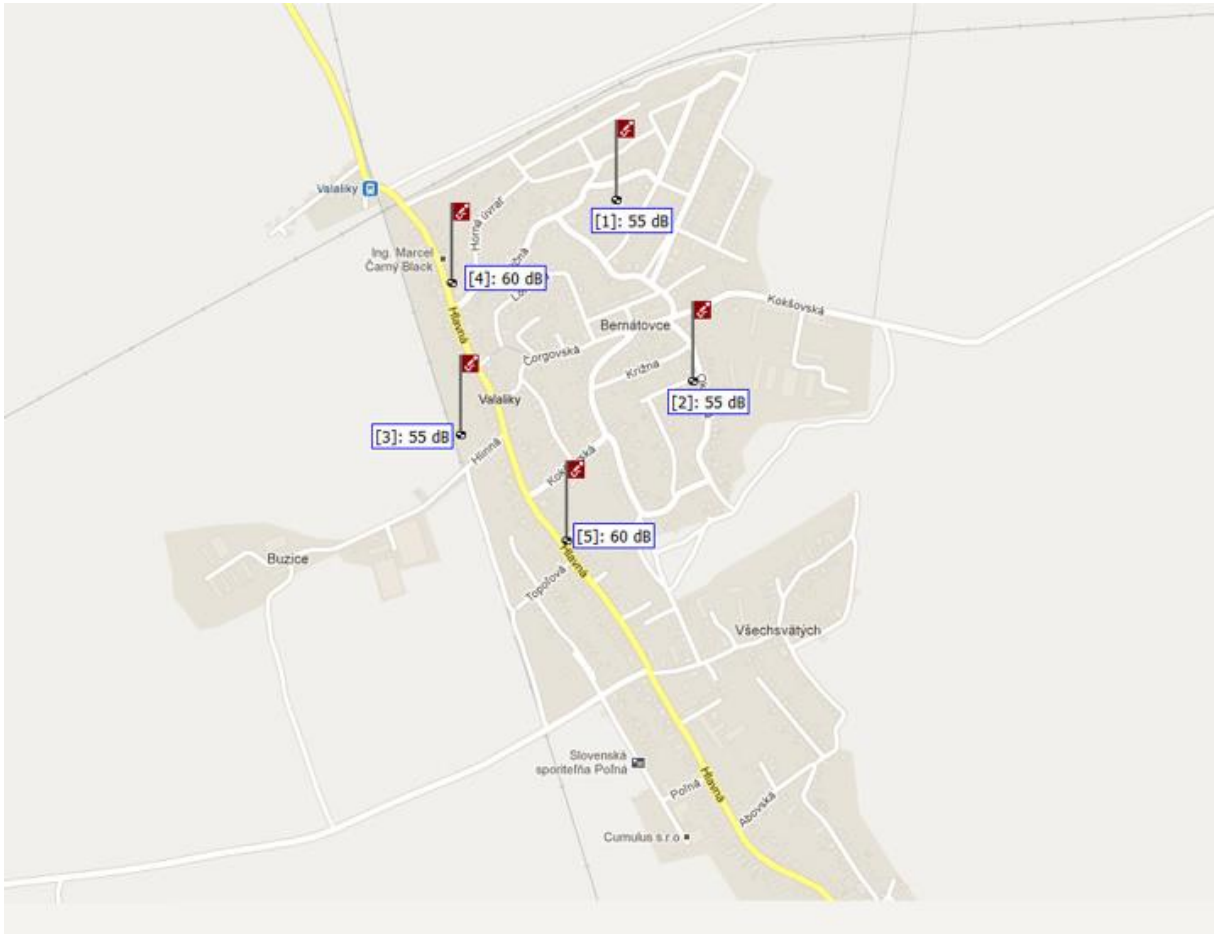
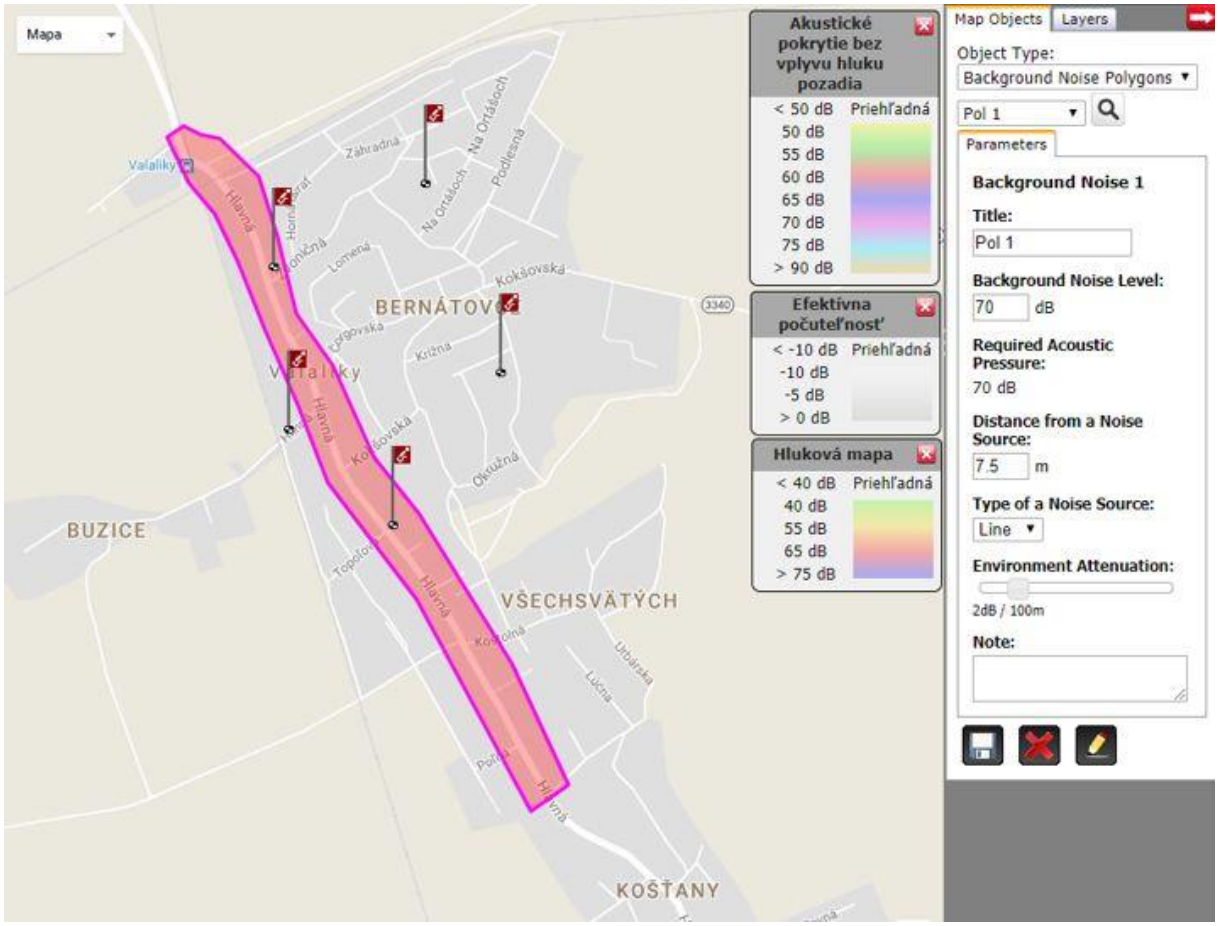
Exterior Acoustic Project
Public Address System

A demo project to show how to distribute sound in part of a village using a public address system. The goal of the project is to specify the number and approximate location of loudspeakers for a wireless or wired PA system to ensure the coverage of the whole built-up area with the sound of a required acoustic pressure. Since there is a noisy road running through the village, the background noise and its impact on the audibility and intelligibility of the PA system is taken into consideration in the project.

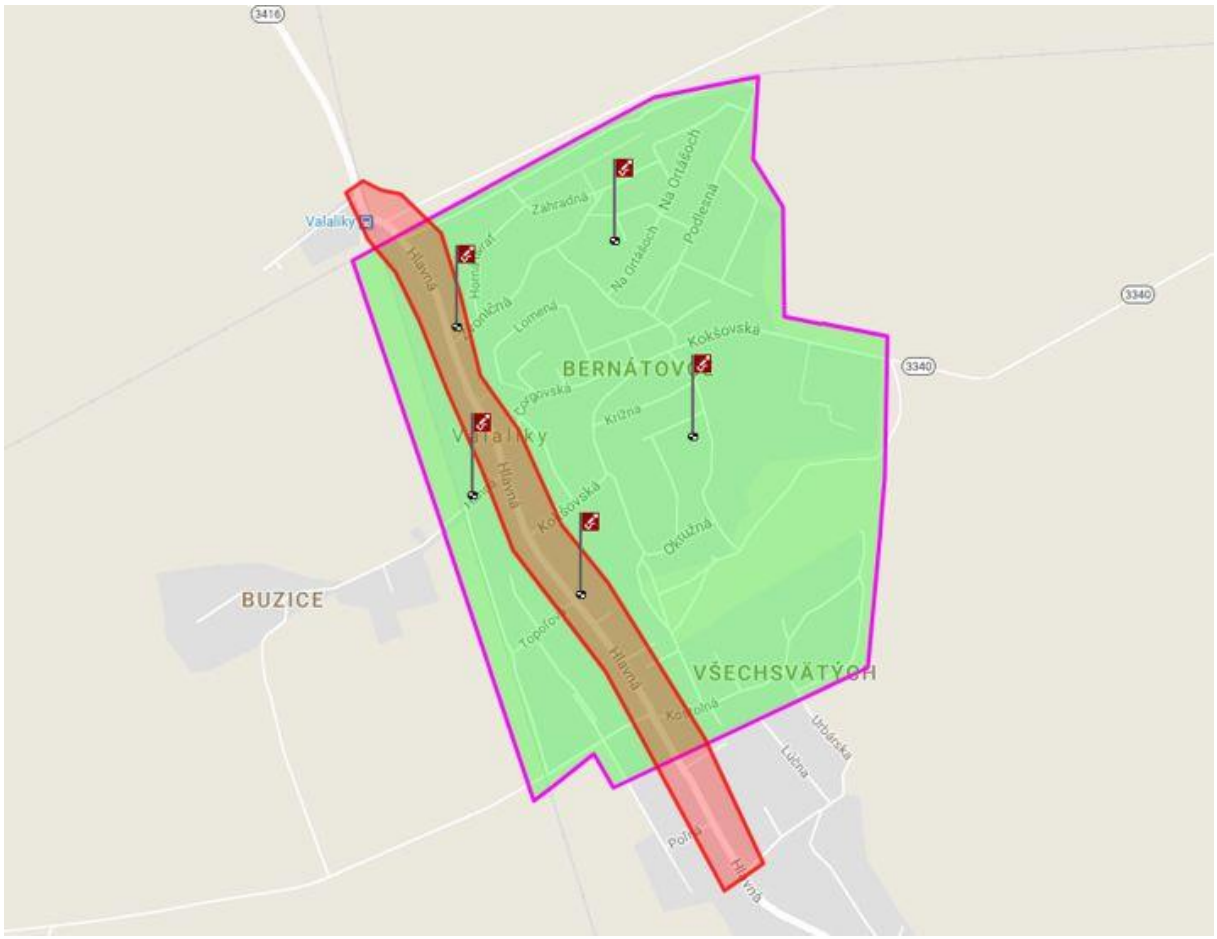
The first step is to go and measure actual noise levels and to enter these values on the map as measuring points. We will add them by clicking on the *"Add Measurement Point"* icon and by pressing the left button of the mouse with the cursor on the map. For each of the points, we will enter the measured noise level expressed in decibels. The adding process will be completed by pressing the ESC key or the right button of the mouse.



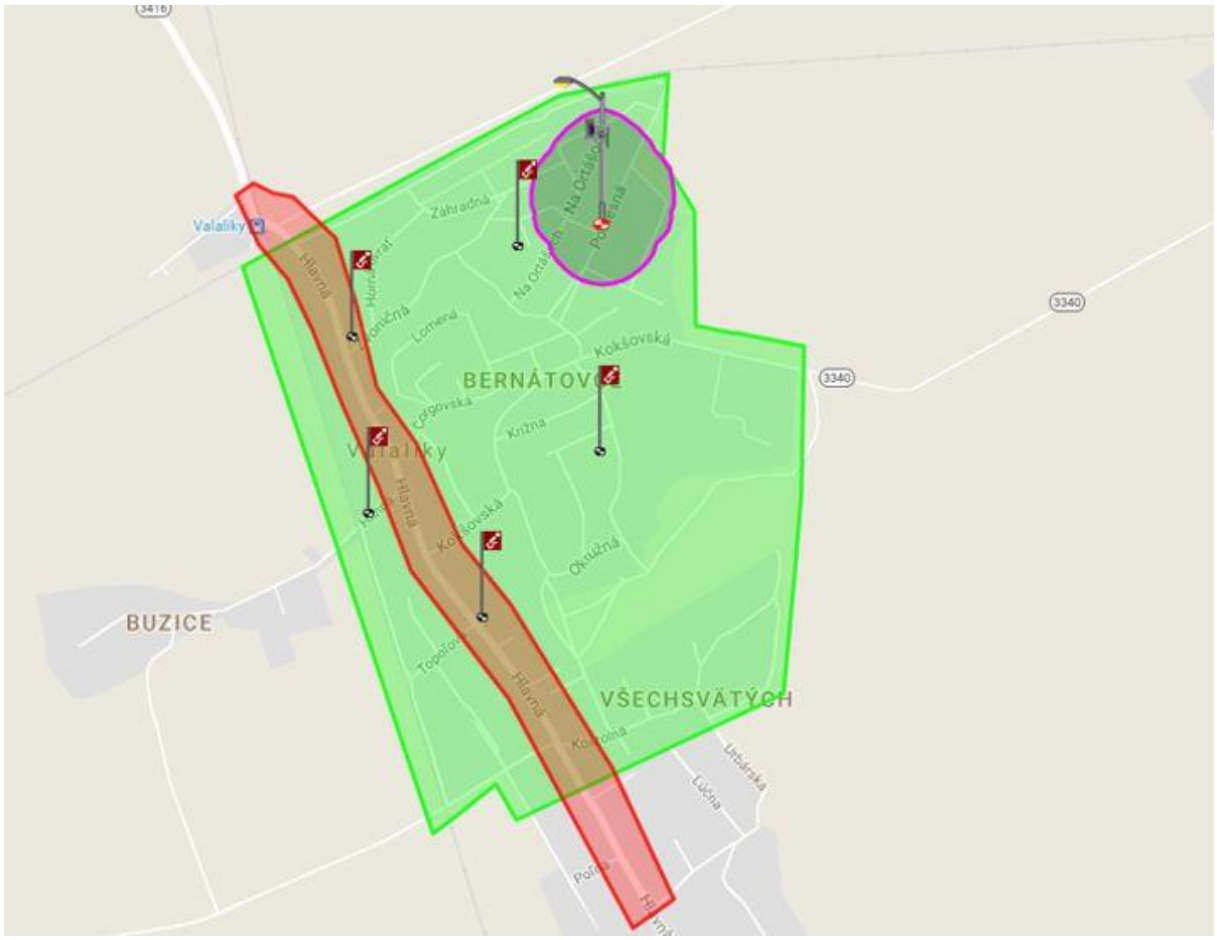
Based on the measured background sound, we will create a polygon of such sound on the part of the map around the road. This polygon will represent the area of certain noise intensity. If we took several measurements within the polygon, the entered intensity of the background sound would be an average value of such measurements. The polygon will be added by clicking on the *"Draw Background Noise Polygon"* icon, which activates the drawing mode. The window designed to enter the intensity of background sound will pop out, and we can now draw individual points defining the polygon by pressing the left button of the mouse. The demarcation points can be subsequently moved, added or deleted. The distance from a noise source will be supplemented in the menu on the right side. The completed polygon will be saved by clicking on the *"Save"* button. This step will, at the same time, close the drawing mode, and we can carry on with our work.



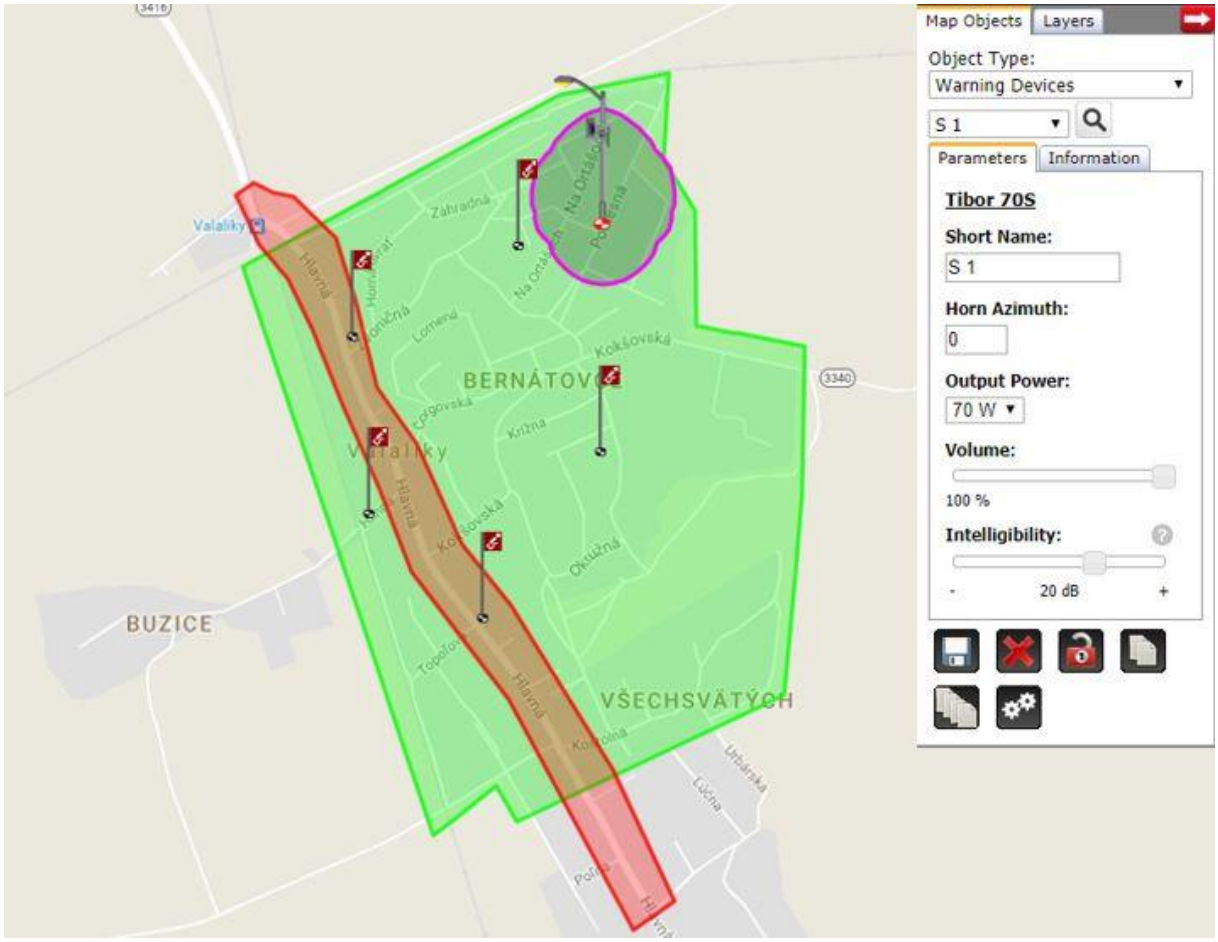
In a similar manner, the background sound of lower intensity measured in the built-up area further away from the road can be added. We will thus complete the whole background sound map for the entire area we are to cover with the public address system.



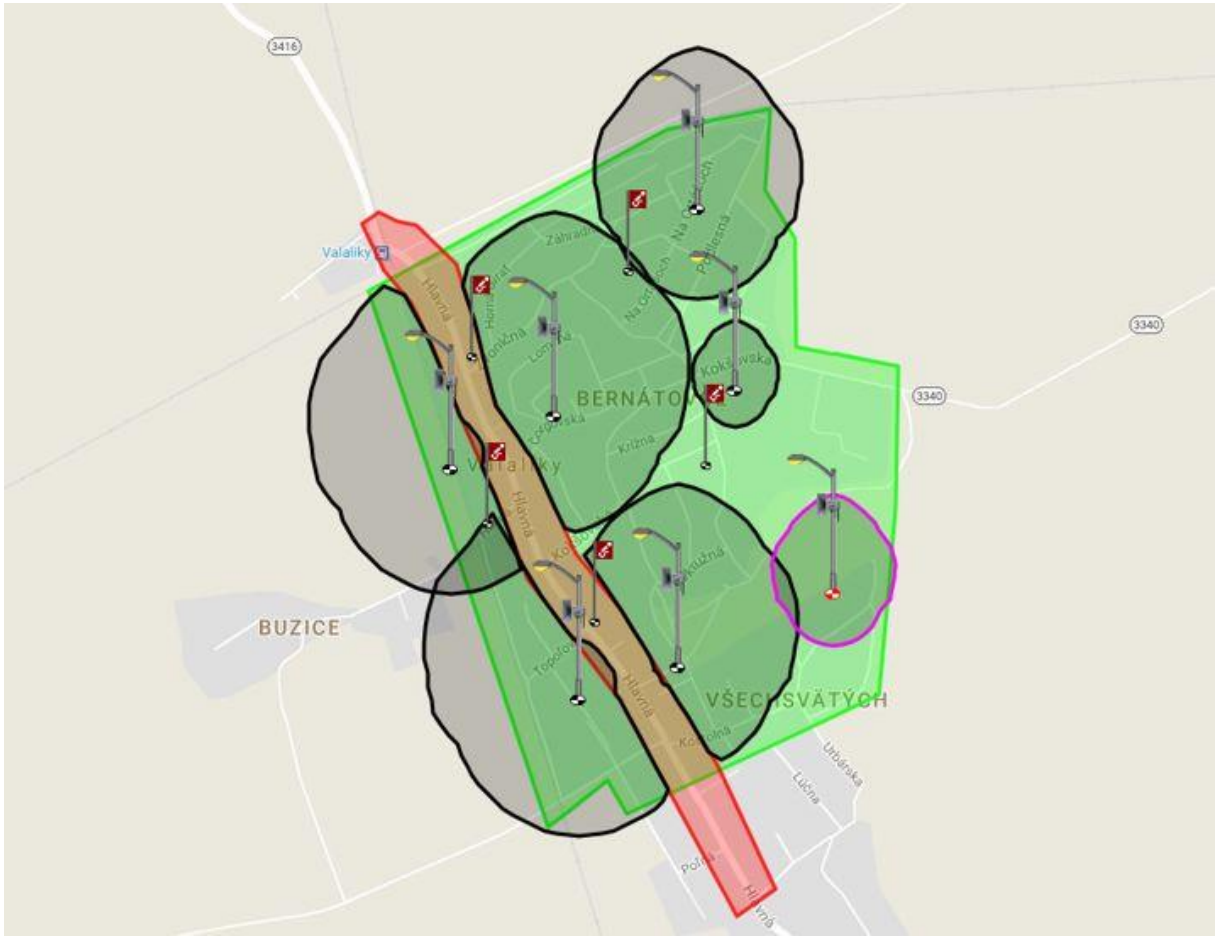
Secondly, we are going to add individual points of the Tibor public address system. In the product menu on the left side, we will select a relevant output (in this case Tibor 70S) and press the left button of the mouse to add this product to the project. The process of adding new points can be stopped by pressing the *ESC* key or the right button of the mouse.



Each active point of the public address system (shown by a red dartboard and a violet border of the acoustic coverage area upon clicking on its icon on the map) can be subsequently moved/relocated and its parameters modified, using the characteristics box on the right side of the screen. Most importantly, these parameters include an output power, horn azimuth, and the height of the built-up area in the given area that, in combination, influence the acoustic coverage of the public address system within the area.



In the same way, other points of the public address system can be added throughout the entire area to be covered. We should try to place individual points so as to provide good-quality coverage of the area and, at the same time, to be able to install them in the place given. It means that they should be installed close to appropriate columns or on the walls of public buildings.



You should carry on optimising the layout of public address system points and their output and the direction of individual loudspeakers until the entire given area is well-covered. The finalised acoustic project will be used as the basis for preparation of a project of the public address system to be installed in a village or in a town.