

**NEW NCE FM**  
**STRASBURG, VIRGINIA**  
**COMPREHENSIVE ENGINEERING SHOWING**

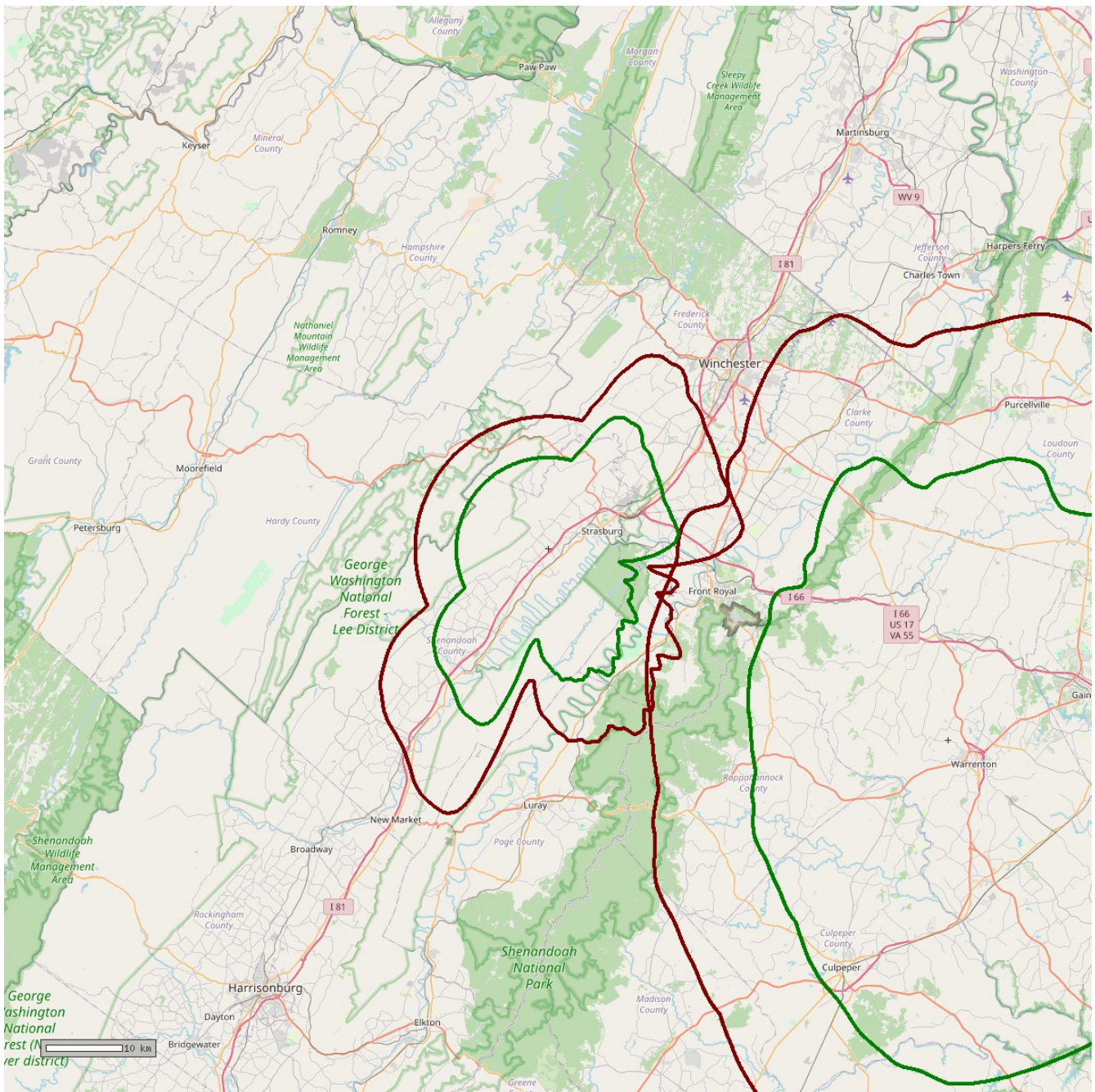
**SUMMARY**

Applicant hereby submits the following proposal to add a new noncommercial educational (“NCE”) FM radio station to the community of Strasburg, Virginia on FM Channel 218A with an effective radiated power of 2,000 Watts from an antenna height above average terrain of 15 meters. Applicant has secured tower assurance for a FCC registered tower, Antenna Structure Registration Number 1000171.

### **§73.509 CONTOUR PROTECTION**

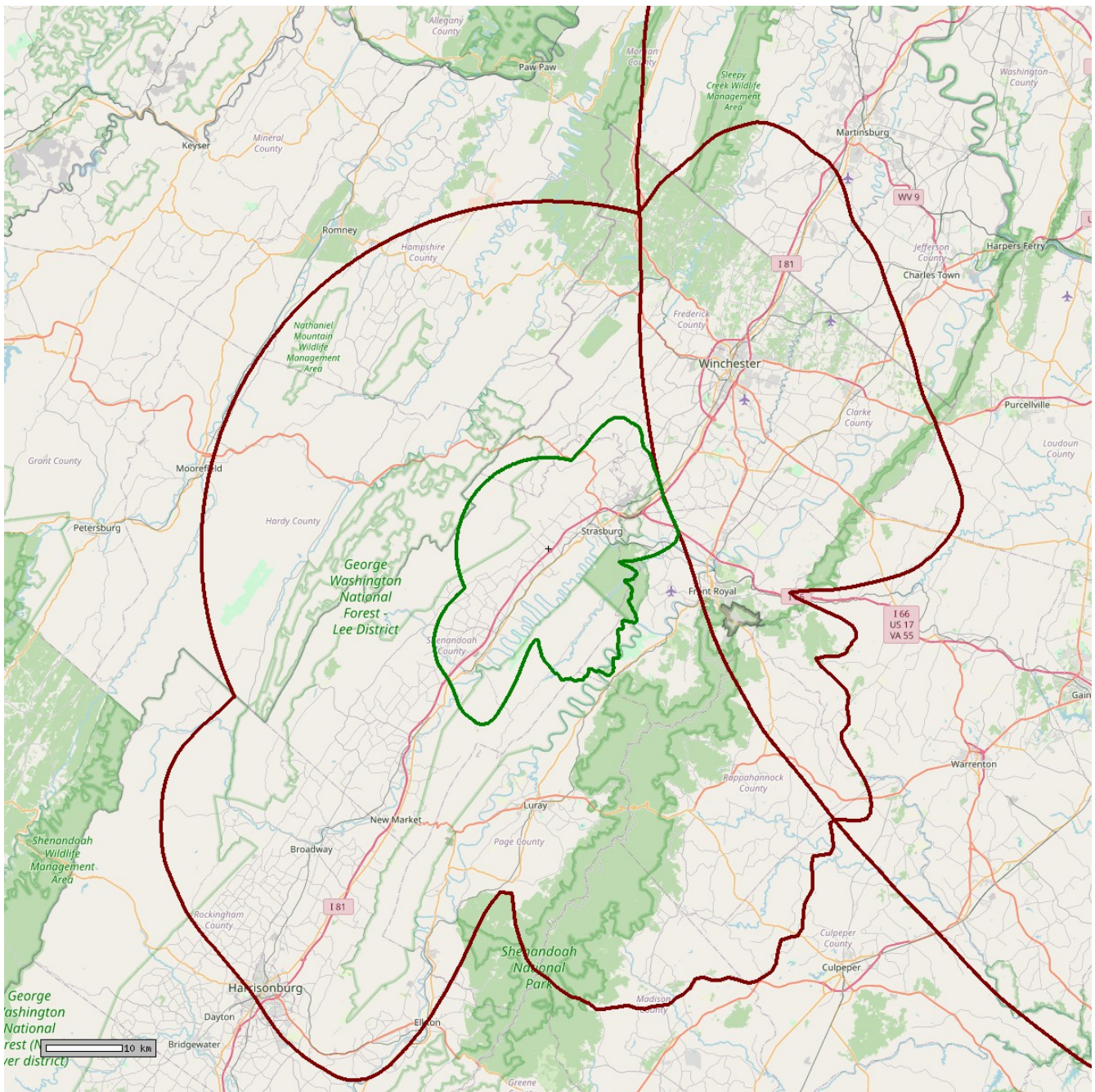
This exhibit addresses the contour protection requirements of §73.509. No prohibited overlap exists between the contours of the proposed facilities and those of existing reserved band NCE assignments or applications. Relevant contour plots were generated by computer using the methods specified in §73.313. Antenna height above average terrain was computed using the standard eight radial method specified in §73.313(d). Average terrain along additional azimuths was computed and used in conjunction with the F(50,50) and F(50,10) curves to determine distances to protected and interfering contours respectively. These additional azimuths were not included in the computation of the antenna eight-radial height above average terrain. Elevation data used in the computation of average terrain was determined by linear interpolation of the NGDC 30-arcsecond topographic database consistent with §73.312. The contours and transmitter locations were plotted on maps generated by the OpenStreetMap.org online mapping service.

In its proposal herein, Applicant seeks to serve a total land area of 749.41 square kilometers. This calculation is derived from each individual bitmapped pixel within the proposed service contour occupying approximately 0.001075 square kilometers, with an occurrence of 697,126 non-water points within the primary service area in total. The product of the per-pixel area value and the total number of points equals 749.41 square kilometers in total.



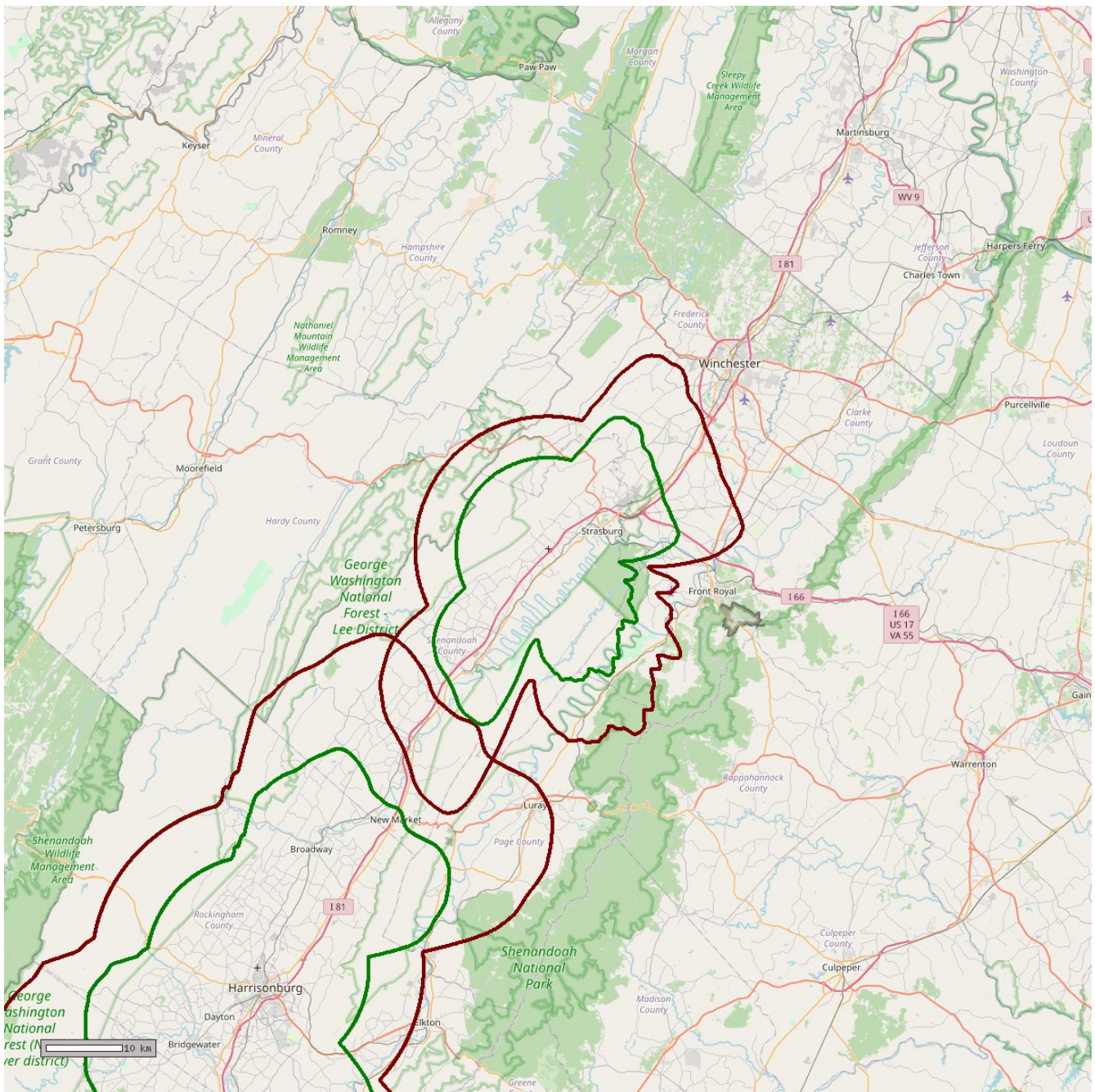
**FIGURE 1:** The map above depicts the F(50,50) 60 dBu (green) and F(50,10) 54 dBu (dark red) contours of the proposed Strasburg facility on FM Channel 218A (center), as well as the licensed facility of WARN 91.3 FM at Culpepper, Virginia (FCC CBDS ID BLED-20160531AAC, right) on FM Channel 217B. As shown above, there is no prohibited overlap predicted between the two facilities.





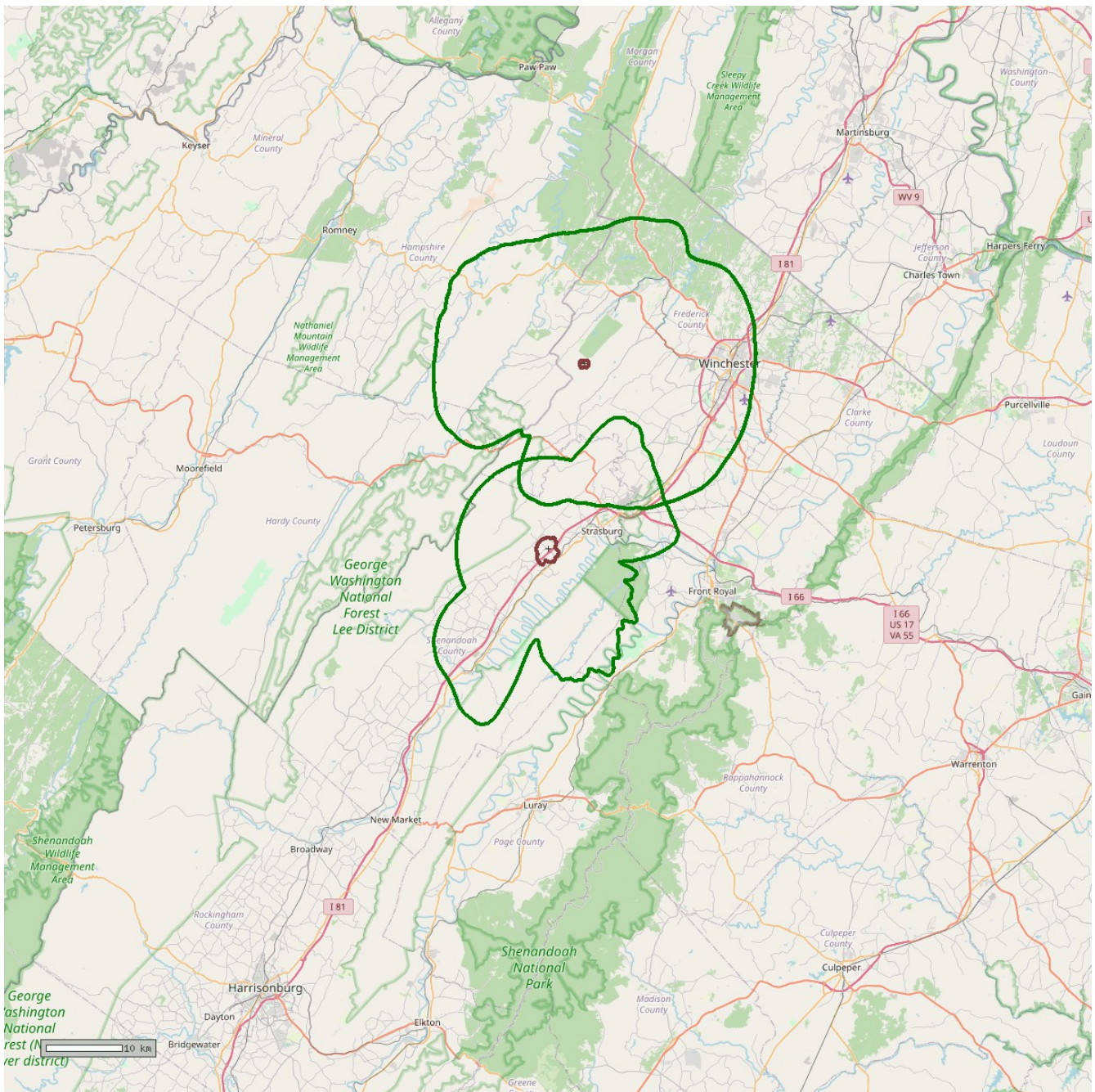
**FIGURE 2:** The map above depicts the F(50,50) 60 dBu (green) and F(50,10) 40 dBu (dark red) contours of the proposed Strasburg facility on FM Channel 218A (center), as well as the licensed facility of WBJC 91.5 FM at Baltimore, Maryland (FCC CBDS ID BLED-20101109ABJ, right) on FM Channel 218B. As shown above, there is no prohibited overlap predicted between the two facilities.





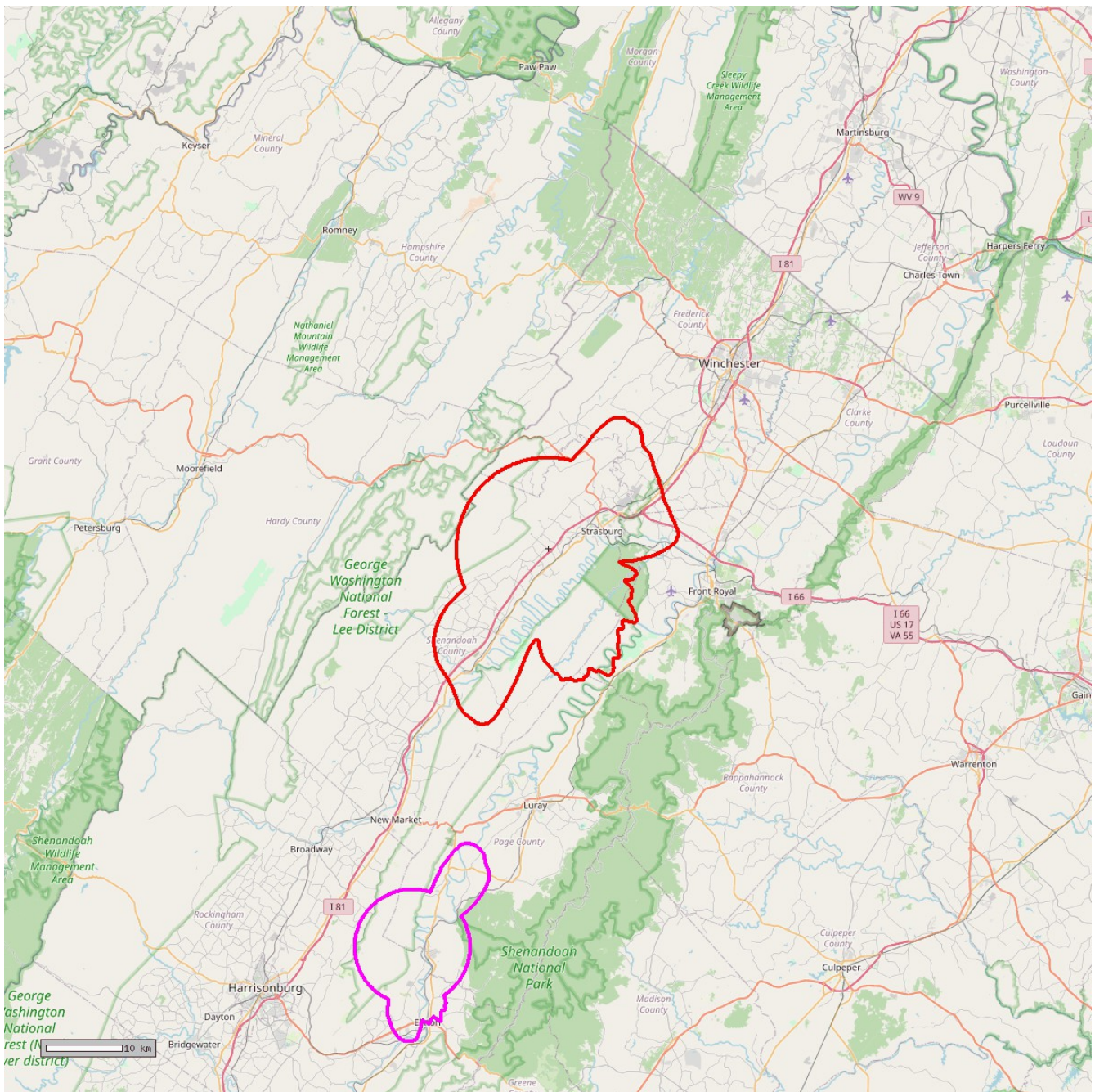
**FIGURE 3:** The map above depicts the F(50,50) 60 dBu (green) and F(50,10) 54 dBu (dark red) contours above the proposed Strasburg facility on FM Channel 218A (center), as well as the licensed facility of WEMC 91.7 FM at Harrisonburg, Virginia (FCC CBDS ID BLED-20160427ABC, right) on FM Channel 219A. As shown above, there is no prohibited overlap predicted between the two facilities.





**FIGURE 4:** The map above depicts the F(50,50) 60 dBu (green) and F(50,10) 100 dBu (dark red) contours of the proposed Strasburg facility on FM Channel 218A (center), as well as the licensed facility of WTRM 91.1 FM at Winchester, Virginia (FCC CBDS ID BLED-20160531AAB, right) on FM Channel 216A. As shown above, there is no prohibited overlap predicted between the two facilities.





**FIGURE 5:** The map above depicts the F(50,50) 60 dBu (red) contour of the proposed Strasburg facility on FM Channel 218A (center), as well as the F(50,50) 60 dBu (purple) contour of licensed facility of WHFV 107.1 FM at Shenandoah, Virginia (FCC CBDS ID BLED-20141031AAS, bottom left) on FM Channel 296A. Applicant is both the Licensee of WHFV 107.1 FM, as well as the Applicant for the Strasburg facility detailed herein. As shown above, there is absolutely no overlap between the primary service contours of the licensed and proposed station, and Applicant has no other FCC-licensed media interests whatsoever.

### **SERVICE AREA POPULATION STUDY**

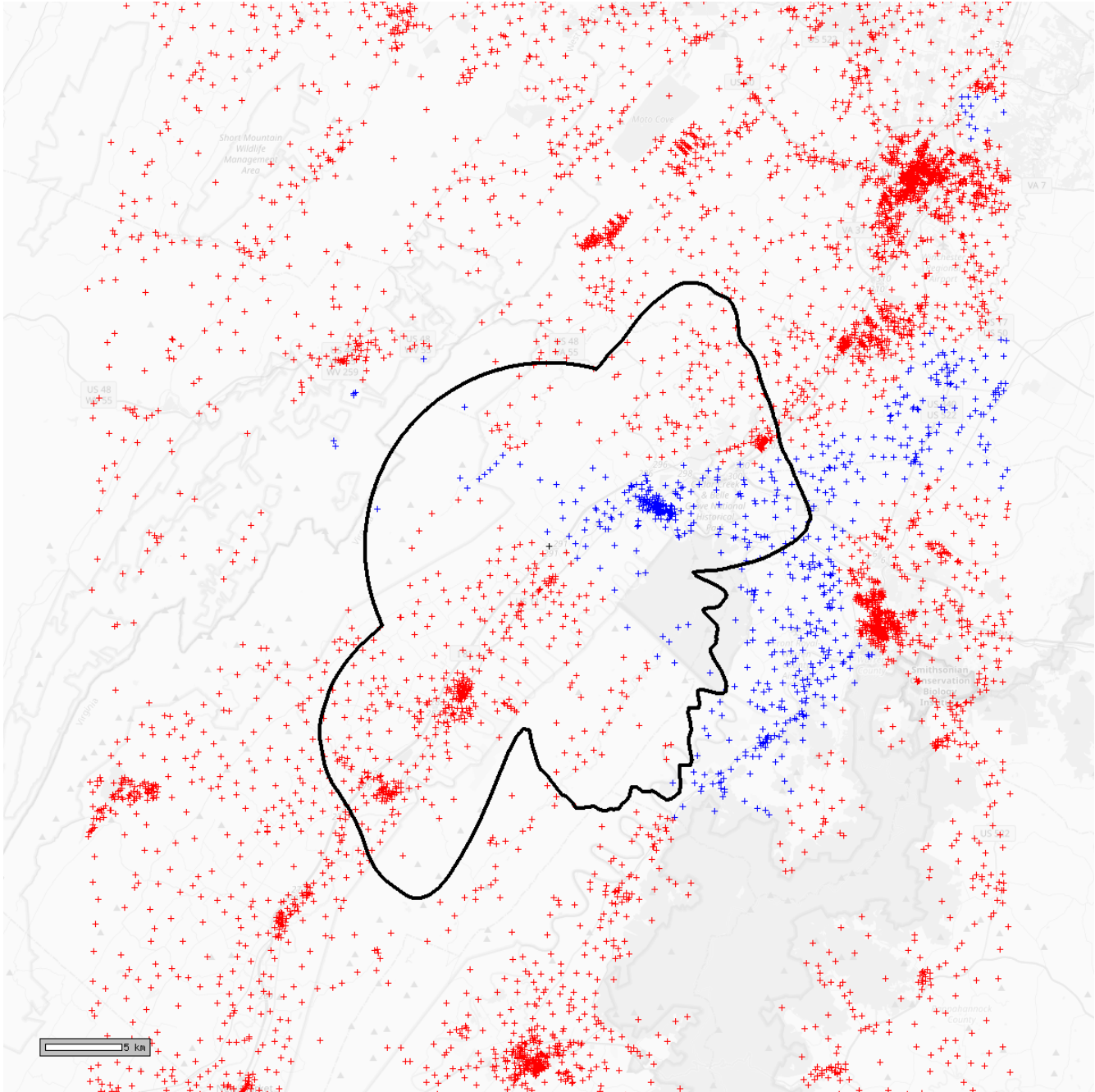
This exhibit provides information on the population receiving first or second reserved band non-commercial education service from this proposal.

Total Population	NCE Service	Population	Percentage	Significant?
31357	First	0	0.00%	No
	First + Second	10305	32.86%	Yes

The population values in the table were computed using block centroid data from the 2010 United States Census. Using the methods of §73.313, the F(50,50) field strengths were computed at each centroid location resulting from the proposed facilities as well as licensed NCE facilities and construction permits for new NCE facilities. The number of facilities predicted to provide at least 60 dBu field strength at each block centroid determines which population totals include the block's population. The predicted 60 dBu F(50,50) contour of the proposed facilities is plotted on the following map along with block centroid markers color-coded to indicate the number of NCE facilities already providing coverage.



**SERVICE AREA POPULATION MAP**



+Proposed Transmitter      +Block not currently receiving NCE service      +Block currently receiving NCE service from ONE station      +Block currently receiving NCE service from TWO or more stations