Stoughton, Wisconsin

Application for Minor Modification of FM Station WBKY

On Channel 240

by

Magnum Communications, Inc.

Exhibit 34

Section 73.215 Protection

July 2019

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Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 34, Section 73.215 Protection, for Magnum Communications, Inc., and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.

Timothy L. Warner, P.E.
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Asheville, North Carolina 28801
(828) 258-1238
twarner@tlwinc.net
15 July 2019

Narrative

This Exhibit supports a minor modification application for FM station WBKY, on Channel 240 in Stoughton, Wisconsin. Allocation details are provided in this exhibit. This proposal complies fully with the requirements of 47 C.F.R. §73.215(e). The proposed modified facilities create no mutual exclusivities with any licensed facilities, construction permits, or applications as shown in the allocation table in this exhibit.

This application is a replacement for a construction permit issued in response to application file number BPH-20160712AAJ. The applicant has worked with local zoning authorities to resolve issues which had arisen at the application stage for a building permit. The changes from the licensed facilities are a new site, an increase in height, and reduction in power to the class maximum power for the HAAT proposed.

Figure 1 shows the licensed and proposed contours. Figure 1 also shows that the proposed 70 dBu F(50,50) contour provides coverage to all of Stoughton.

Allocations

This application proposes service to Stoughton, Wisconsin, on channel 240. An updated Table 1: Allocations is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. The proposed facilities are fully spaced to all facilities except that shown below.

Table and Figure	Call Sign	Location	Channel, class and relationship
2	WMAD	Cross Plains, Wisconsin	242B1, second adjacent

WMAD is authorized under §73.215. Therefore, protection is shown to the actual WMAD facilities, not class maximum facilities. Figure 2 shows the relevant service contours, 57 dBu F(50,50) for Class B1 WMAD and 60 dBu F(50,50) for WBKY. Interference contours are 40 dB higher than the service contours. Table 2 is an FMOver tabulation of the protection data.

The required full spacing for second adjacent stations, Class A to Class B1, is 48 kilometers. The proposed spacing is 46.9 kilometers. The minimum allowable under §73.215(e) is 42 kilometers.

Table 1: Allocations

Allocation Study
Magnum Communications, Inc.

REFERENCE — CH# 240A - 95.9 MHz, Pwr= 2.65 kW, HAAT= 151.6 M, COR= 438 M — DISPLAY DATES
42 51 15.0 N. — Average Protected F(50-50)= 28.2 km — DATA 07-15-19
89 17 41.0 W. — 73.215 Omni-directional — SEARCH 07-15-19

CH CALL / CITY	TYPE ANT / STATE	AZI. <--	DIST / FILE #	LAT. / LNG.	Pwr(kW) / HAAT(M)	INT(km) / COR(M)	PRO(km) / LICENSEE	*IN* (Overlap in km)	*OUT*
240A WBKY!	CP NCX	0.0	0.01	42 51 15.4	2.650		---Reference---		
Stoughton	WI	180.0	BPH20160712AAJ	89 17 41.0	153	439	Magnum Communications, Inc		
Prior construction permit.									
240A WBKY!	LIC CN	345.7	89.93	43 38 17.0	5.400		---Reference---		
Portage	WI	165.5	BLH19990804KF	89 34 16.0	98	356	Magnum Communications, Inc		
Licensed facilities.									
242B1 WMAD	LIC NCX	328.2	46.90	43 12 44.0	5.100	3.5	43.6	15.8	0.2
Cross Plains	WI	148.0	BLH20110804AAK	89 35 59.0	213	513	Capstar Tx, LLC		
Protected under §73.215(e).									
239B WRIT-FM«	LIC C	76.4	115.54	43 05 24.0	34.000	76.1	64.1	112.5R	3.0M
Milwaukee	WI	257.3	BLH20000606ACL	87 54 55.0	186	399	Clear Channel Broadcasting		
241A WLKG«	LIC ZCN	111.1	74.83	42 36 34.0	6.000	40.0	26.0	71.5R	3.3M
Lake Geneva	WI	291.7	BLH19940527KC	88 26 36.0	100	381	Ctj Communications, Ltd.		
239A WSEY«	LIC NC	186.7	87.48	42 04 19.0	3.200	40.3	26.3	71.5R	16.0M
Oregon	IL	6.6	BLH19990809KB	89 25 08.0	109	355	Nrg License Sub, Llc		
241C1 KMXG«	LIC CN	214.4	163.97	41 37 58.0	100.000	106.5	73.5	132.5R	31.5M
Clinton	IA	33.7	BLH19861017KB	90 24 38.0	299	502	Citicasters Licenses, Inc.		
240A WERV-FM«	LIC C	144.6	147.31	41 46 09.0	2.850	75.5	23.9	114.5R	32.8M
Aurora	IL	325.3	BMLH20010314AAF	88 16 02.0	103	318	Alpha Media Licensee Llc		
237A WRTB«	LIC CN	170.3	63.51	42 17 26.0	1.250	2.0	24.8	30.5R	33.0M
Winnebago	IL	350.4	BLH19850108LQ	89 09 51.0	156	400	Mid-way Radio, Inc.		
293A WKCH«	LIC ZCX	82.5	44.75	42 54 20.0	6.000	0.0	0.0	9.5R	35.3M
Whitewater	WI	262.8	BLH20061025ABF	88 45 05.0	61	317	Nrg License Sub, Llc		
294A WRIS-FM«	LIC CX	289.8	50.15	43 00 19.0	2.900	0.0	0.0	9.5R	40.7M
Mount Horeb	WI	109.4	BLH20051011ACC	89 52 25.0	146	465	Mid-west Management, Inc.		
241A WTCX«	LIC ZCN	23.1	116.85	43 49 10.0	4.000	39.8	26.0	71.5R	45.4M
Ripon	WI	203.5	BLH19950420KB	88 43 20.0	123	400	Radio Plus, Inc.		
237A WXRO«	LIC ZCN	28.9	78.25	43 28 09.0	6.000	2.3	24.8	30.5R	47.8M
Beaver Dam	WI	209.3	BLH19911024KA	88 49 32.0	100	373	Good Karma Broadcasting, L		
243B WKLH«	LIC CX	76.1	116.50	43 05 48.0	20.000	5.7	64.6	68.5R	48.0M
Milwaukee	WI	257.1	BMLH20120730ACY	87 54 19.0	247	455	Lakefront Communications,		
240C3 WKSZ«	LIC NCN	31.8	197.80	44 21 32.0	4.500	97.5	37.2	141.5R	56.3M
De Pere	WI	212.7	BLH19960529KC	87 59 07.0	236	479	Woodward Communications In		
241C2 WXYM«	LIC CN	317.2	179.18	44 01 32.0	44.000	80.4	54.4	105.5R	73.7M
Tomah	WI	136.2	BLH19970312KB	90 48 58.0	160	446	Magnum Radio, Inc.		

Terrain database is FCC NGDC 30 Sec,
R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference Zone= - Zone 1, Co to 3rd adjacent.
All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
« = Station meets FCC minimum distance spacing for its class.

Source of Data

Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were evaluated using terrain extracted from the National Geophysical Data Center's (NGDC) 30 arcsecond terrain database, formatted by V-Soft Communications and edited to match the database in use at the Federal Communications Commission.

Coordinates are presented to the nearest whole seconds in NAD27. Elevations are presented to the nearest meter. HAAT was calculated using the FCC's Antenna Height Above Average Terrain (HAAT) Calculator, the standard 8 cardinal radials. Power was set to Class A maximum for the HAAT using the FCC's FMpower utility.

Table 2: FM Over Output for Protection of WMAD

07-15-2019 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

WBKY.C	WMAD BLH20110804AAK
Channel = 240A	Channel = 242B1
Max ERP = 2.65 kW	Max ERP = 5.1 kW
RCAMSL = 438 m	RCAMSL = 513 m
N. Lat. 42 51 15.0	N. Lat. 43 12 44.0
W. Lng. 89 17 41.0	W. Lng. 89 35 59.0
Protected	Interfering
60 dBu	100 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
268.0	002.6500	0141.1	027.3	183.4	005.1000	0185.5	040.9	59.34	
269.0	002.6500	0142.1	027.4	183.6	005.1000	0186.2	040.4	59.60	
270.0	002.6500	0143.2	027.5	183.8	005.1000	0187.0	040.0	59.85	
271.0	002.6500	0144.2	027.6	184.0	005.1000	0187.8	039.5	60.11	
272.0	002.6500	0145.3	027.7	184.1	005.1000	0188.6	039.0	60.38	
273.0	002.6500	0145.3	027.7	184.2	005.1000	0188.7	038.5	60.62	
274.0	002.6500	0145.0	027.7	184.1	005.1000	0188.6	038.0	60.84	
275.0	002.6500	0144.6	027.6	184.1	005.1000	0188.3	037.6	61.07	
276.0	002.6500	0144.2	027.6	184.0	005.1000	0188.0	037.1	61.29	
277.0	002.6500	0143.7	027.5	183.9	005.1000	0187.6	036.6	61.51	
278.0	002.6500	0142.9	027.5	183.8	005.1000	0186.9	036.1	61.71	
279.0	002.6500	0142.0	027.4	183.6	005.1000	0186.1	035.6	61.92	
280.0	002.6500	0140.9	027.3	183.4	005.1000	0185.2	035.2	62.12	
281.0	002.6500	0140.0	027.2	183.1	005.1000	0184.7	034.7	62.33	
282.0	002.6500	0140.0	027.2	183.0	005.1000	0184.5	034.2	62.57	
283.0	002.6500	0140.5	027.3	183.0	005.1000	0184.5	033.8	62.81	
284.0	002.6500	0140.6	027.3	182.8	005.1000	0184.4	033.3	63.05	
285.0	002.6500	0140.3	027.3	182.6	005.1000	0184.6	032.8	63.30	
286.0	002.6500	0139.3	027.2	182.3	005.1000	0185.3	032.4	63.57	
287.0	002.6500	0138.0	027.1	181.9	005.1000	0186.3	032.0	63.85	
288.0	002.6500	0137.1	027.0	181.5	005.1000	0187.2	031.5	64.13	
289.0	002.6500	0136.4	026.9	181.2	005.1000	0188.1	031.1	64.41	
290.0	002.6500	0135.6	026.9	180.8	005.1000	0189.0	030.7	64.69	
291.0	002.6500	0135.0	026.8	180.4	005.1000	0190.0	030.2	64.98	
292.0	002.6500	0134.2	026.8	180.0	005.1000	0190.4	029.8	65.24	
293.0	002.6500	0133.1	026.7	179.5	005.1000	0188.9	029.4	65.42	
294.0	002.6500	0132.3	026.6	179.0	005.1000	0187.5	029.0	65.60	
295.0	002.6500	0131.5	026.5	178.5	005.1000	0186.0	028.6	65.78	
296.0	002.6500	0131.1	026.5	178.0	005.1000	0184.6	028.3	65.97	
297.0	002.6500	0130.9	026.5	177.5	005.1000	0183.3	027.9	66.17	
298.0	002.6500	0130.5	026.4	176.9	005.1000	0182.3	027.5	66.37	
299.0	002.6500	0130.1	026.4	176.4	005.1000	0181.7	027.1	66.59	
300.0	002.6500	0129.7	026.4	175.8	005.1000	0182.2	026.7	66.86	
301.0	002.6500	0129.3	026.3	175.1	005.1000	0183.1	026.4	67.14	
302.0	002.6500	0129.0	026.3	174.5	005.1000	0183.6	026.0	67.41	
303.0	002.6500	0129.0	026.3	173.9	005.1000	0184.1	025.7	67.68	
304.0	002.6500	0129.0	026.3	173.2	005.1000	0184.7	025.3	67.96	
305.0	002.6500	0128.9	026.3	172.5	005.1000	0185.4	025.0	68.23	
306.0	002.6500	0128.5	026.3	171.7	005.1000	0186.0	024.7	68.48	
307.0	002.6500	0127.9	026.2	170.9	005.1000	0186.6	024.4	68.72	
308.0	002.6500	0127.5	026.2	170.0	005.1000	0187.2	024.1	68.95	
309.0	002.6500	0127.6	026.2	169.2	005.1000	0187.7	023.8	69.20	
310.0	002.6500	0128.4	026.3	168.5	005.1000	0188.1	023.4	69.47	
311.0	002.6500	0129.7	026.4	167.8	005.1000	0188.5	023.1	69.76	
312.0	002.6500	0131.3	026.5	167.0	005.1000	0189.4	022.7	70.09	
313.0	002.6500	0133.1	026.7	166.3	005.1000	0191.0	022.3	70.46	
314.0	002.6500	0134.9	026.8	165.5	005.1000	0192.8	021.9	70.82	
315.0	002.6500	0136.5	026.9	164.6	005.1000	0194.0	021.6	71.15	
316.0	002.6500	0137.6	027.0	163.6	005.1000	0194.7	021.3	71.42	
317.0	002.6500	0138.1	027.1	162.5	005.1000	0195.4	021.0	71.64	
318.0	002.6500	0138.4	027.1	161.3	005.1000	0196.5	020.8	71.87	
319.0	002.6500	0138.7	027.1	160.2	005.1000	0198.7	020.6	72.13	
320.0	002.6500	0138.8	027.1	158.9	005.1000	0201.1	020.4	72.37	
321.0	002.6500	0138.7	027.1	157.6	005.1000	0202.8	020.3	72.55	
322.0	002.6500	0138.6	027.1	156.3	005.1000	0204.6	020.1	72.72	
323.0	002.6500	0138.8	027.1	155.0	005.1000	0205.7	020.0	72.87	
324.0	002.6500	0139.4	027.2	153.7	005.1000	0205.3	019.9	72.97	
325.0	002.6500	0140.4	027.3	152.4	005.1000	0204.6	019.7	73.07	

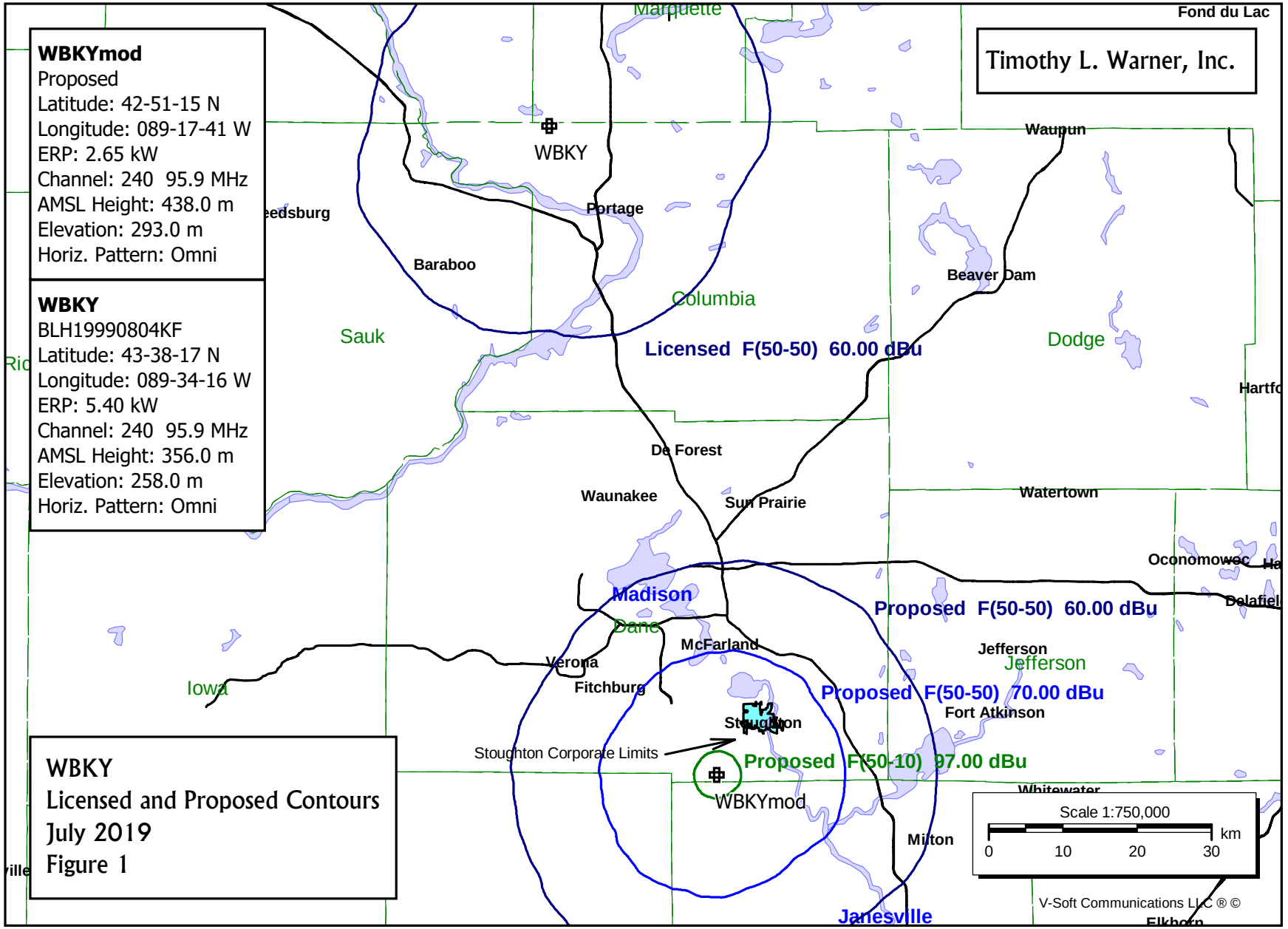
326.0	002.6500	0141.4	027.4	151.1	005.1000	0204.6	019.6	73.18
327.0	002.6500	0142.3	027.4	149.7	005.1000	0205.1	019.5	73.29
328.0	002.6500	0143.2	027.5	148.3	005.1000	0205.4	019.4	73.37
329.0	002.6500	0144.0	027.6	146.8	005.1000	0204.9	019.3	73.40
330.0	002.6500	0144.3	027.6	145.4	005.1000	0205.0	019.3	73.41
331.0	002.6500	0143.9	027.6	144.0	005.1000	0206.6	019.4	73.40
332.0	002.6500	0143.7	027.6	142.6	005.1000	0208.8	019.5	73.43
333.0	002.6500	0144.5	027.6	141.2	005.1000	0210.8	019.5	73.50
334.0	002.6500	0145.6	027.7	139.7	005.1000	0212.3	019.5	73.55
335.0	002.6500	0146.5	027.8	138.3	005.1000	0213.9	019.6	73.57
336.0	002.6500	0147.6	027.9	136.9	005.1000	0215.1	019.6	73.57
337.0	002.6500	0148.8	028.0	135.4	005.1000	0214.9	019.7	73.51
338.0	002.6500	0149.6	028.1	134.1	005.1000	0214.5	019.8	73.39
339.0	002.6500	0149.6	028.1	132.8	005.1000	0214.5	020.0	73.22
340.0	002.6500	0149.1	028.0	131.6	005.1000	0214.5	020.3	73.02
341.0	002.6500	0148.5	028.0	130.5	005.1000	0214.8	020.6	72.80
342.0	002.6500	0148.2	027.9	129.4	005.1000	0215.3	020.9	72.60
343.0	002.6500	0148.1	027.9	128.3	005.1000	0216.5	021.1	72.43
344.0	002.6500	0148.2	027.9	127.2	005.1000	0218.5	021.4	72.30
345.0	002.6500	0148.4	028.0	126.1	005.1000	0221.2	021.7	72.18
346.0	002.6500	0148.8	028.0	125.1	005.1000	0223.6	022.0	72.05
347.0	002.6500	0148.9	028.0	124.1	005.1000	0225.2	022.3	71.87
348.0	002.6500	0149.1	028.0	123.2	005.1000	0225.8	022.6	71.64
349.0	002.6500	0149.6	028.0	122.3	005.1000	0225.9	022.9	71.40
350.0	002.6500	0150.0	028.1	121.4	005.1000	0225.8	023.3	71.14
351.0	002.6500	0150.7	028.1	120.5	005.1000	0226.0	023.6	70.90
352.0	002.6500	0151.6	028.2	119.6	005.1000	0226.5	024.0	70.67
353.0	002.6500	0152.5	028.3	118.8	005.1000	0227.2	024.3	70.44
354.0	002.6500	0153.1	028.3	118.0	005.1000	0227.8	024.7	70.19
355.0	002.6500	0154.1	028.4	117.2	005.1000	0228.3	025.0	69.94
356.0	002.6500	0154.6	028.5	116.5	005.1000	0228.6	025.4	69.67
357.0	002.6500	0154.8	028.5	115.9	005.1000	0228.7	025.9	69.38
358.0	002.6500	0154.8	028.5	115.4	005.1000	0228.7	026.3	69.07
359.0	002.6500	0154.5	028.5	115.0	005.1000	0228.6	026.8	68.76
000.0	002.6500	0154.3	028.4	114.6	005.1000	0228.5	027.2	68.45
001.0	002.6500	0154.1	028.4	114.2	005.1000	0228.4	027.7	68.15
002.0	002.6500	0154.8	028.5	113.7	005.1000	0228.2	028.1	67.86
003.0	002.6500	0155.7	028.6	113.2	005.1000	0227.8	028.6	67.57
004.0	002.6500	0156.7	028.7	112.7	005.1000	0227.4	029.0	67.28
005.0	002.6500	0158.3	028.8	112.1	005.1000	0226.9	029.4	67.00
006.0	002.6500	0159.8	028.9	111.6	005.1000	0226.3	029.9	66.71
007.0	002.6500	0161.0	029.0	111.2	005.1000	0225.8	030.3	66.42
008.0	002.6500	0161.4	029.1	110.9	005.1000	0225.4	030.8	66.14
009.0	002.6500	0161.5	029.1	110.7	005.1000	0225.2	031.3	65.86
010.0	002.6500	0161.4	029.1	110.5	005.1000	0225.0	031.8	65.58
011.0	002.6500	0161.4	029.0	110.3	005.1000	0224.8	032.3	65.32
012.0	002.6500	0161.3	029.0	110.2	005.1000	0224.7	032.8	65.06
013.0	002.6500	0161.1	029.0	110.1	005.1000	0224.6	033.3	64.80
014.0	002.6500	0160.9	029.0	110.0	005.1000	0224.5	033.8	64.54
015.0	002.6500	0160.8	029.0	110.0	005.1000	0224.5	034.3	64.29
016.0	002.6500	0160.7	029.0	109.9	005.1000	0224.4	034.8	64.03
017.0	002.6500	0160.7	029.0	109.9	005.1000	0224.4	035.3	63.78
018.0	002.6500	0160.7	029.0	109.8	005.1000	0224.4	035.8	63.53
019.0	002.6500	0160.8	029.0	109.8	005.1000	0224.3	036.3	63.29
020.0	002.6500	0160.8	029.0	109.8	005.1000	0224.3	036.9	63.04
021.0	002.6500	0160.8	029.0	109.8	005.1000	0224.3	037.4	62.80
022.0	002.6500	0160.8	029.0	109.8	005.1000	0224.3	037.9	62.56
023.0	002.6500	0160.8	029.0	109.9	005.1000	0224.4	038.4	62.32
024.0	002.6500	0160.7	029.0	109.9	005.1000	0224.4	038.9	62.08
025.0	002.6500	0160.6	029.0	110.0	005.1000	0224.5	039.4	61.85
026.0	002.6500	0160.4	029.0	110.1	005.1000	0224.6	039.9	61.62
027.0	002.6500	0160.1	028.9	110.2	005.1000	0224.7	040.4	61.40

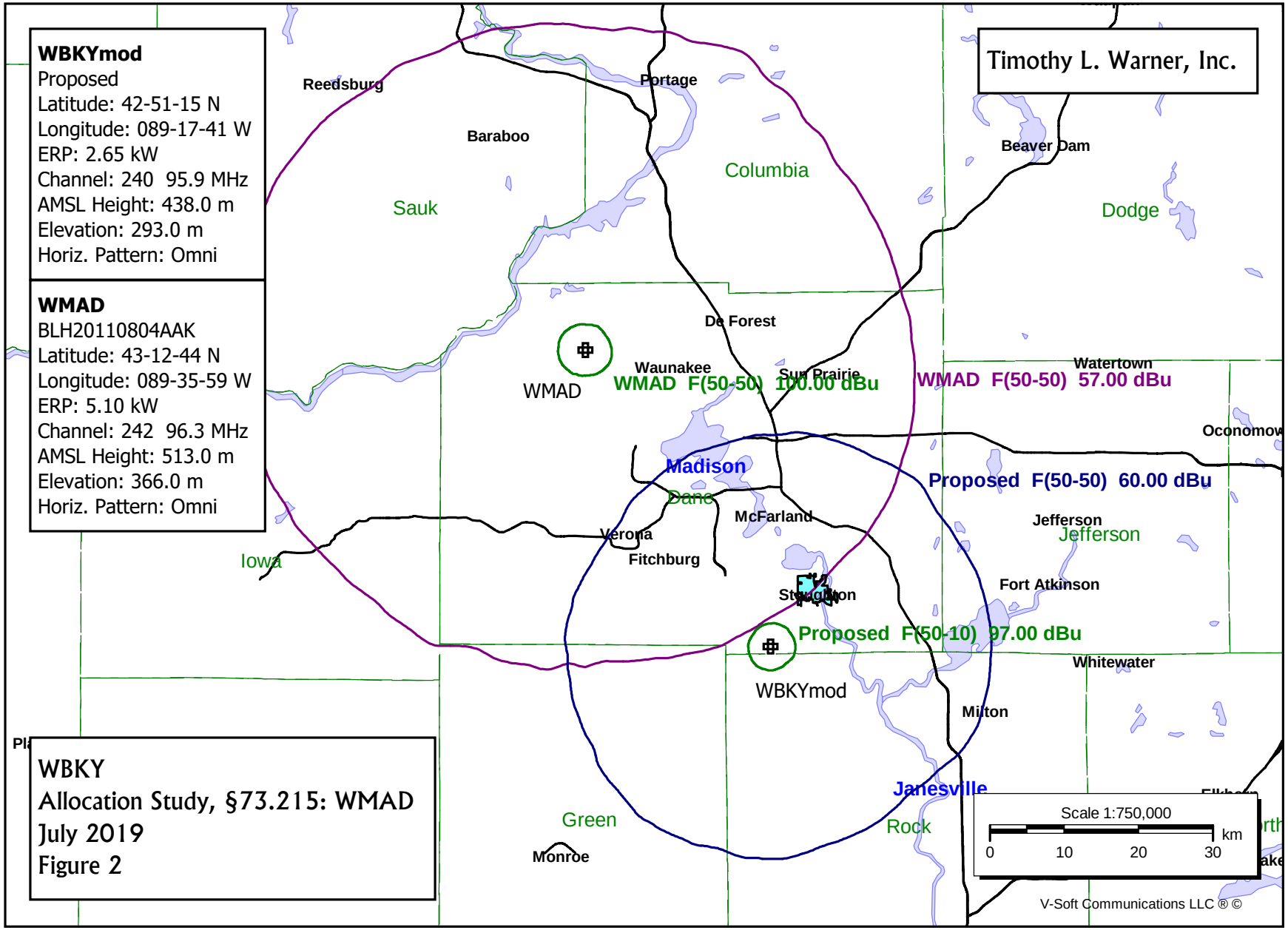
07-15-2019 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

WMAD BLH20110804AAK	WBKY.C
Channel = 242B1	Channel = 240A
Max ERP = 5.1 kW	Max ERP = 2.65 kW
RCAMSL = 513 m	RCAMSL = 438 m
N. Lat. 43 12 44.0	N. Lat. 42 51 15.0
W. Lng. 89 35 59.0	W. Lng. 89 17 41.0
Protected	Interfering
57 dBu	97 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
088.0	005.1000	0207.6	043.8	024.8	002.6500	0160.6	045.4	53.31	
089.0	005.1000	0209.1	043.9	025.4	002.6500	0160.5	044.8	53.58	
090.0	005.1000	0210.5	044.0	025.9	002.6500	0160.4	044.1	53.84	
091.0	005.1000	0212.0	044.1	026.5	002.6500	0160.2	043.5	54.12	
092.0	005.1000	0213.2	044.2	027.0	002.6500	0160.1	042.8	54.40	
093.0	005.1000	0213.6	044.2	027.5	002.6500	0160.0	042.1	54.70	
094.0	005.1000	0214.0	044.3	027.9	002.6500	0160.0	041.4	55.02	
095.0	005.1000	0214.6	044.3	028.4	002.6500	0160.0	040.7	55.34	
096.0	005.1000	0215.4	044.4	028.9	002.6500	0160.2	040.1	55.66	
097.0	005.1000	0216.6	044.4	029.5	002.6500	0160.4	039.4	56.00	
098.0	005.1000	0218.0	044.6	030.1	002.6500	0160.9	038.7	56.34	
099.0	005.1000	0219.3	044.6	030.6	002.6500	0161.4	038.0	56.70	
100.0	005.1000	0220.5	044.7	031.2	002.6500	0162.0	037.3	57.08	
101.0	005.1000	0221.6	044.8	031.7	002.6500	0162.6	036.6	57.45	
102.0	005.1000	0222.3	044.9	032.2	002.6500	0163.1	035.9	57.84	
103.0	005.1000	0223.0	044.9	032.7	002.6500	0163.6	035.2	58.23	
104.0	005.1000	0223.6	045.0	033.2	002.6500	0163.9	034.4	58.62	
105.0	005.1000	0223.7	045.0	033.7	002.6500	0164.2	033.7	59.01	
106.0	005.1000	0223.8	045.0	034.1	002.6500	0164.5	033.0	59.41	
107.0	005.1000	0223.6	045.0	034.5	002.6500	0164.6	032.2	59.82	
108.0	005.1000	0223.3	044.9	034.8	002.6500	0164.8	031.5	60.23	
109.0	005.1000	0223.7	045.0	035.3	002.6500	0165.0	030.7	60.66	
110.0	005.1000	0224.5	045.0	035.8	002.6500	0165.2	030.0	61.10	
111.0	005.1000	0225.6	045.1	036.4	002.6500	0165.5	029.2	61.56	
112.0	005.1000	0226.8	045.2	036.9	002.6500	0165.9	028.5	62.04	
113.0	005.1000	0227.7	045.3	037.5	002.6500	0166.3	027.7	62.54	
114.0	005.1000	0228.4	045.3	038.0	002.6500	0166.7	027.0	63.06	
115.0	005.1000	0228.6	045.3	038.4	002.6500	0167.1	026.2	63.60	
116.0	005.1000	0228.7	045.3	038.8	002.6500	0167.4	025.5	64.15	
117.0	005.1000	0228.4	045.3	039.1	002.6500	0167.7	024.7	64.72	
118.0	005.1000	0227.8	045.3	039.4	002.6500	0167.9	023.9	65.30	
119.0	005.1000	0227.0	045.2	039.6	002.6500	0168.1	023.1	65.89	
120.0	005.1000	0226.2	045.1	039.8	002.6500	0168.3	022.3	66.49	
121.0	005.1000	0225.8	045.1	040.1	002.6500	0168.5	021.5	67.10	
122.0	005.1000	0225.9	045.1	040.4	002.6500	0168.7	020.8	67.72	
123.0	005.1000	0225.9	045.1	040.7	002.6500	0168.9	020.0	68.34	
124.0	005.1000	0225.3	045.1	040.9	002.6500	0169.0	019.2	68.98	
125.0	005.1000	0223.8	045.0	040.8	002.6500	0168.9	018.4	69.62	
126.0	005.1000	0221.5	044.8	040.5	002.6500	0168.8	017.6	70.26	
127.0	005.1000	0219.0	044.6	040.1	002.6500	0168.5	016.8	70.89	
128.0	005.1000	0216.9	044.5	039.6	002.6500	0168.1	016.0	71.53	
129.0	005.1000	0215.6	044.4	039.3	002.6500	0167.9	015.3	72.17	
130.0	005.1000	0214.9	044.3	039.1	002.6500	0167.7	014.5	72.81	
131.0	005.1000	0214.7	044.3	038.9	002.6500	0167.5	013.7	73.75	
132.0	005.1000	0214.5	044.3	038.7	002.6500	0167.3	012.9	74.77	
133.0	005.1000	0214.4	044.3	038.4	002.6500	0167.1	012.2	75.86	
134.0	005.1000	0214.5	044.3	038.1	002.6500	0166.8	011.4	77.03	
135.0	005.1000	0214.7	044.3	037.7	002.6500	0166.5	010.6	78.26	
136.0	005.1000	0215.1	044.3	037.3	002.6500	0166.1	009.9	79.57	
137.0	005.1000	0215.1	044.3	036.4	002.6500	0165.5	009.1	80.93	
138.0	005.1000	0214.3	044.3	035.0	002.6500	0164.8	008.4	82.32	
139.0	005.1000	0213.1	044.2	033.0	002.6500	0163.8	007.6	83.75	
140.0	005.1000	0212.0	044.1	030.5	002.6500	0161.3	006.9	85.30	
141.0	005.1000	0211.0	044.0	027.4	002.6500	0160.0	006.2	87.03	
142.0	005.1000	0209.7	043.9	023.3	002.6500	0160.8	005.6	88.88	
143.0	005.1000	0208.1	043.8	017.8	002.6500	0160.7	005.0	90.62	
144.0	005.1000	0206.6	043.7	010.8	002.6500	0161.4	004.5	92.26	
145.0	005.1000	0205.3	043.6	002.4	002.6500	0155.1	004.0	93.48	
146.0	005.1000	0204.9	043.6	352.5	002.6500	0152.0	003.7	94.74	
147.0	005.1000	0205.0	043.6	340.9	002.6500	0148.6	003.4	95.65	
148.0	005.1000	0205.4	043.6	328.0	002.6500	0143.2	003.3	95.91	
149.0	005.1000	0205.3	043.6	315.0	002.6500	0136.6	003.4	95.19	

150.0	005.1000	0205.0	043.6	303.6	002.6500	0129.0	003.7	93.60
151.0	005.1000	0204.6	043.6	294.3	002.6500	0132.1	004.1	92.10
152.0	005.1000	0204.6	043.5	286.8	002.6500	0138.3	004.6	90.67
153.0	005.1000	0204.8	043.6	280.7	002.6500	0140.2	005.2	89.04
154.0	005.1000	0205.4	043.6	275.8	002.6500	0144.3	005.8	87.47
155.0	005.1000	0205.7	043.6	272.2	002.6500	0145.4	006.4	85.70
156.0	005.1000	0205.0	043.6	269.8	002.6500	0143.0	007.1	83.70
157.0	005.1000	0203.7	043.5	268.3	002.6500	0141.3	007.9	81.86
158.0	005.1000	0202.4	043.4	267.2	002.6500	0141.5	008.6	80.36
159.0	005.1000	0201.0	043.3	266.3	002.6500	0141.7	009.4	78.93
160.0	005.1000	0199.1	043.1	265.9	002.6500	0141.8	010.1	77.55
161.0	005.1000	0197.1	043.0	265.7	002.6500	0141.9	010.9	76.25
162.0	005.1000	0195.7	042.9	265.3	002.6500	0142.0	011.7	75.06
163.0	005.1000	0195.1	042.8	264.8	002.6500	0142.1	012.4	73.95
164.0	005.1000	0194.4	042.8	264.3	002.6500	0142.2	013.1	72.93
165.0	005.1000	0193.5	042.7	264.1	002.6500	0142.2	013.9	71.96
166.0	005.1000	0191.7	042.5	264.3	002.6500	0142.2	014.6	71.06
167.0	005.1000	0189.4	042.4	264.5	002.6500	0142.2	015.4	70.46
168.0	005.1000	0188.3	042.3	264.5	002.6500	0142.2	016.1	69.84
169.0	005.1000	0187.8	042.2	264.4	002.6500	0142.2	016.9	69.22
170.0	005.1000	0187.3	042.2	264.4	002.6500	0142.2	017.6	68.62
171.0	005.1000	0186.5	042.1	264.4	002.6500	0142.2	018.4	68.01
172.0	005.1000	0185.9	042.1	264.5	002.6500	0142.2	019.1	67.42
173.0	005.1000	0184.9	042.0	264.6	002.6500	0142.2	019.8	66.82
174.0	005.1000	0184.0	041.9	264.8	002.6500	0142.1	020.6	66.24
175.0	005.1000	0183.2	041.9	265.0	002.6500	0142.1	021.3	65.67
176.0	005.1000	0181.9	041.8	265.3	002.6500	0142.0	022.0	65.10
177.0	005.1000	0182.4	041.8	265.2	002.6500	0142.0	022.8	64.55
178.0	005.1000	0184.7	042.0	264.8	002.6500	0142.1	023.5	64.01
179.0	005.1000	0187.6	042.2	264.4	002.6500	0142.2	024.2	63.47
180.0	005.1000	0190.5	042.5	264.0	002.6500	0142.2	025.0	62.93
181.0	005.1000	0188.5	042.3	264.6	002.6500	0142.2	025.7	62.43
182.0	005.1000	0186.1	042.1	265.2	002.6500	0142.0	026.4	61.93
183.0	005.1000	0184.5	042.0	265.7	002.6500	0141.9	027.1	61.45
184.0	005.1000	0187.9	042.3	265.3	002.6500	0142.0	027.9	60.96
185.0	005.1000	0192.8	042.6	264.8	002.6500	0142.1	028.7	60.48
186.0	005.1000	0197.0	043.0	264.4	002.6500	0142.2	029.5	60.00
187.0	005.1000	0198.9	043.1	264.5	002.6500	0142.2	030.3	59.55
188.0	005.1000	0199.2	043.1	264.7	002.6500	0142.1	031.0	59.14
189.0	005.1000	0197.4	043.0	265.3	002.6500	0142.0	031.7	58.75
190.0	005.1000	0196.0	042.9	265.8	002.6500	0141.8	032.4	58.39
191.0	005.1000	0196.3	042.9	266.1	002.6500	0141.8	033.1	58.01
192.0	005.1000	0197.4	043.0	266.3	002.6500	0141.7	033.9	57.63
193.0	005.1000	0198.1	043.0	266.6	002.6500	0141.6	034.6	57.26
194.0	005.1000	0198.7	043.1	266.9	002.6500	0141.6	035.3	56.90
195.0	005.1000	0199.2	043.1	267.2	002.6500	0141.4	036.1	56.54
196.0	005.1000	0198.7	043.1	267.6	002.6500	0141.2	036.8	56.18
197.0	005.1000	0197.3	043.0	268.1	002.6500	0141.2	037.5	55.86
198.0	005.1000	0194.8	042.8	268.8	002.6500	0141.8	038.1	55.59
199.0	005.1000	0192.6	042.6	269.4	002.6500	0142.5	038.7	55.33
200.0	005.1000	0191.8	042.6	269.9	002.6500	0143.0	039.4	55.04
201.0	005.1000	0192.8	042.6	270.1	002.6500	0143.3	040.1	54.72
202.0	005.1000	0195.2	042.8	270.3	002.6500	0143.5	040.9	54.39
203.0	005.1000	0198.5	043.1	270.4	002.6500	0143.6	041.7	54.03
204.0	005.1000	0202.5	043.4	270.4	002.6500	0143.6	042.5	53.68
205.0	005.1000	0207.2	043.7	270.4	002.6500	0143.6	043.3	53.31
206.0	005.1000	0212.4	044.1	270.3	002.6500	0143.5	044.2	52.94
207.0	005.1000	0216.3	044.4	270.4	002.6500	0143.6	045.0	52.60


WBKYmod
Proposed
Latitude: 42-51-15 N
Longitude: 089-17-41 W
ERP: 2.65 kW
Channel: 240 95.9 MHz
AMSL Height: 438.0 m
Elevation: 293.0 m
Horiz. Pattern: Omni
WBKY
BLH19990804KF
Latitude: 43-38-17 N
Longitude: 089-34-16 W
ERP: 5.40 kW
Channel: 240 95.9 MHz
AMSL Height: 356.0 m
Elevation: 258.0 m
Horiz. Pattern: Omni
Timothy L. Warner, Inc.
WBKY
Licensed F(50-50) 60.00 dBu
Proposed F(50-50) 60.00 dBu
Proposed F(50-50) 70.00 dBu
Proposed F(50-10) 97.00 dBu
WBKYmod
Stoughton Corporate Limits
WBKY
Licensed and Proposed Contours
July 2019
Figure 1
Scale 1:750,000
0 10 20 30 km
V-Soft Communications LLC ® ©
Marquette
Fond du Lac
Waupun
Portage
Baraboo
Beaver Dam
Columbia
Sauk
Dodge
De Forest
Waunakee
Sun Prairie
Watertown
Oconomowoc
Madison
Dane
McFarland
Verona
Fitchburg
Jefferson
Fort Atkinson
Iowa
Milton
Janesville
Whitewater


WBKYmod
Proposed
Latitude: 42-51-15 N
Longitude: 089-17-41 W
ERP: 2.65 kW
Channel: 240 95.9 MHz
AMSL Height: 438.0 m
Elevation: 293.0 m
Horiz. Pattern: Omni
WMAD
BLH20110804AAK
Latitude: 43-12-44 N
Longitude: 089-35-59 W
ERP: 5.10 kW
Channel: 242 96.3 MHz
AMSL Height: 513.0 m
Elevation: 366.0 m
Horiz. Pattern: Omni
Timothy L. Warner, Inc.
WBKY
Allocation Study, §73.215: WMAD
July 2019
Figure 2
WMAD F(50-50) 100.00 dBu
WMAD F(50-50) 57.00 dBu
Proposed F(50-50) 60.00 dBu
Proposed F(50-10) 97.00 dBu
WMAD
WBKYmod
Reedsburg
Baraboo
Portage
Columbia
Sauk
Beaver Dam
Dodge
De Forest
Waunakee
Sun Prairie
Watertown
Oconomow
Madison
Dane
McFarland
Verona
Fitchburg
Jefferson
Jefferson
Fort Atkinson
Iowa
Whitewater
Milton
Janesville
Rock
Green
Monroe
Scale 1:750,000
km
0
10
20
30
V-Soft Communications LLC ® ©