Communications GeoPlanner™

AM and FM Radio Report

Timber Road 3 - 138 kV Transmission Line

Prepared on Behalf of
Paulding Wind Farm III, LLC

November 16, 2015

COMSEARCH
A CommScope Company

Table of Contents

1. Introduction

Comsearch analyzed AM and FM radio broadcast stations whose service could potentially be affected by the proposed 138 kV transmission line in Paulding County, Ohio.

2. Summary of Results

AM Radio Analysis

Comsearch found eight database records[1] for AM stations within approximately 30 kilometers of the project as shown in Table 1 and Figure 1. These records represent four different stations, which are located in Van Wert, Ohio and nearby Fort Wayne, Indiana. Each of these stations operates at two different power levels, a higher transmit power for daytime operations and a lower transmit power for nighttime operations.

ID	Call Sign	Status[2]	Frequency (kHz)	Transmit ERP[3] (kW)	City	State	Distance to Nearest Transmission Line (km)
1	WFCV	LIC	1090	2.5	FORT WAYNE	IN	24.26
2	WFCV	LIC	1090	1.0	FORT WAYNE	IN	24.26
3	WERT	LIC	1220	0.25	VAN WERT	OH	22.70
4	WERT	LIC	1220	0.029	VAN WERT	OH	22.70
5	WKJG	LIC	1380	5.0	FORT WAYNE	IN	27.57
6	WKJG	LIC	1380	5.0	FORT WAYNE	IN	27.57
7	WLYV	LIC	1450	1.0	FORT WAYNE	IN	27.97
8	WLYV	LIC	1450	1.0	FORT WAYNE	IN	27.97

Table 1: AM Radio Stations

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data presented in this report is derived from the AM/FM station's FCC license and governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

[2] LIC = Licensed and operational station; APP = Application for construction permit; CP=Construction permit granted; CP MOD = Modification of construction permit

[3] ERP = Transmit Effective Radiated Power

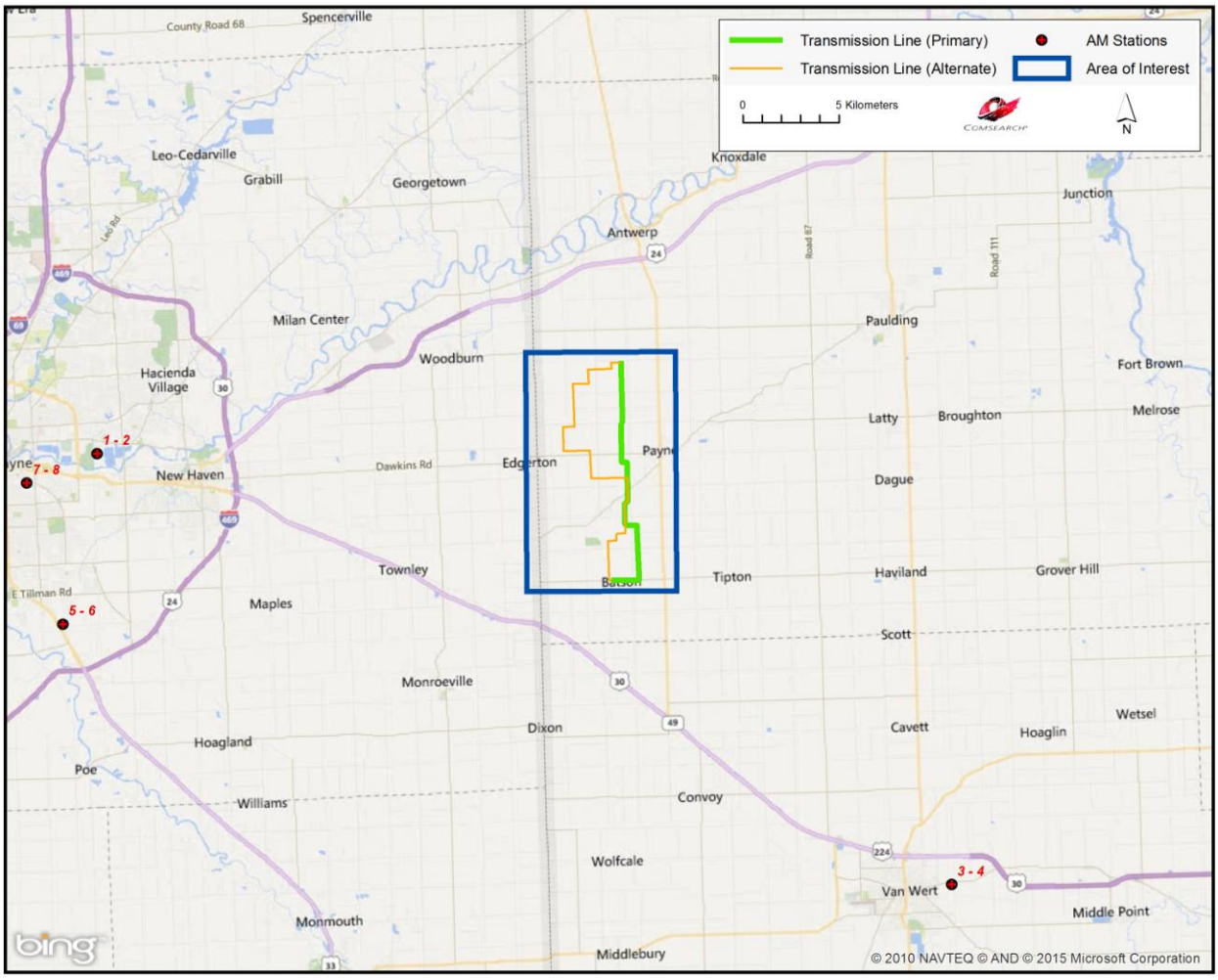

Figure 1: Plot of AM Radio Stations

FM Radio Analysis

Comsearch determined that there were thirteen database records for FM stations within a 30 kilometer radius of the transmission line project as shown in Table 2 and Figure 2. Only seven of these stations are currently licensed and operational, three of which are low-power or translator stations that operate with limited range.

ID	Call Sign	Status	Frequency (MHz)	Transmit ERP (kW)	City	State	Distance to Nearest Transmission Line (km)
1	NEW	CP	101.3	0.0764	ANTWERP	OH	7.01
2	WKSD	LIC	99.7	3	PAULDING	OH	12.79
3	WBYR	LIC	98.9	50	WOODBURN	IN	12.75
4	WMYW-LP	LIC	102.7	0.008	PAULDING	OH	12.12
5	W298BJ	CP	107.5	0.15	FORT WAYNE	IN	17.39
6	WHNH-LP	CP	101.3	0.1	NEW HAVEN	IN	19.53
7	W209AW	LIC	89.7	0.08	FORT WAYNE	IN	21.17
8	WLDE	LIC	101.7	6	FORT WAYNE	IN	21.72
9	WJFX	LIC	107.9	3.2	NEW HAVEN	IN	24.12
10	WQSW-LP	LIC	100.5	0.1	FORT WAYNE	IN	25.39
11	WDBF-LP	CP	103.5	0.0381	DECATUR	IN	23.97
12	WELT-LP	CP	95.7	0.1	FORT WAYNE	IN	27.43
13	WZXC-LP	CP	94.5	0.1	LEO	IN	26.71

Table 2: FM Radio Stations

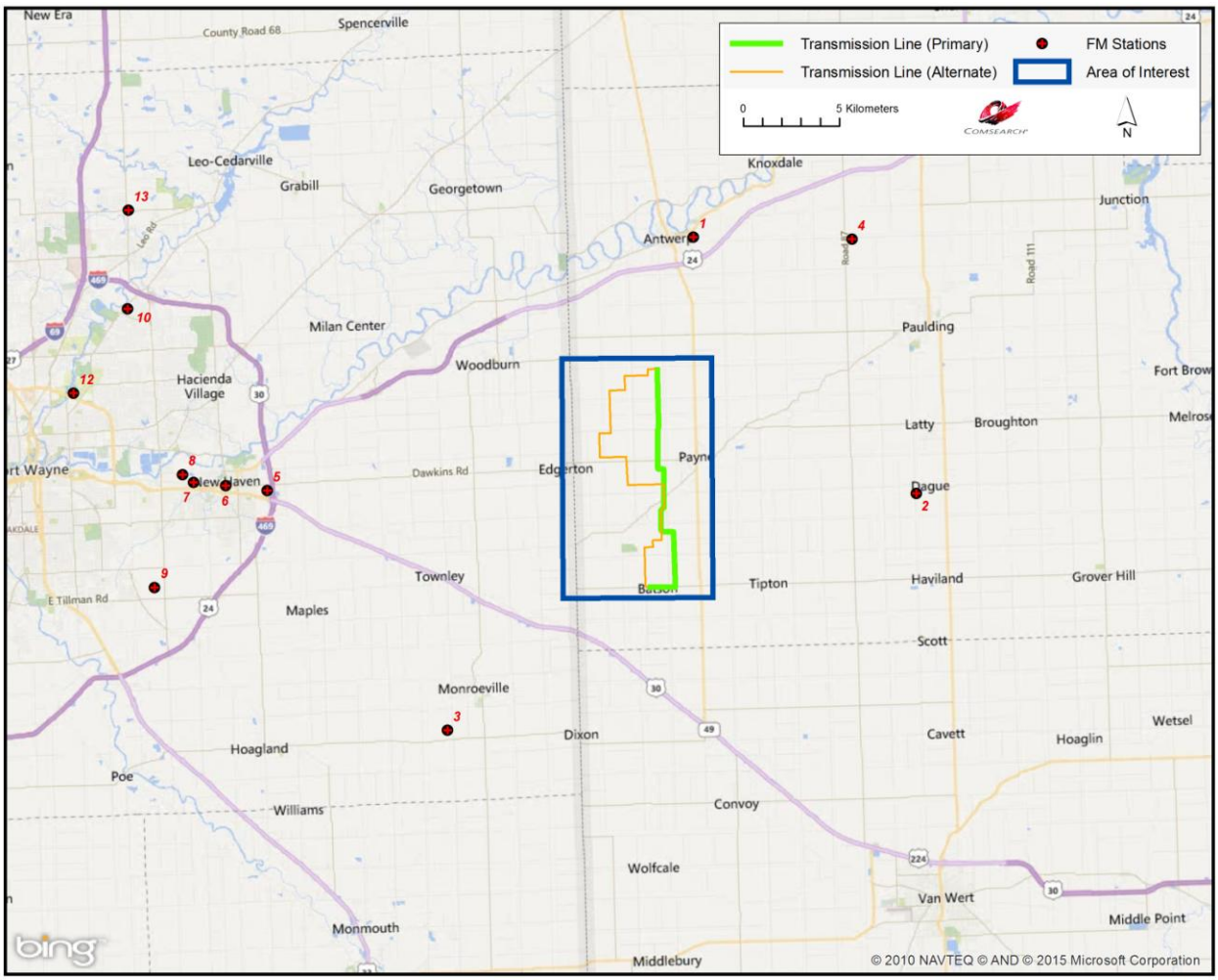

Figure 2: Plot of FM Radio Stations

3. Impact Assessment

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 3 kilometers. For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from transmission lines. The closest AM station to the transmission line project, WERT, is over 24 kilometers from the nearest transmission line. As there were no stations found within 3 kilometers of the project, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the project should not impact the coverage of local AM stations.

One other issue with AM reception is the electromagnetic interference from a 138 kV transmission line as the result of the induction field created by the 60 Hz electrical power carried on the transmission line's conductors and the harmonics of the 60 Hz fundamental signal. The interference can also be the results of arcing or corona that can occur at high voltage interconnect points on the transmission line. This issue can be eliminated or minimized by instituting an effective maintenance program for the transmission line. In either case, the interfering signal is amplitude-modulated (AM) and the propagation of the interference occurs over very short distances. These distances are generally less than 500 feet. Also, the frequency of the interference does not normally extend above 50 MHz.

Therefore, the interference signals generated at the transmission line should not affect most communication devices including FM radio, television, wireless telephones, and other personal communication devices because they operate at frequencies above the frequencies of the interference generated at a transmission line. Furthermore, their modulation schemes prevent their susceptibility to amplitude-modulated interference. The only reception devices that may be affected would be AM radios, which operate between 0.5 and 1.6 MHz. The degree of degradation to AM reception will be a function of the separation distance of the AM radio from the transmission line and the strength of the received signal. This degradation to the reception of AM broadcast signals caused by the proposed transmission line is no different than what would occur to a car radio when it passes under or near existing high voltage transmission lines that interconnect utility companies and their sub stations throughout the state.

The nearest operational FM station is located over 12 kilometers away. As explained above, none of the FM stations in the surrounding area should be impacted by the proposed transmission line.

4. Recommendations

No unexpected impact is anticipated to AM or FM broadcast services surrounding this transmission line project. This result can be assured through proper maintenance upon construction of the project so that arcing and corona will not occur on the components of the transmission line.

5. Contact

For questions or information regarding the AM and FM Radio Report, please contact:

Contact person:	Denise Finney
Title:	Account Manager
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5650 (office) / 703-726-5595 (fax)
Email:	dfinney@comsearch.com
Web site:	www.comsearch.com

Summary: Application Exhibit C-2 (AM and FM Radio Analysis) electronically filed by Mr. Michael J. Settineri on behalf of Paulding Wind Farm III LLC