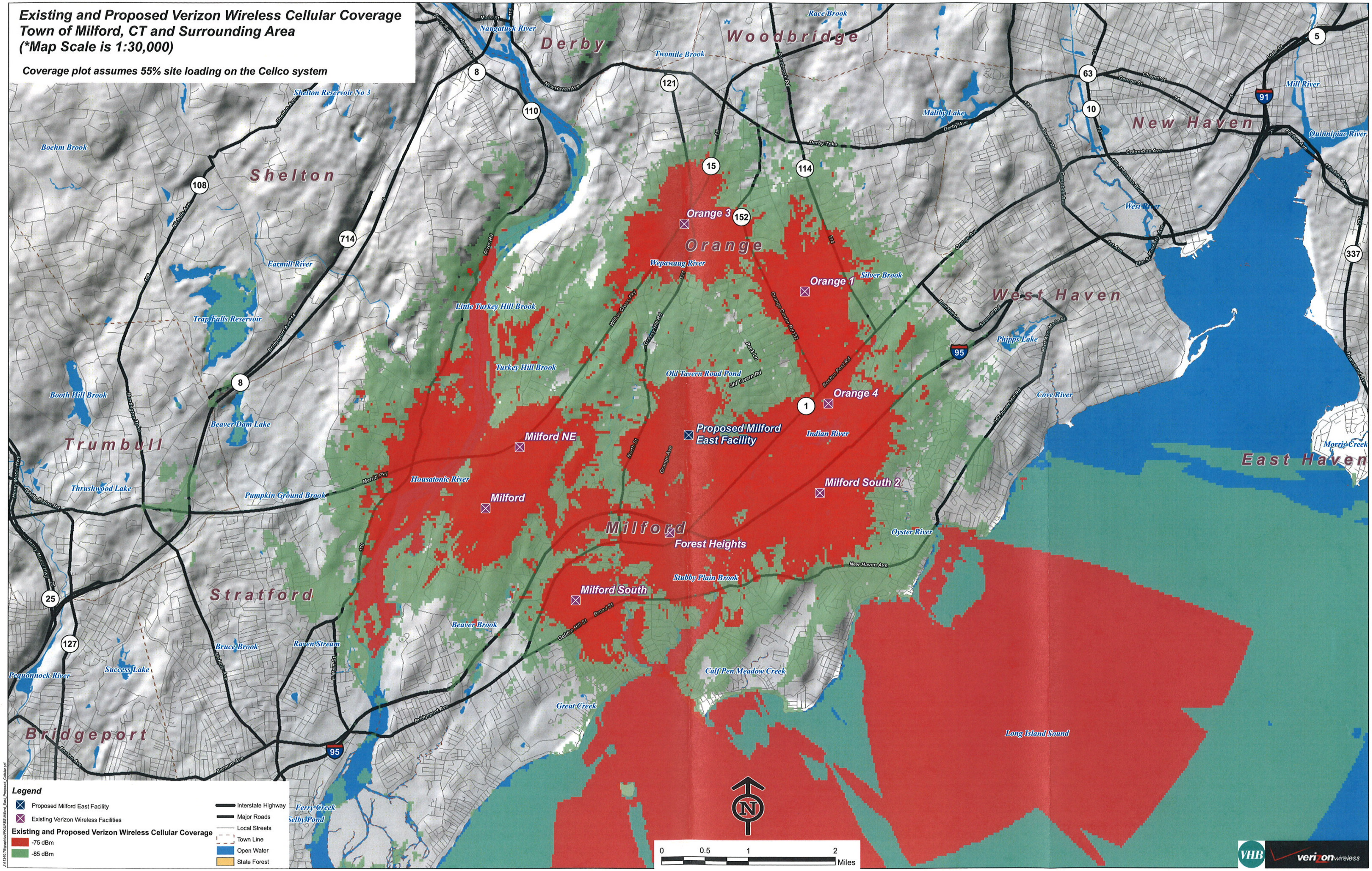

Existing and Proposed Verizon Wireless PCS Coverage
Town of Milford, CT and Surrounding Area
(*Map Scale is 1:30,000)
Coverage plot assumes 55% site loading on the Cellco system
Derby
Woodbridge
Shelton
Orange
New Haven
West Haven
Trumbull
Milford
Stratford
Bridgeport
East Haven
Orange 3
Orange 1
Orange 4
Proposed Milford East Facility
Milford NE
Milford
Milford South 2
Forest Heights
Milford South
Naugatuck River
Race Brook
Twomile Brook
Shelton Reservoir No 3
Boehm Brook
Farmill River
Trap Falls Reservoir
Booth Hill Brook
Beaver Dam Lake
Thrushwood Lake
Pumpkin Ground Brook
Housatonic River
Little Turkey Hill Brook
Turkey Hill Brook
Wepawaug River
Silver Brook
Old Tavern Road Pond
Indian River
Oyster River
Stubby Plain Brook
Beaver Brook
Bruce Brook
Raven Stream
Success Lake
Pequonnock River
Calf Pen Meadow Creek
Great Creek
Ferry Creek
Selby Pond
Long Island Sound
Maltby Lake
Mill River
Quinnipiac River
West River
Phipps Lake
Cove River
Morris Creek
Legend
Proposed Milford East Facility
Existing Verizon Wireless Facilities
Existing and Proposed Verizon Wireless PCS Coverage
-75 dBm
-85 dBm
Interstate Highway
Major Roads
Local Streets
Town Line
Open Water
State Forest
0
0.5
1
2
Miles
N
VHB
verizonwireless



Existing and Proposed Verizon Wireless Cellular Coverage
Town of Milford, CT and Surrounding Area
(*Map Scale is 1:30,000)
Coverage plot assumes 55% site loading on the Cellco system
Derby
Woodbridge
Shelton
Orange
New Haven
West Haven
Trumbull
Milford
Stratford
East Haven
Bridgeport
Orange 3
Orange 1
Orange 4
Proposed Milford East Facility
Milford NE
Milford
Milford South 2
Forest Heights
Milford South
Long Island Sound
Housatonic River
Wepawaug River
Indian River
Oyster River
Legend
Proposed Milford East Facility
Existing Verizon Wireless Facilities
Existing and Proposed Verizon Wireless Cellular Coverage
-75 dBm
-85 dBm
Interstate Highway
Major Roads
Local Streets
Town Line
Open Water
State Forest
0
0.5
1
2
Miles
N
VHB
verizonwireless

Vertically Polarized, Log Periodic 80° / 17.5 dBi

LPA-185080/12CF ___

When ordering, replace "___" with connector type.

Mechanical specifications

	Length	1806 mm	71.1	in
	Width	104 mm	4.1	in
	Depth	150 mm	5.9	in
4)	Weight	4.8 kg	10.5	lbs
	Wind Area			
	Front	0.188 m^2	2.02	ft^2
	Side	0.271 m^2	2.92	ft^2
	Rated Wind Velocity (Safety factor 2.0)			
		>270 km/hr	>168	mph
	Wind load @ 100 mph (161 km/hr)			
	Front	325 N	73.1	lbs
	Side	440 N	98.9	lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting & Downtilting:

Wall mounted or pole tower mount with mounting brackets.

Mounting bracket kit #26799997

Downtilt bracket kit #26799999
The downtilt bracket kit includes the mounting bracket kit.

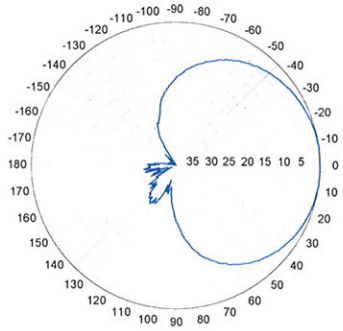
Electrical specifications

	Frequency Range	1850-1990 MHz
	Impedance	50Ω
3)	Connector	NE, E-DIN
1)	VSWR	≤1.4:1
	Polarization	Vertical
1)	Gain	17.5 dBi
2)	Power Rating	250 W
1)	Half Power Angle	
	H-Plane	80°
	E-Plane	5°
1)	Electrical Downtilt	0°
1)	Null Fill	10%
	Lightning Protection	Direct Ground

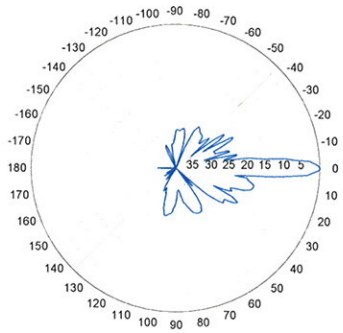
1) Typical Values
2) Power Rating limited by connector only.
3) NE indicates an elongated N Connector.
E-DIN indicates an elongated DIN Connector.
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation-pattern[1)]



Horizontal



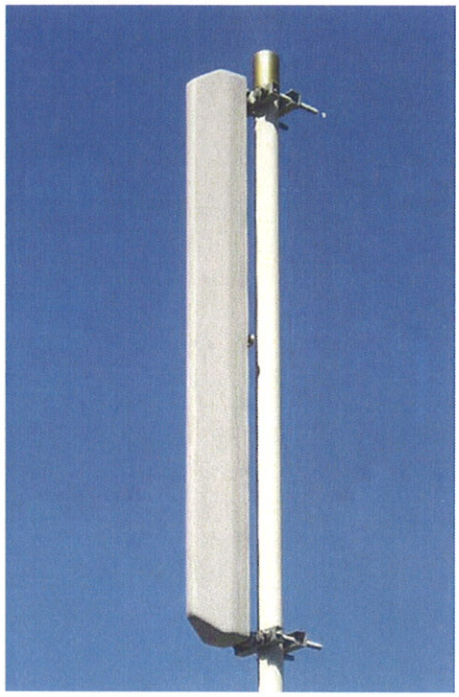
Vertical

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back Ratio.

CF Denotes a Center-Fed Connector.

1850-1990 MHz



Amphenol Antel's Exclusive 3T (True Transmission Line Technology) Antenna Design:

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

Every Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connector only.

1300 Capital Drive Rockford, IL 61109 Toll-Free (888) 417-9562 Tel. (815) 399-0001
Fax. (815) 399-0156 Email: antel@antelinc.com www.antelinc.com

Amphenol Antel, Inc.
The Antenna Technology Company

Revision Date: 1/27/05

Vertically Polarized, Log Periodic 63° / 18 dBi

LPA-185063/8CF ___

When ordering replace "___" with connector type.

Mechanical specifications

	Length	1200 mm	47.2 in
	Width	167 mm	6.6 in
	Depth	148 mm	5.8 in
	Depth with t-bracket	176 mm	6.9 in
4)	Weight	4.1 kg	9.0 lbs
	Wind Area		
	Fore/Aft	0.20 m^2	2.2 ft^2
	Side	0.18 m^2	1.9 ft^2
	Rated Wind Velocity (Safety factor 2.0)	>548 km/hr	>341 mph
	Wind Load @ 100 mph (161 km/hr)		
	Fore/Aft	299 N	67.2 lbs
	Side	267 N	60.0 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in).

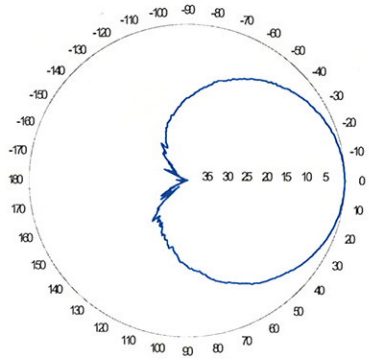
Mounting bracket kit #26799997
Downtilt bracket kit #26799999

The downtil bracket kit includes the mounting bracket kit.

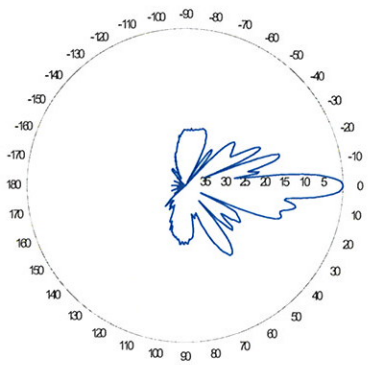
Electrical specifications

	Frequency Range	1850-1990 MHz
	Impedance	50Ω
3)	Connector(s)	NE or E-DIN 1 port / center
1)	VSWR	≤ 1.4:1
	Polarization	Vertical
1)	Gain	18 dBi
2)	Power Rating	250 W
1)	Half Power Angle	
	H-Plane	63°
	E-Plane	8°
1)	Electrical Downtilt	0°
1)	Null Fill	10-20%
	Lightning Protection	Direct Ground

Radiation pattern[1)]



Horizontal



Vertical

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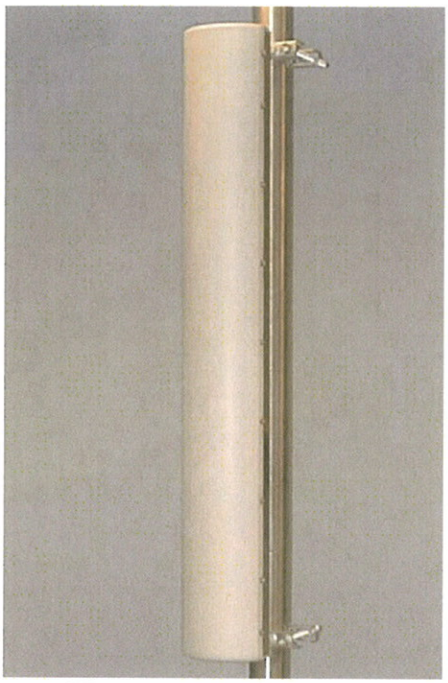

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Antenna available with center-fed connector only.

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   E-DIN indicates an elongated DIN connector.
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Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

CF Denotes a Center-Fed Connector.

1850-1990 MHz

Amphenol Antel, Inc.
The Antenna Technology Company

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Toll-Free (888) 417-9562 Fax. (815) 399-0156 antel@antelinc.com www.antelinc.com

Revision Date: 7/12/07

ANDREW®

Vertically Polarized Directed Dipole® Panel Antennas

806 - 960 MHz

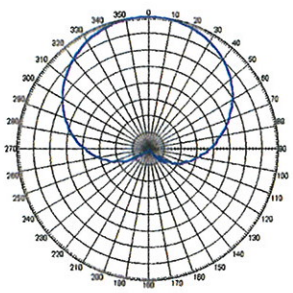
65° HORIZONTAL BEAMWIDTH

HORIZONTAL BEAMWIDTH	65°		65°	65°
FREQUENCY RANGE	806-960 MHz		806-896 MHz	806-896 MHz
	14.5 & 14.8 dBd / 0° Tilt		14.5 dBd / 0° Tilt	14.3 dBd / 5° Tilt
MODEL	DB846F65ZAXY		DB846H65E-SX	846H65T5E-SX
TYPE	Directed Dipole®, No Screen		Directed Dipole®	Directed Dipole®
ELECTRICAL SPECIFICATIONS				
Frequency Range (MHz)	806-896	870-960	806-896	806-896
Gain (dBd/dBi)	14.5 / 16.6	14.8 / 16.9	14.5 / 16.6	14.3 / 16.4
Horizontal Beamwidth (Deg.)	65	60	65	65
Elevation Beamwidth (Deg.)	11	10.5	11	10.5
USLS (dB)	>15	>15	N/A	N/A
Null Fill (dB) – Below Peak	N/A	N/A	N/A	N/A
Beam Tilt (Deg.)	0	0	0	5
VSWR	<1.33:1	<1.33:1	<1.5:1	<1.5:1
Front-To-Back Ratio (dB)	40	40	30	40
Isolation (dB)	N/A	N/A	N/A	N/A
Max. Input Power (Watts)	500	500	500	500
Polarization	Vertical	Vertical	Vertical	Vertical
Connector Location	Back	Back	Back	Back
Connector Type	7-16 DIN - Female	7-16 DIN - Female	7-16 DIN - Female	7-16 DIN - Female
Optional Connectors	N/A	N/A	N/A	N/A
MECHANICAL SPECIFICATIONS				
Length (inch/mm)	72 / 1,829	72 / 1,829	72 / 1,829	72 / 1,829
Width (inch/mm)	10 / 254	10 / 254	20.5 / 521	20.5 / 521
Depth (inch/mm)	8.5 / 216	8.5 / 216	9 / 229	9 / 229
Net Weight (lbs/kg)	21 / 9.5	21 / 9.5	24 / 10.9	24 / 10.9
Max. Flat Plate Area (ft^2/m^2)	1.61 / 0.15	1.61 / 0.15	4.95 / 0.46	4.95 / 0.46
Max. Wind Load at 100 mph (lbf/N)	87 / 386	87 / 386	273 / 1,214	273 / 1,214
Max. Wind Speed (mph/kmh)	125 / 201	125 / 201	125 / 201	125 / 201
Radome Material	ABS, UV Resistant	ABS, UV Resistant	ABS, UV Resistant	ABS, UV Resistant
Reflector Material	Pass. Aluminum	Pass. Aluminum	Pass. Aluminum	Pass. Aluminum
Radiator Material	Aluminum	Aluminum	Brass	Brass
Hardware Material	Galvanized Steel	Galvanized Steel	Galvanized Steel	Galvanized Steel
Color	Light Gray	Light Gray	Light Gray	Light Gray
Std. Mounting Hardware	DB380	DB380	DB380	DB380
Optional Downtilt Kit	DB5083	DB5083	DB5083	DB5083
Optional Special Mounting	DB5084-AZ	DB5084-AZ	DB5084-AZ	DB5084-AZ

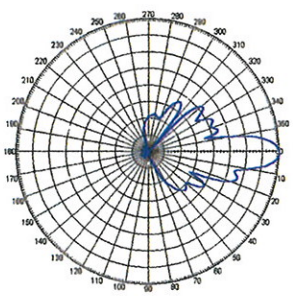
Specifications are subject to change. Please see our website for the latest information.

DB846F65ZAXY

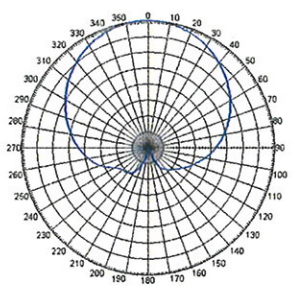
Azimuth Pattern

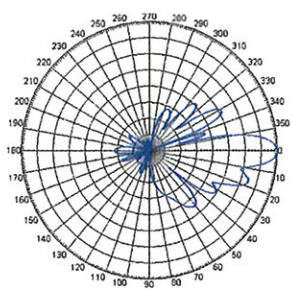


Elevation Pattern

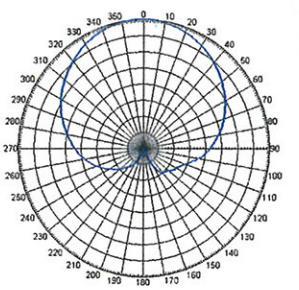


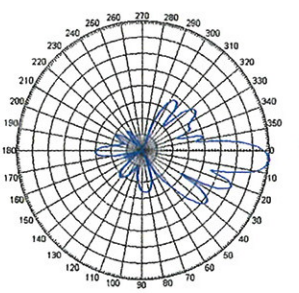
DB846H65E-SX





846H65T5E-SX



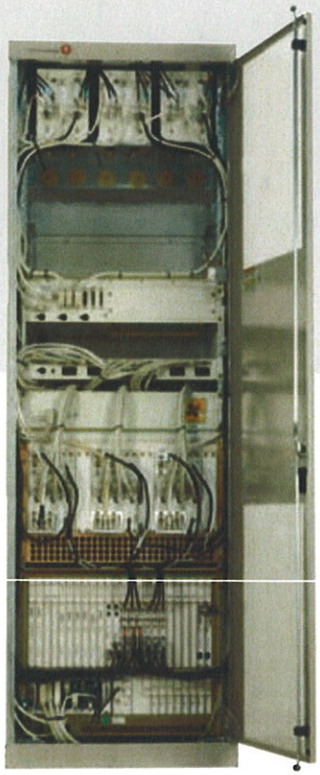


Scale: 10° radials, 5 dB per division

ANDREW CORPORATION PHONE 1-800-676-5342 • (214) 631-0310 FAX 1-800-229-4706 • (214) 631-4706 WWW.ANDREW.COM

Lucent CDMA Modular Cell 4.0B Indoor

For CDMA Networks



Lucent CDMA Modular Cell 4.0B is a high capacity base station equipped with the state-of-the-art technologies developed by Bell Labs. The product brings you outstanding carrier density and immediate OPEX savings. This indoor product can support up to 8 carriers/3 sectors per frame. It is twice the density of Modular Cell 4.0 (indoor). Modular Cell 4.0B offers full spectrum coverage in a single frame, dramatically simplifying growth patterns. As the leader in spread spectrum technology, Lucent Technologies continues to introduce innovations to the market: Multi-Carrier Radio (15MHz), Block Filters/Wideband Filters, and 40W Power Amplifier Modules are the latest assets integrated in the base station.

Features

The Modcell 4.0B indoor version offers a small footprint with exceptional carrier density in a standard ETSI cabinet.

- Indoor Single Frame Configuration
- 1-8 carriers per frame at 3 sectors (will support up to 11 carriers with Auxiliary Amplifier Frame)
- Dual Band: one cell to the ECP & mobile
- Close Loop Gain Control
- Timing and Controller Redundancy
- Integrated Power option
- Support CDMA2000™1X, and EV-DO Rev.0, with future support to EV-DO Rev. A
- IP Backhaul and Ethernet Backhaul capable
- 6-Sector option ready
- Intelligent Antenna option ready

Benefits

- Optimized for highest carrier density, smooth growth in one frame
- Conserves indoor footprint, reducing hardware and floor space requirements
- Minimizes configuration complexity
- Software-Only Carrier Add at certain carrier counts
- Flexible channel growth planning
- Designed to use existing power supply
- Grow CDMA carriers on only 2 antennas/sector
- Multi-Carrier Radio (15MHz), Block Filters/ Wideband Filters, and 40W Power Amplifier Modules

Lucent Technologies
Bell Labs Innovations

Technical Specifications

Description	Specification
1. **Configurations**	
a. Sectors	3, 4 and 6
b. Carriers	1–8 per frame at 3 sectors (up to 11 with Auxiliary Amplifier Frame)
2. **CDMA Channel Card Capacity**	12 slots; CMU IVB capable
3. **T1, E1 Facilities**	Maximum of 20 per cabinet when equipped with URC-II's
4. **User Alarms**	7 Power Alarms, 25 User Alarms
5. **GPS Antenna**	Yes
6. **Air Interface Standards**	T1A/E1A 95-A plus TSB-74; T1A/E1A 95-B for 850 MHz; CDMA 2000
7. **Frequency Bands**	850MHz/1900 MHz; 300 to 2100 MHz capable
8. **Vocoder**	8 Kbps; 8 Kbps EVRC; 13 Kbps; SMV-ready
9. **Environmental Cabinet Housing**	Standard ETSI cabinet; UL50 compliant; zero rear clearance
10. **Cabinet Access**	Front Access
11. **Operating Temperature Range**	Range: -5 to +40°C (continuous)
12. **Dimensions**	600 mm W x 600 mm D x 1880 mm H (23.6 x 23.6 x 74) inches
13. **Estimated Installed Weight**	365 kg (785 lbs.) DC [8 carriers in one cabinet]
14. **Power Options**	Integrated Power, AC 120/240 Volt Input, -48V or +24 V DC Conversion Non-integrated Power requires either + 24 VDC Input or - 48 VDC Input
15. **Power Consumption**	
a. 3 Carrier/3 Sectors	2167 W
b. 6 Carrier/3 Sectors	5449 W
c. 11 Carrier/3 Sectors	10026 W
16. **RF Power (at J4)**	25 W per carrier (850) FCC Rated short-term average 20 W per carrier (850) FCC Rated long-term average 20 W per carrier (1900) FCC Rated short-term average 16 W per carrier (1900) FCC Rated long-term average
17. **Minimal Antenna Configuration**	2 antennas/sector
18. **Filter**	Block and Wide Band Dual Duplex
19. **Growth Frame**	PCS AUX Frame, Dual Band Growth Frame
20. **Operational Accessories**	Integrated Power
21. **Channel Elements**	Channel pooling across sectors or carriers

To learn more about our comprehensive portfolio, please contact your Lucent Technologies Sales Representative or visit our web site at http://www.lucent.com.

MOB-Mod4B-i 0106

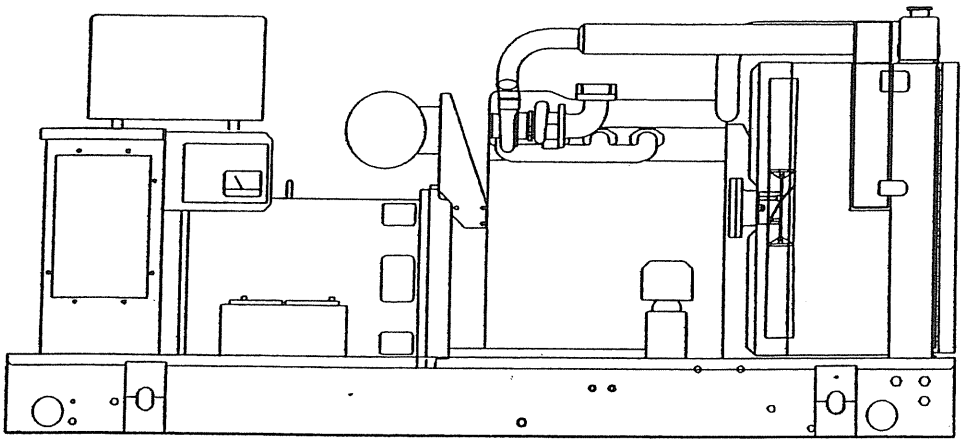
Lucent Technologies
Bell Labs Innovations

SD060

Liquid Cooled Diesel Engine Generator Sets

Continuous Standby Power Rating
60KW 60 Hz / 60KVA 50 Hz

Prime Power Rating
48KW 60 Hz /48KVA 50 Hz



Power Matched
GENERAC 3.9DTA ENGINE
Turbocharged

FEATURES

- **INNOVATIVE DESIGN & PROTOTYPE TESTING** are key components of GENERAC'S success in "IMPROVING POWER BY DESIGN." But it doesn't stop there. Total commitment to component testing, reliability testing, environmental testing, destruction and life testing, plus testing to applicable CSA, NEMA, EGSA, and other standards, allows you to choose GENERAC POWER SYSTEMS with the confidence that these systems will provide superior performance.

- **TEST CRITERIA:**
  - ✓ PROTOTYPE TESTED
  - ✓ SYSTEM TORSIONAL TESTED
  - ✓ ELECTRO-MAGNETIC INTERFERENCE
  - ✓ NEMA MG1-22 EVALUATION
  - ✓ MOTOR STARTING ABILITY
  - ✓ SHORT CIRCUIT TESTING
  - ✓ UL 2200 COMPLIANCE AVAILABLE

- **SOLID-STATE, FREQUENCY COMPENSATED VOLTAGE REGULATION.** This state-of-the-art power maximizing regulation system is standard on all Generac models. It provides optimized FAST RESPONSE to changing load conditions and MAXIMUM MOTOR STARTING CAPABILITY by electronically torque-matching the surge loads to the engine.

- **SINGLE SOURCE SERVICE RESPONSE** from Generac's dealer network provides parts and service know-how for the entire unit, from the engine to the smallest electronic component. You are never on your own when you own an GENERAC POWER SYSTEM.

- **ECONOMICAL DIESEL POWER.** Low cost operation due to modern diesel engine technology. Better fuel utilization plus lower cost per gallon provide real savings.

- **LONGER ENGINE LIFE.** Generac heavy-duty diesels provide long and reliable operating life.

- **GENERAC TRANSFER SWITCHES, SWITCHGEAR AND ACCESSORIES.** Long life and reliability is synonymous with GENERAC POWER SYSTEMS. One reason for this confidence is that the GENERAC product line includes its own transfer systems, accessories, switchgear and controls for total system compatibility.

GENERAC®
POWER SYSTEMS, INC.

APPLICATION & ENGINEERING DATA

SD060

GENERATOR SPECIFICATIONS

TYPE	Four-pole, revolving field
ROTOR INSULATION	Class H
STATOR INSULATION	Class H
TOTAL HARMONIC DISTORTION	<3%
TELEPHONE INTERFERENCE FACTOR (TIF)	<50
ALTERNATOR	Self-ventilated and drip-proof
BEARINGS (PRE-LUBED & SEALED)	1
COUPLING	Direct, Flexible Disc
LOAD CAPACITY (STANDBY)	100%
LOAD CAPACITY (PRIME)	110%

NOTE: Emergency loading in compliance with NFPA 99, NFPA 110, paragraph 5-13.2.6. Generator rating and performance in accordance with ISO8528-5, BS5514, SAE J1349, ISO3046 and DIN6271 standards.

EXCITATION SYSTEM

☐ BRUSHLESS	Magnetically coupled DC current ✓
	Eight-pole exciter w/ battery-driven field boost ✓
	Mounted outboard of main bearing ✓
☐ PERMANENT MAGNET EXCITER	Eighteen pole exciter ✓
	Magnetically coupled DC current ✓
	Mounted outboard of main bearing ✓
REGULATION	Solid-state ✓
	±1% regulation ✓

GENERATOR FEATURES

- Four pole, revolving field generator is directly connected to the engine shaft through a heavy-duty, flexible disc for permanent alignment.
- Generator meets temperature rise standards for class "F" insulation as define by NEMA MG1-32.6 and NEMA1-1.65, while the insulation system meets the requirements for the higher class "H" rating.
- All models have passed a three-phase symmetrical short circuit test to assure system protection and reliability.
- Unit is tested with an oscillograph for motor-starting ability by measuring instantaneous voltage dip.
- All models utilize an advanced wire harness design for reliable interconnection within the circuitry.
- Magnetic circuit, including amortisseur windings, tooth and skewed stator design, provides a minimal level of waveform distortion and an electromagnetic interference level which meets accepted requirements for standard AM radio, TV, and marine radio telephone applications.
- Voltage waveform deviation, total harmonic content of the AC waveform, T.I.F. (Telephone Influence Factor) and non-linear loading have been evaluated to acceptable standards in accordance with NEMA MG1.
- Alternator is self-ventilated and drip-proof constructed.
- Fully life-tested protective systems, including "field circuit and thermal overload protection" and optional main-line circuit breakers are capable of handling full output capacity.
- System Torsional acceptability confirmed during Prototype Testing.

ENGINE SPECIFICATIONS

MAKE	GENERAC
MODEL	3.9DTA
CYLINDERS	4 in-line
DISPLACEMENT	3.9 Liter (238 cu.in.)
BORE	104 mm (4.09 in.)
STROKE	115 mm (4.52 in.)
COMPRESSION RATIO	16.5:1
INTAKE AIR	Turbocharged/Aftercooled
NUMBER OF MAIN BEARINGS	5
CONNECTING RODS	4-Drop Forged Steel
CYLINDER HEAD	Cast Iron Overhead Valve
PISTONS	4- Aluminum Alloy
CRANKSHAFT	Hardened, Steel

VALVE TRAIN

LIFTER TYPE	Solid
INTAKE VALVE MATERIAL	Special Heat Resistant Steel
EXHAUST VALVE MATERIAL	Special Heat Resistant Steel
HARDENED VALVE SEATS	Replaceable

ENGINE GOVERNOR

☐ MECHANICAL (Gear Driven)	Standard
FREQUENCY REGULATION, NO-LOAD TO FULL LOAD	5.0%
STEADY STATE REGULATION	±0.33%
☐ ELECTRONIC	Optional
FREQUENCY REGULATION, NO-LOAD TO FULL LOAD	0.5%
STEADY STATE REGULATION	±0.25%

LUBRICATION SYSTEM

TYPE OF OIL PUMP	Gear
OIL FILTER	Full flow, Cartridge
CRANKCASE CAPACITY	18 Litres (19 qts.)
OIL COOLER	Oil to water

COOLING SYSTEM

TYPE OF SYSTEM	Pressurized, Closed Recovery
WATER PUMP	Pre-Lubed, Self-Sealing
TYPE OF FAN	Pusher
NUMBER OF FAN BLADES	7
DIAMETER OF FAN	457 mm (18 in.)
COOLANT HEATER	120V, 1800 W

FUEL SYSTEM

FUEL	#2D Fuel (Min Cetane #40) (Fuel should conform to ASTM Spec.)
FUEL FILTER	Single Cartridge
FUEL INJECTION PUMP	Stanadyne
FUEL PUMP	Mechanical
INJECTORS	Multi-Hole, Nozzle Type
ENGINE TYPE	Direct Injection
FUEL LINE (Supply)	7.94 mm (0.31 in.)
FUEL RETURN LINE	6.35 mm (0.25 in.)
STARTING AID	Glow Plugs

ELECTRICAL SYSTEM

BATTERY CHARGE ALTERNATOR	30 Amps at 24 V
STARTER MOTOR	24 V
RECOMMENDED BATTERY	(2)—12 Volt, 90 A.H., 4DLT
GROUND POLARITY	Negative

Rating definitions - Standby: Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. (All ratings in accordance with BS5514, ISO3046 and DIN6271). Prime (Unlimited Running Time): Applicable for supplying electric power in lieu of commercially purchased power. Prime power is the maximum power available at variable load. A 10% overload capacity is available for 1 hour in 12 hours. (All ratings in accordance with BS5514, ISO3046, ISO8528 and DIN6271).

GENERAC®
POWER SYSTEMS, INC.

SD060

OPERATING DATA

		STANDBY		PRIME	
		SD060		SD060	
GENERATOR OUTPUT VOLTAGE/KW-60Hz			Rated AMP		Rated AMP
120/240V, 1-phase, 1.0 pf		60	250	48	200
120/208V, 3-phase, 0.8 pf	NOTE: Consult your Generac dealer for additional voltages.	60	208	48	166
120/240V, 3-phase, 0.8 pf		60	180	48	144
277/480V, 3-phase, 0.8 pf		60	90	48	72
600V, 3-phase, 0.8 pf		60	72	48	58
GENERATOR OUTPUT VOLTAGE/KVA-50Hz			Rated AMP		Rated AMP
110/220V, 1-phase, 1.0 pf		48	218	38	172
115/200V, 3-phase, 0.8 pf	NOTE: Consult your Generac dealer for additional voltage	60	173	48	138
100/200V, 3-phase, 0.8 pf		60	173	48	138
231/400V, 3-phase, 0.8 pf		60	87	48	69
480V, 3-phase, 0.8 pf		60	72	48	58
MOTOR STARTING KVA					
Maximum at 35% instantaneous voltage dip		120/208/240V	277/480V	120/208/240V	277/480V
with standard alternator; 50/60 Hz		100/120	117/141	100/120	117/141
with optional alternator; 50/60 Hz		234/281	276/331	234/281	276/331
FUEL					
Fuel consumption—60 Hz	Load	100%	80%	100%	80%
	gal./hr.	4.3	3.6	3.6	3.0
	liters/hr.	16.3	13.5	13.6	11.3
Fuel consumption—50 Hz	gal./hr.	3.6	3.0	3.0	2.5
	liters/hr.	13.5	11.2	11.3	9.3
Fuel pump lift					
COOLING					
Coolant capacity	System - lit. (US gal.)	15.9 (4.2)		15.9 (4.2)	
	Engine - lit. (US gal.)	6.4 (1.7)		6.4 (1.7)	
	Radiator - lit. (US gal.)	9.5 (2.5)		9.5 (2.5)	
Coolant flow/min.	60 Hz - lit. (US gal.)	128 (34)		128 (34)	
	50 Hz - lit. (US gal.)	107 (28)		107 (28)	
Heat rejection to coolant 60 Hz full load	BTU/hr.	170,900		136,700	
Heat rejection to coolant 50 Hz full load	BTU/hr.	142,400		113,900	
Inlet air to radiator	60 Hz - m^3/min. (cfm)	204 (7,200)		204 (7,200)	
	50 Hz - m^3/min. (cfm)	170 (6004)		170 (6004)	
Max. air temperature to radiator	°C (°F)	54.4 (130)		54.4 (130)	
Max. ambient temperature	°C (°F)	48.9 (120)		48.9 (120)	
COMBUSTION AIR REQUIREMENTS					
Flow at rated power	60 Hz - cfm	209		168	
	50 Hz - m^3/min.	4.7		3.8	
EXHAUST					
Exhaust flow at rated output	60 Hz - m^3/min. (cfm)	15.5 (549)		12.4 (439)	
	50 Hz - m^3/min. (cfm)	12.3 (434)		10 (353)	
Max recommended back pressure	"Hg	1.5		1.5	
Exhaust temperature 60 Hz (full load)	°C (°F)	524 (975)		459 (858)	
Exhaust outlet size		3"		3"	
ENGINE					
Rated RPM	60 Hz	1800		1800	
	50 Hz	1500		1500	
HP at rated KW	60 Hz	92		74	
	50 Hz	73		59	
Piston speed	60 Hz - m/min. (ft./min.)	414 (1358)		414 (1358)	
	50 Hz - m/min. (ft./min.)	345 (1132)		345 (1132)	
BMEP	60 Hz - psi	170		138	
	50 Hz - psi	161		130	
DERATION FACTORS					
Temperature					
5% for every 10°C above - °C		25		25	
2.77% for every 10°F above - °F		77		77	
Altitude					
1.1% for every 100 m above - m		1829		1829	
3.5% for every 1000 ft. above - ft.		6000		6000	

STANDARD ENGINE & SAFETY FEATURES

SD060

- High Coolant Temperature Automatic Shutdown
- Low Coolant Level Automatic Shutdown
- Low Oil Pressure Automatic Shutdown
- Overspeed Automatic Shutdown (Solid-state)
- Crank Limiter (Solid-state)
- Oil Drain Extension
- Radiator Drain Extension
- Factory-Installed Cool Flow Radiator
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Rubber-Booted Engine Electrical Connections
- Secondary Fuel Filter
- Fuel Lockoff Solenoid
- Stainless Steel Flexible Exhaust Connection
- Battery Charge Alternator
- Battery Cables
- Battery Tray
- Vibration Isolation of Unit to Mounting Base
- 12 Volt, Solenoid-activated Starter Motor
- Air Cleaner
- Fan Guard
- Control Console
- Radiator Duct Adapter

OPTIONS

OPTIONAL COOLING SYSTEM ACCESSORIES
- O Coolant Heater 120V

OPTIONAL FUEL ACCESSORIES
- O Flexible Fuel Lines
- O UL Listed Fuel Tanks
- O Base Tank Low Fuel Alarm
- O Primary Fuel Filter
- O Primary Fuel Filter with Heater

OPTIONAL EXHAUST ACCESSORIES
- O Critical Exhaust Silencer

OPTIONAL ELECTRICAL ACCESSORIES
- O Battery, 12 Volt, 135 A.H., 4DLT
- O 2A Battery Charger
- O 10A Dual Rate Battery Charger
- O Battery Heater

OPTIONAL ALTERNATOR ACCESSORIES
- O Alternator Upsizing
- O Alternator Strip Heater
- O Alternator Tropicalization
- O Voltage Changeover Switch
- O Main Line Circuit Breaker

CONTROL CONSOLE OPTIONS
- O Analog Control "C" Panel (Bulletin 0151160SBY)
- O Analog/Digital Control "E" Panel (Bulletin 0161310SBY)

ADDITIONAL OPTIONAL EQUIPMENT
- O Automatic Transfer Switch
- O Isochronous Governor
- O 3 Light Remote Annunciator
- O 5 Light Remote Annunciator
- O 20 Light Remote Annunciator
- O Remote Relay Panels
- O Unit Vibration Isolators (Pad/Spring)
- O Oil Make-Up System
- O Oil Heater
- O 5 Year Warranties
- O Export Boxing
- O GenLink® Communications Software

OPTIONAL ENCLOSURE
- O Weather Protective
- O Sound Attenuated
- O Aluminum and Stainless Steel
- O Enclosed Muffler

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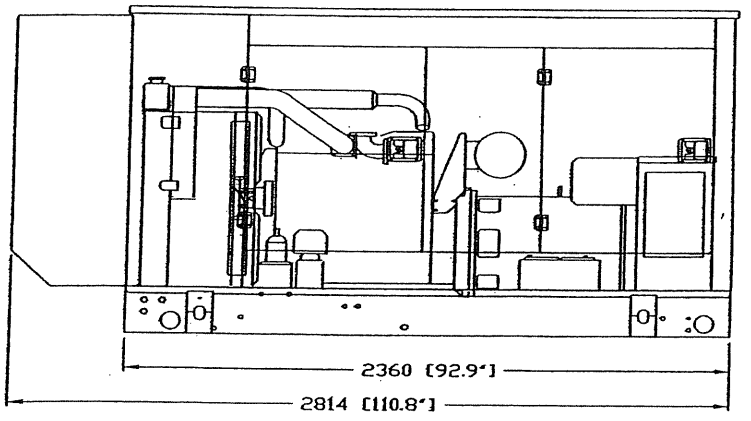

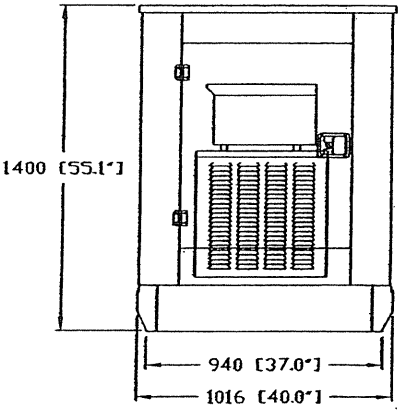

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Site Search Summary
Milford East

Section 16-50j-74(j) of the Regulations of Connecticut State Agencies requires the submission of a statement that describes "the narrowing process by which other possible sites were considered and eliminated." In accordance with this requirement, descriptions of the general site search process, the identification of the applicable search area and the alternative locations considered for development of the proposed telecommunications facility in Milford are provided below.

Site Search Process

To initiate a site selection process in an area where a coverage or capacity problem has been identified, Cellco first establishes a "site search ring" or "site search area." In any search ring or area, Cellco seeks to avoid the unnecessary proliferation of towers and to reduce the potential adverse environmental effects of the cell site, while at the same time maximizing the quality of service provided from a particular facility. These objectives are achieved by initially identifying existing towers and other sufficiently tall structures within and near the site search area. If any are found, they are evaluated to determine whether they are capable of supporting Cellco's telecommunications equipment at a location and elevation that satisfies its technical requirements.

Cellco maintains eight (8) existing communications facilities surrounding and located within approximately four (4) miles of the Milford East search area. These existing facilities cannot provide the coverage or capacity relief needed in the identified problem areas, along Routes 1 and 121 and along portions of Interstate 95 and Route 15, as well as local roads in the area. (See Attachment 8).

	OWNER/ OPERATOR	FACILITY TYPE	LOCATION	CELLCO ANTENNA HEIGHT
1.	Sprint (Milford NE)	Monopole (120')	528 Wheeler Farm Road Milford, CT	110'
2.	Crown Castle (Milford)	Monopole (100')	423 Oronoque Road Milford, CT	100'
3.	Verizon Wireless (Forest Heights)	Roof-Top Flagpole (82.5' and 76')	1052 Boston Post Road Milford, CT	87.5
4.	American Tower (Milford South 2)	Monopole (125')	185 Research Drive Milford, CT	185'

	OWNER/ OPERATOR	FACILITY TYPE	LOCATION	CELLCO ANTENNA HEIGHT
5.	Town of Orange (Orange 4)	Monopole (180')	South Orange Center Road Orange, CT	117'
6.	Town of Orange (Orange 1)	Monopole (160')	525 Orange Center Road Orange, CT	158'
7.	Sprint (Orange 3)	Monopole (140')	700 Grassy Hill Road Orange, CT	120'

If existing towers or structures are not available or technically feasible, other locations are investigated where the construction of a new tower is required to provide adequate elevation to satisfy Cellco's requirements. The list of available locations may be further reduced if, after preliminary negotiations, the property owners withdraw a site from further consideration. From among the remaining locations, the proposed sites are selected by eliminating those that have greater potential for adverse environmental effects and fewer benefits to the public (i.e., those requiring taller towers, possibly with lights; those with substantial adverse impacts on densely populated residential areas; and those with limited ability to share space with other public or private telecommunications entities). It should be noted that in any given site search, the weight afforded to factors considered in the selection process will vary depending upon the availability and nature of sites within the search area.

Identification of the Milford East Search Area

The purpose of the proposed Milford East Facility is to provide reliable coverage, principally but not exclusively at PCS frequencies, to significant existing coverage gaps that have been identified along Routes 1 and 121, as well as portions of Route 15 and Interstate 95, and local roads in portions of Milford and Orange, Connecticut. The proposed Milford East Facility will also provide capacity relief, principally but not exclusively at cellular frequencies, in the area by off-loading calls from Cellco's existing adjacent cell sites. The coverage gaps referenced above were identified using best server propagation modeling tools. These tools are fine-tuned regularly through the use of actual base-line drive data.

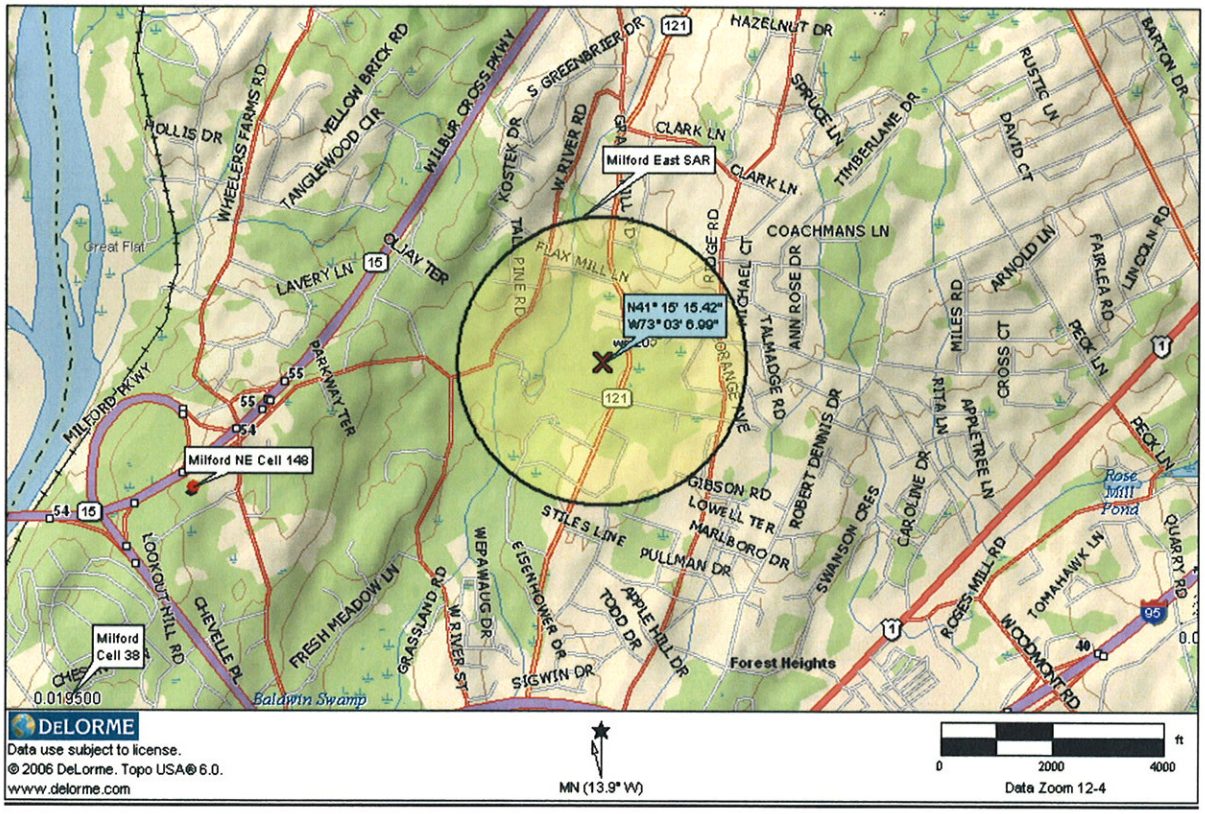
1. Central Connecticut Coast YMCA, Inc. – Orange Avenue. This is a 14.32 acre parcel east of Orange Avenue and is the location of the proposed cell site.

2. The Orchards Golf Course – Kozlowski Road. This is a 39 acre parcel owned by the City of Milford, located west of Orange Avenue and south of Kozlowski Road. Cellco representatives were directed by the golf course superintendent to an area along the southerly property boundary. Access to this remote portion of the property and site development itself would impact wetland and watercourse areas.

3. Eisenhower Park – North Street. This is an approximately 230 acre City-owned parcel located to the west of the YMCA property. This parcel is used for park purposes. Significant portions of the property are identified as wetlands and floodplain areas. Cellco investigated the use of an existing CL&P transmission line tower at this site. The area examined maintains a ground elevation of approximately 80 feet AMSL, approximately 35 feet lower than the proposed cell site at the YMCA. At the time of the site search, the transmission line was supported by wooden H-frame structures approximately 60 feet in height. Use of the existing structure would require increasing the height of the 60-foot transmission line structure to at least 140 feet. Since the initial search, this transmission line corridor has been expanded to accommodate recent upgrades to the CL&P 345 kV transmission line. Ultimately, it was determined that use of this site would not satisfy Cellco's RF objectives in the area.

4. Baretta Gardens – 945 North Street. This is a 5.5 acre parcel located west of the YMCA property. Cellco investigated the use of the existing CL&P transmission line tower at this site. Similar to the Eisenhower Park location, at the time of the search the transmission line was supported by wooden H-frame structures approximately 60 feet in height. Use of the existing structure would require the doubling of the transmission line structure height. Since the initial search, this transmission line corridor has been expanded to accommodate the recent upgrades to the CL&P 345 kV transmission line.

5. Grace Baptist Church, 400 Burnt Plains Road. Cellco explored the use of an existing 40-foot steeple at Grace Baptist Church. Use of the existing steeple would not satisfy Cellco's coverage objective in its Milford East search area.



MILFORD EAST SAR

Visual Resource Evaluation Report

Proposed Wireless Telecommunications Facility

Milford East
631 Orange Avenue
Milford, Connecticut

Prepared for 

Prepared by ***VHB*/Vanasse Hangen Brustlin, Inc.**
54 Tuttle Place
Middletown, CT 06457

December 2008

Visual Resource Evaluation

Cellco Partnership, dba Verizon Wireless ("Verizon Wireless") seeks approval from the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need for the construction of a wireless telecommunications facility ("Facility") to be located on property at 631 Orange Avenue in the City of Milford, Connecticut (identified herein as the "host property"). This Visual Resource Evaluation was conducted to assess the visibility of the proposed Facility within a two-mile radius ("Study Area"). In addition to the City of Milford, the Study Area also contains land located within the Town of Orange, Connecticut. Attachment A contains a photograph of the proposed project area. Attachment A also contains a map that depicts the location of the proposed Facility and the limits of the Study Area.

Project Introduction

The proposed Facility includes the installation of a 110-foot tall monopole with associated ground equipment to be located at its base. Both the proposed monopole and ground equipment would be situated within a fence-enclosed compound. According to information provided by the project engineers, NatComm, Inc., the proposed project area is located at approximately 116 feet Above Mean Sea Level ("AMSL"). Access to the Facility would extend from Orange Avenue over the existing paved access drive and parking area on the host property, then over a proposed 12-foot wide gravel access driveway extension to the Facility.

Site Description and Setting

Identified in the City of Milford land records as Map 107/Block 835/ Lot 7, the host property consists of approximately 14.32 acres of land and is currently occupied by the Central Connecticut Coast YMCA Inc. The proposed Facility is located in an open area on the eastern portion of the host property, roughly 200 feet to the east of the YMCA building. To the north and east of the proposed monopole, immediately adjacent to the compound, is an area of significant vegetative screening associated with a regulated wetland located on the host property which extends to the adjoining parcel to the east (also owned by the Central Connecticut Coast YMCA Inc.). As such, it is likely that this vegetation would remain in place and therefore continue to provide both year-round and seasonal screening of the proposed monopole and compound area. Attachment A includes a photograph of the proposed project area. Land use in the immediate vicinity of the host property mainly consists of medium-density residential development and municipal land uses. Segments of US Route 1, Route 121, Route 152, the Wilbur Cross Parkway and Interstate 95 are contained within the Study Area. In total, the Study Area features approximately 146 linear miles of roadways.

The topography within the Study Area is characterized by ground elevations that range from approximately 5 feet AMSL to approximately 255 feet AMSL. The Study Area contains approximately 100 acres of surface water mainly associated with the Wepawaug River to the

west and Indian Lake/Indian River to the east. The tree cover within the Study Area consists mainly of mixed deciduous hardwood species. The tree canopy occupies approximately 4,453 acres of the 8,042-acre study area (55%). During the in-field activities associated with this analysis, an infrared laser range finder was used to determine the average tree canopy height throughout the Study Area. Numerous trees were selected for measurement and the average tree canopy was determined to be 65 feet.

METHODOLOGY

In order to better represent the visibility associated with the Facility, VHB uses a two-fold approach incorporating both a predictive computer model and in-field analysis. The predictive model is employed to assess potential visibility throughout the entire Study Area, including private property and/or otherwise inaccessible areas for field verification. A "balloon float" and Study Area drive-through reconnaissance are also conducted to obtain locational and height representations, back-check the initial computer model results and provide documentation from publicly accessible areas. Results of both activities are analyzed and incorporated into the final viewshed map. A description of the methodologies used in the analysis is provided below.

Visibility Analysis

Using ESRI's ArcView® Spatial Analyst, a computer modeling tool, the areas from where the top of the Facility is expected to be visible are calculated. This is based on information entered into the computer model, including Facility height, its ground elevation, the surrounding topography and existing vegetation. Data incorporated into the predictive model includes a digital elevation model (DEM) and a digital forest layer for the Study Area. The DEM was derived from the Connecticut LiDAR-based digital elevation data. The LiDAR data was produced by the University of Connecticut Center for Land Use Education and Research (CLEAR) in 2007 and has a horizontal resolution of 10 feet. In order to create the forest layer, digital aerial photographs of the Study Area are incorporated into the computer model. The mature trees and woodland areas depicted on the aerial photos are manually traced in ArcView® GIS and then converted into a geographic data layer. The aerial photographs were produced in 2006 and have a pixel resolution of one foot.

Once the data are entered, a series of constraints are applied to the computer model to achieve an estimate of where the Facility will be visible. Initially, only topography was used as a visual constraint; the tree canopy is omitted to evaluate all areas of potential visibility without any vegetative screening. Although this is an overly conservative prediction, the initial omission of these layers assists in the evaluation of potential seasonal visibility of the proposed Facility. A conservative tree canopy height of 50 feet is then used to prepare a preliminary viewshed map for use during the Study Area reconnaissance. The average height of the tree canopy was determined in the field using a laser range finder. The average tree canopy height is incorporated into the final viewshed map; in this case, 65 feet was identified

as the average tree canopy height. The forested areas within the Study Area were then overlaid on the DEM with a height of 65 feet added and the visibility calculated. As a final step, the forested areas are extracted from the areas of visibility, with the assumption that a person standing among the trees will not be able to view the Facility beyond a distance of approximately 500 feet. Depending on the density of the vegetation in these areas, it is assumed that some locations within this range will provide visibility of at least portions of the Facility based on where one is standing.

Also included on the map is a data layer, obtained from the State of Connecticut Department of Environmental Protection ("CTDEP"), which depicts various land and water resources such as parks and forests, recreational facilities, dedicated open space, CTDEP boat launches and other categories. Lastly, based on both a review of published information and discussions with municipal officials in Milford and Orange, it was determined that there are no designated scenic roadways located within the Study Area.

The preliminary viewshed map (using topography and a conservative tree canopy height of 50 feet) is used during the in-field activity to assist in determining if significant land use changes have occurred since the aerial photographs used in this analysis were produced and to compare the results of the computer model with observations of to the balloon float. Information obtained during the reconnaissance is then incorporated into the final visibility map.

Balloon Float and Study Area Reconnaissance

On September 15, 2008 Vanasse Hangen Brustlin Inc., (VHB) conducted a balloon float at the proposed Facility location to further evaluate the potential viewshed within the Study Area. The balloon float consisted of raising and maintaining an approximate four-foot diameter, helium-filled weather balloon at the proposed site location at a height of 110 feet. Once the balloon was secured, VHB staff conducted a drive-by reconnaissance along the roads located within the Study Area with an emphasis on nearby residential areas and other potential sensitive receptors in order to evaluate the results of the preliminary viewshed map and to document where the balloon was, and was not, visible above and/or through the tree canopy. During the balloon float, the temperature was approximately 75 degrees Fahrenheit with calm wind conditions and sunny skies.

Photographic Documentation

During the balloon float, VHB personnel drove the public road system within the Study Area to inventory those areas where the balloon was visible. The balloon was photographed from a number of different vantage points to document the actual view towards the proposed Facility. Several photographs where the balloon was not visible are also included. The locations of the photos are described below:

1. View from Orange Avenue at host property.
2. View from Orange Avenue adjacent to existing YMCA access drive.
3. View from Christine Terrace adjacent to house #59.
4. View from end of Christine Terrace.
5. View from Gibson Road west of Mansfield Road.
6. View from Burnt Plain Road at Alexander Road.
7. View from Burnt Plain Road adjacent to house #327.
8. View from Christine Terrace at Cheryl Ann Drive.
9. View from Terrel Drive at Orange Avenue.
10. View from Mansfield Avenue at Singer Terrace.

Photographs of the balloon from the view points listed above were taken with a Nikon D-80 digital camera body and Nikon 18 to 135 mm zoom lens. For the purposes of this report, the lens was set to 50mm. "The lens that most closely approximates the view of the unaided human eye is known as the normal focal-length lens. For the 35 mm camera format, which gives a 24x36 mm image, the normal focal length is about 50 mm.[1]"

The locations of the photographic points are recorded in the field using a hand-held GPS receiver and are subsequently plotted on the maps contained in the attachments to this document.

Photographic Simulation

Photographic simulations were generated for the five representative locations where the balloon was visible during the in-field activities. The photographic simulations represent a scaled depiction of the proposed Facility (a monopole with multiple antenna arrays) from these locations. The height of the Facility is determined based on the location of the balloon in the photograph and a proportional monopole image is simulated into the photographs. The simulations are contained in Attachment A.

CONCLUSIONS

Based on this analysis, areas from where the proposed 110-foot tall Facility would be visible above the tree canopy comprise approximately 24 acres, or less than one half of one percent of the 8,042-acre Study Area. As depicted on the viewshed map (provided in Attachment B), areas of potential year-round visibility are generally limited to the host property and immediate vicinity (1/4 mile or less) thereof including select portions of Orange Avenue, Christine Terrace and Gibson Road (as photodocumented). Overall, potential year-round visibility would be minimized by the existing vegetative cover located on the host property and land adjacent to the host property, the relatively low height of the proposed monopole (110 feet AGL) and the relatively flat terrain in the Study Area. VHB estimates that select portions of approximately 10 residential properties may have at least partial year-round

[1] Warren, Bruce. *Photography*, West Publishing Company, Eagan, MN, c. 1993, (page 70).

views of the proposed monopole. This includes seven residential properties located along Christine Terrace; 2 residential properties located along Gibson Road; and one residential property located off Mansfield Avenue.

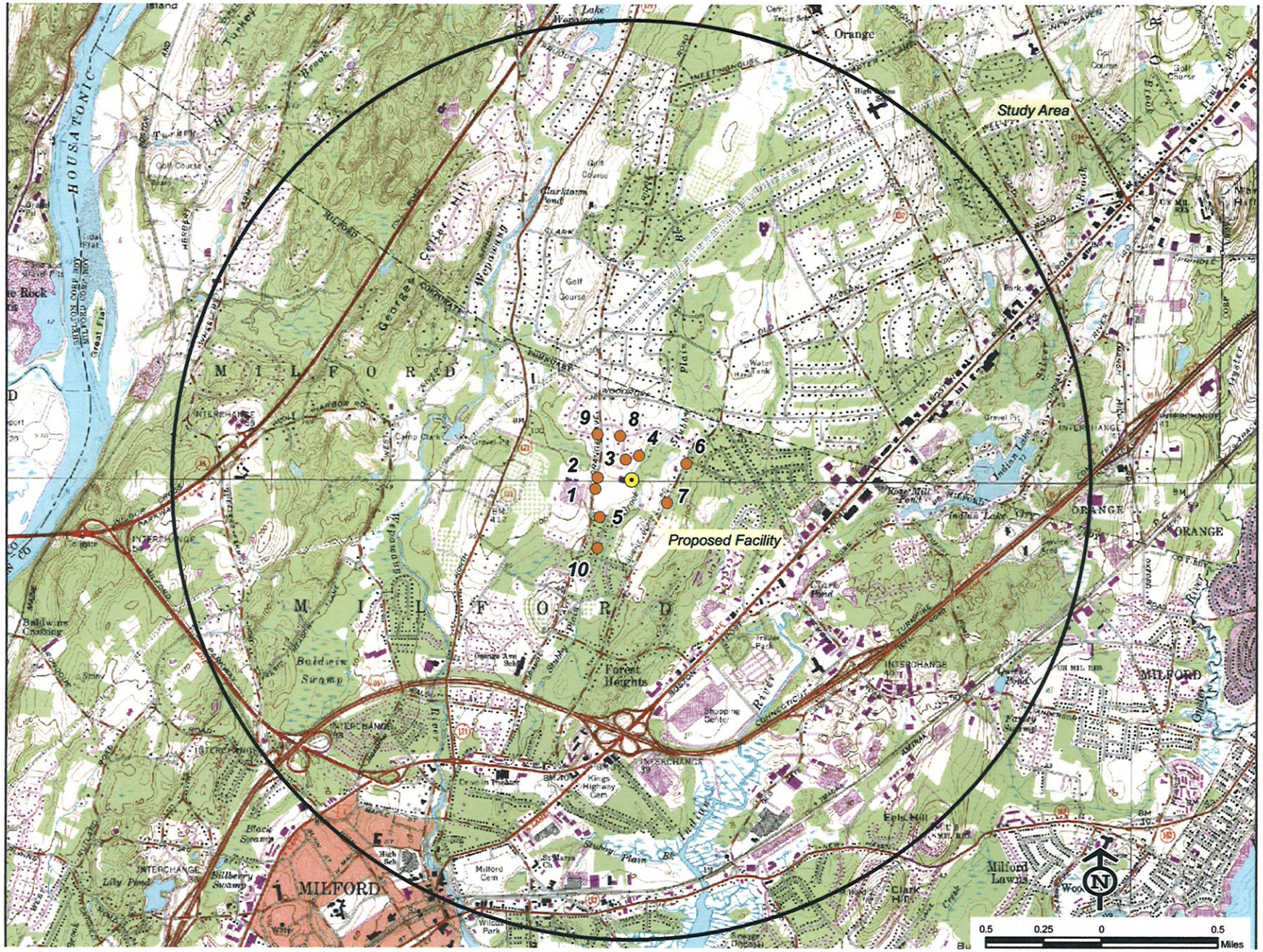
The viewshed map also depicts several additional areas where seasonal (i.e. during "leaf off" conditions) views are anticipated. These areas comprise approximately 29 additional acres and are generally located among select portions of the residential areas that abut the host property to the north and south. VHB estimates that seasonal views of the proposed monopole may be achieved from approximately 5 additional residential properties located within the Study Area. This includes 3 residential properties located along Christine Terrace; 1 residential property located along Gibson Road; and 1 residential property located off Mansfield Avenue.

Attachment A

Project Area Photograph, Photolog Documentation Map, Balloon Float Photographs, and Photographic Simulations

PROPOSED PROJECT AREA

PHOTOLOG MAP



PHOTOGRAPHIC DOCUMENTATION

VIEW 1

PHOTO TAKEN FROM ORANGE AVENUE AT HOST PROPERTY, LOOKING NORTHEAST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO SITE IS 0.16 MILE +/-

verizon wireless

VHB

PHOTOGRAPHIC SIMULATION

VIEW 1

PHOTO TAKEN FROM ORANGE AVENUE AT HOST PROPERTY, LOOKING NORTHEAST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO SITE IS 0.16 MILE +/-

verizonwireless

VHB

PHOTOGRAPHIC DOCUMENTATION

VIEW 2

PHOTO TAKEN FROM ORANGE AVENUE ADJACENT TO EXISTING YMCA ACCESS DRIVE, LOOKING EAST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO SITE IS 0.15 MILE +/-

verizon wireless

VHB

PHOTOGRAPHIC SIMULATION

VIEW 2

PHOTO TAKEN FROM ORANGE AVENUE ADJACENT TO EXISTING YMCA ACCESS DRIVE, LOOKING EAST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO SITE IS 0.15 MILE +/-

verizon wireless

VHB

PHOTOGRAPHIC DOCUMENTATION

VIEW 3

PHOTO TAKEN FROM CHRISTINE TERRACE ADJACENT TO HOUSE# 59, LOOKING SOUTHEAST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO SITE IS 0.09 MILE +/-

verizon wireless

VHB

PHOTOGRAPHIC SIMULATION

VIEW 3

PHOTO TAKEN FROM CHRISTINE TERRACE ADJACENT TO HOUSE# 59, LOOKING SOUTHEAST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO SITE IS 0.09 MILE +/-

verizon wireless

VHB

PHOTOGRAPHIC DOCUMENTATION

VIEW 4

PHOTO TAKEN FROM END OF CHRISTINE TERRACE, LOOKING SOUTHWEST

DISTANCE FROM THE PHOTOGRAPH LOCATION TO SITE IS 0.11 MILE +/-

verizonwireless

VHB