

WVTO-LP  
Baltimore, Maryland  
Engineering Interference Study Low Power FM Station  
On Channel 224  
by  
The Benedictine Society of Baltimore City

January 2018

The Benedictine Society of Baltimore City

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## Table of Contents

Description	Page
Declaration	2
Narrative	3
Allocations	4
Allocation Table – Table 1	5
Facilities Protected by U/D Method - Table 2	6
Source of Data	7
Interference Free Coverage Map	8
Incoming Interference Map	9
Population Report - 2010 Census	10

Declaration

I declare, under penalty of perjury, that I am a broadcast technical consultant. That I have over thirty-five years of experience in the broadcast engineering field, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I have prepared or supervised the preparation of the attached Exhibit. Inteference Analysis, for The Benedictine Society of Baltimore City, 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.

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Narrative

This Exhibit supports a minor modification application for an existing Low Power FM station. The application proposes a move of the antenna location on Channel 224 in Baltimore, Maryland as to be more centrally located in the city of license. Allocation details are provided in this exhibit.

The proposed modification is predicated on the desire to better serve the Baltimore area. The new antenna location is more centrally located in Baltimore and is 3.67 km from the original licensed location.

Based on an eight radial HAAT of 114 meters, the ERP is shown as 6 Watts, based on the FM Power utility on the FCC.gov web site. The applicant recognizes that final power level will be calculated by the Media Bureau and provided in a modified Construction Permit.

**Allocations**

This application proposes service to Baltimore, Maryland, on channel 224. An updated Allocations Table is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied.

All facilities are protected by this application under distance protection requirements of 47 C.F.R. §73.807, with the exception of facilities which are listed in Table 2 below. Those facilities are protected by the Desired to Undesired (D/U) Ratio method which is described below..

Table 1: Allocations

WVTO-LP- Transamerica  
The Benedictine Society Of Baltimore City

REFERENCE		DISPLAY DATES
39 17 10.0 N.	CLASS = L1 Int = L1	DATA 01-02-18
76 36 55.0 W.	Current Spacings to 2nd Adj.	SEARCH 01-04-18
----- Channel 224 - 92.7 MHz -----		

Call	Channel	Location	Azi	Dist	FCC	Margin
WERQ-FM	LIC-D 222B	Baltimore	MD 322.7	7.29	66.5	-59.2
		Protected by U/D study, see text and figures				
WPOC	LIC-D 226B	Baltimore	MD 270.5	12.00	66.5	-54.5
WPOC	CP -D 226B	Baltimore	MD 270.6	12.03	66.5	-54.5
		Protected by U/D study, see text and figures				
WVTO-LP	LIC 224L1	Baltimore	MD 257.9	3.67	23.5	-19.8
		Reference Station				
WDCJ	LIC 224A	Prince Frederick	MD 178.5	67.98	66.5	1.5
WSJF-LP	CP 224L1	Eldersburg	MD 289.1	33.44	23.5	9.9
WONN-FM	LIC 224A	Starview	PA 349.8	89.08	66.5	22.6
WINC-FM	LIC 223B	Winchester	VA 253.6	127.26	96.5	30.8
WRDX	LIC-N 225A	Smyrna	DE 95.7	91.14	55.5	35.6
WXTU	LIC-D 223B	Philadelphia	PA 54.2	144.79	96.5	48.3

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All separation margins include rounding

Table 2: Facilities Protected by U/D Method

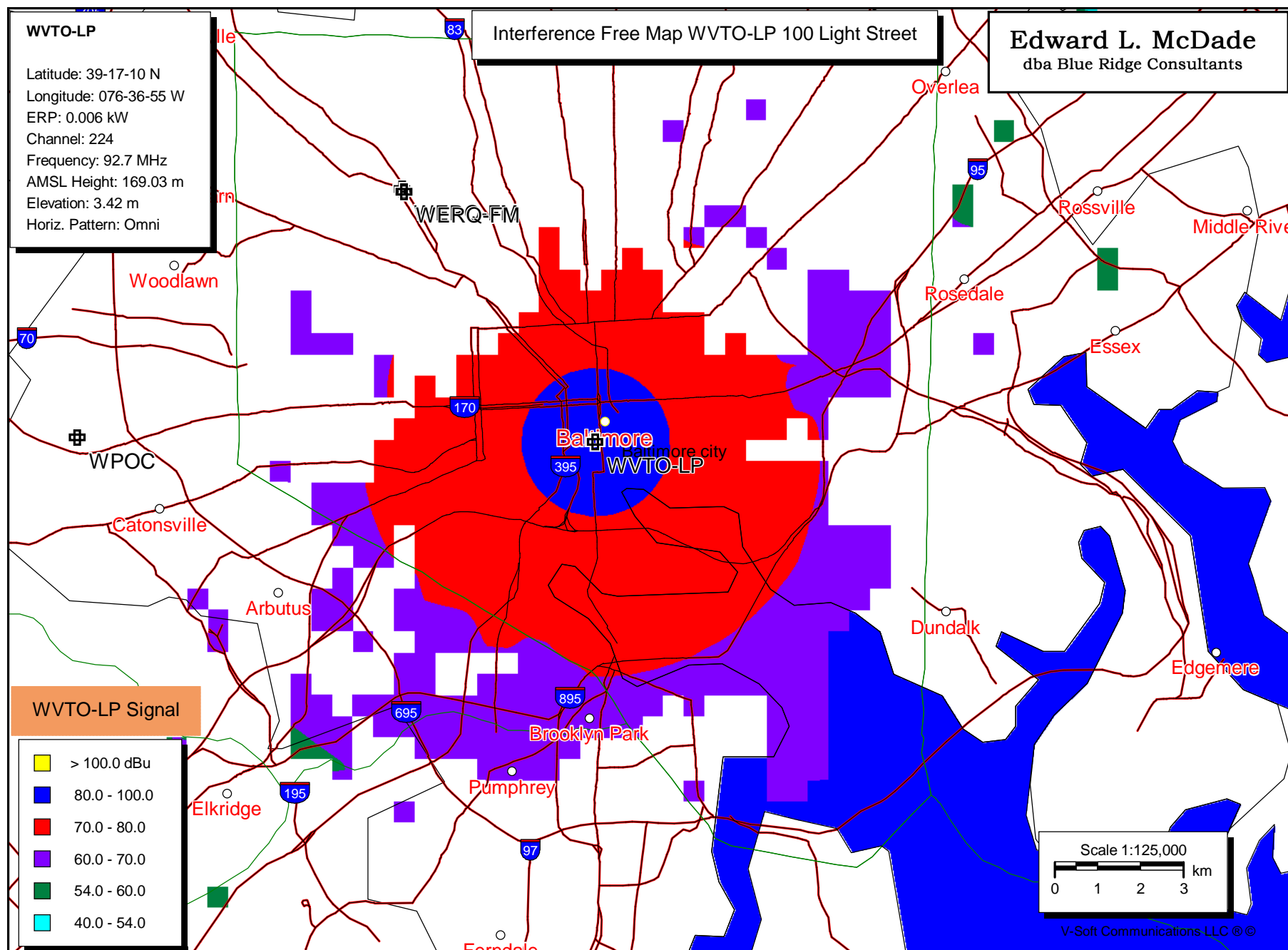
	WERQ Baltimore, Maryland	WPOC.c Baltimore, Maryland
Relationship	222B, second adjacent	226B, second adjacent
Distance (km)	7.3	4.1
Bearing (degrees)	322.7	270.6
ERP (kW, on azimuth)	37	16
HAAT (m, on azimuth)	256.2	323.8
Ratio	40	40
Signal Strength (dBu)	99.56	89.67
Translator Signal Strength	139.56	129.67
Translator distance (km)	0.0018	0.0056

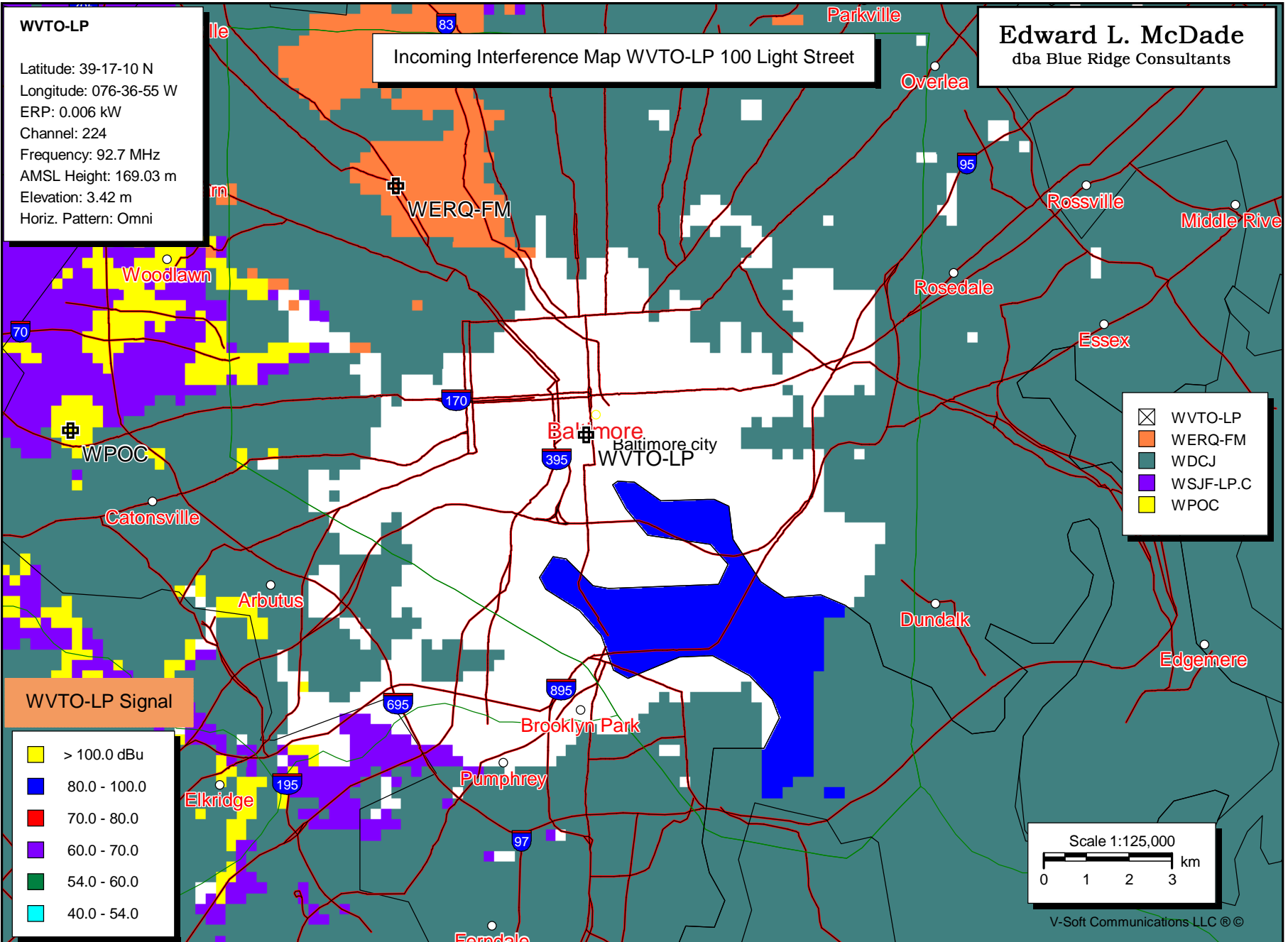
**Source of Data**

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 3 Sec US Terrain arc second terrain database, formatted by V-Soft Communications to work with its allocation and mapping programs.

All population data is from 2010 U.S. Census PL data files. Population is counted by considering the location of the centroid of each census block. The data for each block is counted if it falls within the area being counted.





# V-Soft Communications Population Report

WVTO-LP (224) Baltimore, MD

Lat: 39-17-10 N Lng: 076-36-55 W ERP: 0.006 kW AMSL: 169.03 m

FM Interference Study

Protected: Circle: R = 100 km

Interference considered within 100 km.

Signal Resolution: 0.25 km

Study Date: 1/4/2018

FM Database Date: 1/2/2018

D/U Ratios Used:

Co: 20.0 dB

First Adj: 6.0 dB

Second Adj: -40.0 dB

Third Adj: -40.0 dB

Threshold for reception: 30.0 dBu.

Primary Terrain: V-Soft 3 Second US Terrain

Population Database: 2010 US Census (PL)

Percentages calculated using a baseline population of 3,177,176.

Stations which cause interference:

Call Letters	H Units	Population	%	Area (sq. km)
WERQ-FM (222)	502744	1221555	38.448	4368.88
WDCJ (224)	1137081	2794556	87.957	5569.18
WSJF-LP.C (224)	857629	2150904	67.699	5705.12
WPOC (226)	597757	1509269	47.503	3994.93

Masking Summary:

Call Letters	Total Interference		Unique Interference	
	Population	%	Population	%
WERQ-FM (222)	1221555	38.448	7617	0.240
WDCJ (224)	2794556	87.957	575711	18.120
WSJF-LP.C (224)	2150904	67.699	12693	0.400
WPOC (226)	1509269	47.503	2605	0.082

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Totals for WVTO-LP (224)

Calculation Area Population:	9,535,232	(	31348.7 sq. km )
Not Affected by Terrain Loss:	3,177,176	(	11929.5 sq. km )
Interfered Population:	2,910,251	(	11796.7 sq. km )
Interference Free:	266,925	(	132.8 sq. km )

Percent Interference: 91.60

Terrain Blocked Population: 6,358,056 ( 19419.2 sq. km)

Contour Area Population:

9,534,021

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Interference Free Breakdown:

White:	96,573	( 36.2% )
Black:	141,469	( 53.0% )
Hispanic:	15,354	( 5.8% )
Native American:	983	( 0.4% )
Asian:	7,085	( 2.7% )
Pacific Islander:	91	( 0.0% )
Mixed Race:	4,986	( 1.9% )
Other:	384	( 0.1% )
Total:	266,925	

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